
soccerdata

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Mar 30, 2023

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SoccerData is a collection of wrappers over soccer data from [Club Elo](#), [ESPN](#), [FBref](#), [FiveThirtyEight](#), [Football-Data.co.uk](#), [SoFIFA](#) and [WhoScored](#). You get Pandas DataFrames with sensible, matching column names and identifiers across datasets. Data is downloaded when needed and cached locally.

```
import soccerdata as sd

# Create scraper class instance for the Premier League
five38 = sd.FiveThirtyEight('ENG-Premier League', '1819')

# Fetch dataframes
games = five38.read_games()
```

To learn how to install, configure and use SoccerData, see the [Quickstart guide](#). For documentation on each of the supported data sources, see the [API reference](#).

OTHER USEFUL PROJECTS

SoccerData is not the only tool of its kind. If SoccerData doesn't quite fit your needs or you want to obtain data from other sources, we recommend looking at these tools:

- [worldfootballR](#): an R package with scrapers for FBref, Transfermarkt and Understat.
- [Tyrone Mings](#): a Python package to scrape data from TransferMarkt
- [understat](#): a Python package to scrape data from Understat
- [understatr](#): an R package to scrape data from Understat
- [ScraperFC](#): a Python package to scrape data from FBRef, Understat, FiveThirtyEight and WhoScored
- [Scrape-FBref-data](#): Python package to scrape StatsBomb data via FBref

1.1 Usage

This tutorial will walk you through installing, configuring, and using SoccerData.

1.1.1 Installation

SoccerData can be easily installed via [pip](#):

```
python3 -m pip install soccerdata
```

1.1.2 Global configuration

Several settings that can be configured globally using the following environment variables:

SOCCERDATA_DIR

The directory where the downloaded data is cached and where logs are stored. By default, all data is stored to `~/soccerdata` on Linux / Mac OS and `C:\Users\yourusername\soccerdata` on Windows.

SOCCERDATA_NOCACHE

If set to "true", no cached data is returned. Note that no-cache does not mean "don't cache". All downloaded data is still cached and overwrites existing caches. If the sense of "don't cache" that you want is actually "don't store", then `SOCCERDATA_NOSTORE` is the option to use. By default, data is retrieved from the cache.

SOCCERDATA_NOSTORE

If set to "true", no data is stored. By default, data is cached.

SOCCERDATA_LOGLEVEL

The level of logging to use. By default, this is set to “INFO”.

Example:

```
# bash
export SOCCERDATA_DIR = "~/soccerdata"
export SOCCERDATA_NOCACHE = "False"
export SOCCERDATA_NOSTORE = "False"
export SOCCERDATA_LOGLEVEL = "INFO"
```

1.1.3 Scraping data

Each of the supported data sources has its corresponding class for fetching data with a uniform API. For example, the *FBref* class is used to fetch data from *fbref.com*.

```
import soccerdata as sd

# Create scraper class instance
fbref = sd.FBref()
```

This will create a *soccerdata/FBref/* folder in your home directory in which all scraped data will be cached and where logs will be saved. If you prefer to store the data in a different folder or disable caching, you can configure this using environment variables (see above) or by setting the *data_dir*, *no_cache* and *no_store* parameters which are supported by each scraper class.

```
# Create scraper class instance with custom caching behavior
fbref = sd.FBref(data_dir="/tmp", no_cache=True, no_store=True)
```

Once you have a scraper class instance, you can use it to fetch data. See the *API reference* for the full list of options available for each scraper. For example, to fetch aggregated shooting stats for all teams:

```
# Create dataframes
season_stats = fbref.read_team_season_stats(stat_type='shooting')
```

The data is always returned as a convenient Pandas DataFrame.

league	season	team	#Pl	90s	Gls	Sh	SoT	SoT	Sh/ SoT	G/90	G/90	Dis	FK	PK	PK%	xG	np	np	G-xG	np-G-xG	
EN1	202	Arse-	29	38.0	53	455	141	31.0	11.9	3.71	0.1	0.33	16.9	23	6	6	53.5	49.0	0.11	-	-
Pre		se-																	0.5	2.0	
Lea		nal																			
		As-	24	38.0	52	518	179	34.6	13.6	4.71	0.09	0.26	16.5	15	5	6	52.9	48.5	0.1	-	-
		ton																	0.9	1.5	
		Vill																			
		Bri	27	38.0	39	476	129	27.1	12.5	3.35	0.07	0.26	16.6	14	6	9	51.6	44.8	0.1	-	-
		ly																	12.6	11.8	
		Bur	25	38.0	32	383	125	32.6	10.0	3.25	0.08	0.23	16.6	15	3	3	39.9	37.6	0.1	-	-
		ley																	7.9	8.6	
		Che	27	38.0	56	553	194	35.1	14.5	5.11	0.09	0.25	16.3	16	8	10	64.0	56.4	0.1	-	-
																			8.0	8.4	

Not all data sources provide data for all leagues. The leagues available for each source can be listed with the `available_leagues()` class method.

```
sd.FBref.available_leagues()
>>> ['ENG-Premier League', 'ESP-La Liga', 'FRA-Ligue 1', 'GER-Bundesliga', 'ITA-Serie A']
```

By default, the data for all available leagues and 10 most recent seasons will be downloaded. In most cases, you would want to limit the data to a specific league and / or seasons. This can be done by passing a list of leagues and seasons to the constructor of the scraper class. For example:

```
# Create scraper class instance filtering on specific leagues and seasons
fbref = sd.FBref(leagues=['ENG-Premier League'], seasons=['1718', '1819'])
```

See the examples and *API reference* for detailed instructions for each of the available data sources.

1.1.4 Additional setup for WhoScored

WhoScored implements strong protection against scraping using Incapsula. To circumvent this, this scraper uses Selenium with the ChromeDriver extension to emulate a real user. Before using this scraper, you will have to [install Chrome](#). A Selenium driver matching your Chrome version will be downloaded automatically when you run the scraper.

Even with this setup, it is likely that your IP address will get blocked eventually. Therefore, it is recommended to setup a SOCKS5 proxy with Tor. Checkout the [installation guide](#) on the Tor website for installation instructions. After installing Tor, make sure to start it up before scraping. This can easily be done by running the `tor` command from your terminal (in a separate window), Tor will start up and run on “localhost:9050” by default. Once Tor is running, you can enable the extension by setting `proxy='tor'`.

```
ws = sd.WhoScored(proxy='tor')
```

The code snippet above assumes you have a Tor proxy running on “localhost:9050”. Many distributions indeed default to having a SOCKS proxy listening on port 9050, but some may not. In particular, the Tor Browser Bundle defaults to listening on port 9150. You can specify a custom host and port as

```
ws = sd.WhoScored(proxy={
    "http": "socks5://127.0.0.1:9150",
    "https": "socks5://127.0.0.1:9150",
})
```

1.1.5 Adding additional leagues

The top-5 European leagues are fully supported. If you want to add more leagues, you can configure these in `SOCCKERDATA_DIR/config/league_dict.json`. This file should contain a mapping between a generic name for the league and the identifier used internally by each data source that you want to support. For example, for the Dutch Eredivisie this would be:

```
{
  "NED-Eredivisie": {
    "ClubElo": "NED_1",
    "MatchHistory": "N1",
    "SoFIFA": "Holland Eredivisie (1)",
    "FBref": "Dutch Eredivisie",
    "ESPN": "ned.1",
```

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```
"FiveThirtyEight": "eredivisie",
"WhoScored": "Netherlands - Eredivisie",
"season_start": "Aug",
"season_end": "May"
}
}
```

The `season_end` and `season_start` fields are optional. This should be the month in which the last game and first game of a season are played, respectively. If they are not provided, June is used as the last month of the season and July as the first one.

Note that the provided scrapers might give some errors for the leagues you add yourself. This is because the same data is not always available for all seasons.

1.1.6 Uniform team names

Each data source uses a different set of team names, which makes it difficult to combine data from multiple sources. To mitigate this, SoccerData allows translating the team names to uniform names. This is done by providing a `SOCCKERDATA_DIR/config/team_dict.json` file. This file should contain a mapping between a generic name for each team and the team name used by each data source that you want to support. The example below will map “Tottenham Hotspur”, “Tottenham Hotspur FC” and “Spurs” to “Tottenham” in all scraped data.

```
{
  "Tottenham": ["Tottenham Hotspur", "Tottenham Hotspur FC", "Spurs"],
}
```

1.1.7 Next steps

Look at you! You’re now basically an expert at SoccerData!

From this point you can:

- Look at the example notebooks for each *Data source*.
- Take a deep dive into the *API*.
- Give us feedback or contribute, see *Contributing*.

Have fun!

1.2 Data Sources

Currently the following data sources are supported:

Club Elo	Team's relative strengths as Elo ratings, for most European leagues. Recalculated after every round, includes history.
ESPN	Historical results, statistics and lineups.
FBref	Historical results, lineups, and detailed aggregated statistics for teams and individual players based on StatsBomb data.
FiveThirtyEight	Team's relative strengths as SPI ratings, predictions and results for the top European and American leagues.
MatchHistory	Historical results, betting odds and match statistics. Level of detail depends on league.
SoFIFA	Detailed scores on all player's abilities from EA Sports FIFA.
WhoScored	Historical results, match preview data and detailed Opta event stream data for major leagues.

```
[2]: import soccerdata as sd
```

1.2.1 ClubElo

```
[3]: elo = sd.ClubElo()
print(elo.__doc__)
```

Provides pd.DataFrames from CSV API at <http://api.clubelo.com>.

Data will be downloaded as necessary and cached locally in
`~/soccerdata/data/ClubElo`.

Since the source does not provide league names, this class will not filter by league. League names will be inserted from the other sources where available. Leagues that are only covered by clubelo.com will have NaN values.

Parameters

proxy : 'tor' or dict or list(dict) or callable, optional

Use a proxy to hide your IP address. Valid options are:

- "tor": Uses the Tor network. Tor should be running in the background on port 9050.
- dict: A dictionary with the proxy to use. The dict should be a mapping of supported protocols to proxy addresses. For example::

```
{
    'http': 'http://10.10.1.10:3128',
    'https': 'http://10.10.1.10:1080',
}
```

- list(dict): A list of proxies to choose from. A different proxy will be selected from this list after failed requests, allowing rotating proxies.
- callable: A function that returns a valid proxy. This function will be called after failed requests, allowing rotating proxies.

no_cache : bool

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```

    If True, will not use cached data.
no_store : bool
    If True, will not store downloaded data.
data_dir : Path
    Path to directory where data will be cached.

```

ELO scores for all teams at specified date

```
[4]: current_elo = elo.read_by_date()
current_elo.head()
```

```
[4]:
```

	rank	country	level	elo	from	to	\
team							
Liverpool	1.0	ENG	1	2047.083862	2022-04-20	2022-04-24	
Man City	2.0	ENG	1	2037.059937	2022-04-21	2022-04-23	
Bayern	3.0	GER	1	1984.775391	2022-04-18	2022-04-23	
Real Madrid	4.0	ESP	1	1969.584351	2022-04-21	2022-04-26	
Chelsea	5.0	ENG	1	1921.101440	2022-04-21	2022-04-24	


```

league
team
Liverpool    ENG-Premier League
Man City     ENG-Premier League
Bayern       GER-Bundesliga
Real Madrid  ESP-La Liga
Chelsea      ENG-Premier League

```

Full ELO history for one club

```
[5]: barca_elo = elo.read_team_history("Barcelona")
barca_elo.head()
```

```
[5]:
```

	rank	team	country	level	elo	to
from						
1939-10-22	NaN	Barcelona	ESP	1	1636.704590	1939-12-03
1939-12-04	NaN	Barcelona	ESP	1	1626.102173	1939-12-10
1939-12-11	NaN	Barcelona	ESP	1	1636.728271	1939-12-17
1939-12-18	NaN	Barcelona	ESP	1	1646.951660	1939-12-24
1939-12-25	NaN	Barcelona	ESP	1	1637.424316	1939-12-31

```
[2]: import soccerdata as sd
```

1.2.2 ESPN

```
[3]: espn = sd.ESPN(leagues="ENG-Premier League", seasons=2021)
print(espn.__doc__)

/cw/dtaijupiter/NoCsBack/dtai/pieterr/Projects/soccerdata/soccerdata/_common.py:466:
↳UserWarning: Season id "2021" is ambiguous: interpreting as "20-21"
warnings.warn(msg)
```

Provides `pd.DataFrames` from JSON api available at <http://site.api.espn.com>.

Data will be downloaded as necessary and cached locally in
`~/soccerdata/data/ESPN`.

Parameters

`leagues` : string or iterable, optional
IDs of leagues to include.

`seasons` : string, int or list, optional
Seasons to include. Supports multiple formats.
Examples: '16-17'; 2016; '2016-17'; [14, 15, 16]

`proxy` : 'tor' or dict or list(dict) or callable, optional

Use a proxy to hide your IP address. Valid options are:

- "tor": Uses the Tor network. Tor should be running in the background on port 9050.
- dict: A dictionary with the proxy to use. The dict should be a mapping of supported protocols to proxy addresses. For example::

```
{
    'http': 'http://10.10.1.10:3128',
    'https': 'http://10.10.1.10:1080',
}
```

- list(dict): A list of proxies to choose from. A different proxy will be selected from this list after failed requests, allowing rotating proxies.
- callable: A function that returns a valid proxy. This function will be called after failed requests, allowing rotating proxies.

`no_cache` : bool

If True, will not use cached data.

`no_store` : bool

If True, will not store downloaded data.

`data_dir` : Path

Path to directory where data will be cached.

Game schedule

```
[4]: epl_schedule = espn.read_schedule()
     epl_schedule.head()
```

```
[4]:
↳ date \
league          season game
ENG-Premier League 2021 2019-08-09 Liverpool-Norwich City      2019-08-09 19:00:
↳00+00:00
                               2019-08-10 AFC Bournemouth-Sheffield United 2019-08-10 14:00:
↳00+00:00
                               2019-08-10 Burnley-Southampton             2019-08-10 14:00:
↳00+00:00
                               2019-08-10 Crystal Palace-Everton          2019-08-10 14:00:
↳00+00:00
                               2019-08-10 Tottenham Hotspur-Aston Villa   2019-08-10 16:30:
↳00+00:00

                               home_team
↳ \
league          season game
ENG-Premier League 2021 2019-08-09 Liverpool-Norwich City      Liverpool
                               2019-08-10 AFC Bournemouth-Sheffield United  AFC Bournemouth
                               2019-08-10 Burnley-Southampton             Burnley
                               2019-08-10 Crystal Palace-Everton          Crystal Palace
                               2019-08-10 Tottenham Hotspur-Aston Villa   Tottenham Hotspur

                               away_team
↳ \
league          season game
ENG-Premier League 2021 2019-08-09 Liverpool-Norwich City      Norwich City
                               2019-08-10 AFC Bournemouth-Sheffield United  Sheffield United
                               2019-08-10 Burnley-Southampton             Southampton
                               2019-08-10 Crystal Palace-Everton          Everton
                               2019-08-10 Tottenham Hotspur-Aston Villa   Aston Villa

                               game_id \
league          season game
ENG-Premier League 2021 2019-08-09 Liverpool-Norwich City      541844
                               2019-08-10 AFC Bournemouth-Sheffield United  541840
                               2019-08-10 Burnley-Southampton             541841
                               2019-08-10 Crystal Palace-Everton          541839
                               2019-08-10 Tottenham Hotspur-Aston Villa   541837

                               league_id
league          season game
ENG-Premier League 2021 2019-08-09 Liverpool-Norwich City      eng.1
                               2019-08-10 AFC Bournemouth-Sheffield United  eng.1
                               2019-08-10 Burnley-Southampton             eng.1
                               2019-08-10 Crystal Palace-Everton          eng.1
                               2019-08-10 Tottenham Hotspur-Aston Villa   eng.1
```

Match sheet data

```
[5]: matchsheet = espn.read_matchsheet(match_id=541465)
matchsheet.head()
```

```
[5]:
↳home \
league          season game
ENG-Premier League 2021  2020-07-26 West Ham United-Aston Villa
Aston Villa      False
West Ham United  True

venue \
league          season game
ENG-Premier League 2021  2020-07-26 West Ham United-Aston Villa
Aston Villa      None
West Ham United  None

↳attendance \
league          season game
ENG-Premier League 2021  2020-07-26 West Ham United-Aston Villa
Aston Villa      0
West Ham United  0

↳capacity \
league          season game
ENG-Premier League 2021  2020-07-26 West Ham United-Aston Villa
Aston Villa      None
West Ham United  None

↳roster \
league          season game
ENG-Premier League 2021  2020-07-26 West Ham United-Aston Villa
Aston Villa      [{'active': True, 'starter': True, 'jersey': '...
West Ham United  [{'active': True, 'starter': True, 'jersey': '...

fouls_
↳committed \
league          season game
ENG-Premier League 2021  2020-07-26 West Ham United-Aston Villa
Aston Villa      16
West Ham United  13

yellow_
↳cards \
league          season game
ENG-Premier League 2021  2020-07-26 West Ham United-Aston Villa
Aston Villa      2
West Ham United  1
```

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						red_
↪cards \	league	season	game	team		
	ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa	↪
↪0						
				West Ham United		↪
↪0						
↪offsides \	league	season	game	team		
	ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa	0
				West Ham United		1
						won_
↪corners \	league	season	game	team		
	ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa	↪
↪ 0						
				West Ham United		↪
↪ 7						
						saves \
league	season	game	team			
ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa		3
				West Ham United		0
↪possession_pct \	league	season	game	team		
	ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa	↪
↪ 63						
				West Ham United		↪
↪ 37						
						total_
↪shots \	league	season	game	team		
	ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa	↪
↪ 10						
				West Ham United		↪
↪ 13						
						shots_
↪on_target	league	season	game	team		
	ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa	↪
↪ 1						
				West Ham United		↪
↪ 4						

Line ups

```
[6]: lineups = espn.read_lineup(match_id=541465)
lineups.head()
```

```
[6]:
```

is_home	league	season	game	team	player
	ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa
↳ Ghazi					Anwar El
↳ Hourihane					Conor
↳ Luiz					Douglas
↳					Ezri Konsa
↳ Gilbert					Frédéric

position	league	season	game	team	player
	ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa
↳ Ghazi					Anwar El
↳ Hourihane					Conor
↳ Luiz					Douglas
↳					Ezri Konsa
↳ Gilbert					Frédéric

formation_place	league	season	game	team	player
	ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa
↳ Ghazi					Anwar El
↳ Hourihane					Conor
↳ Luiz					Douglas
↳					Ezri Konsa
↳ Gilbert					Frédéric

sub_in	league	season	game	team	player
	ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa
↳ Ghazi					Anwar El
↳					Conor

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↪Hourihane	start						Douglas
↪Luiz	start						Ezri Konsa
↪	start						Frédéric
↪Guilbert	start						
↪	sub_out	\					
league	season	game			team	player	
ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa	Anwar El		
↪Ghazi	end						Conor
↪Hourihane	76						Douglas
↪Luiz	end						Ezri Konsa
↪	end						Frédéric
↪Guilbert	76						
↪	appearances	\					
league	season	game			team	player	
ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa	Anwar El		
↪Ghazi	1.0						Conor
↪Hourihane	1.0						Douglas
↪Luiz	1.0						Ezri Konsa
↪	1.0						Frédéric
↪Guilbert	1.0						
↪	fouls_committed	\					
league	season	game			team	player	
ENG-Premier League	2021	2020-07-26	West Ham United-Aston Villa	Aston Villa	Anwar El		
↪Ghazi	0.0						Conor
↪Hourihane	0.0						Douglas
↪Luiz	2.0						Ezri Konsa
↪	0.0						Frédéric
↪Guilbert	1.0						
↪	fouls_suffered	\					

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```

↳Luiz                0.0
                                                    Ezri Konsa
↳                    0.0
                                                    Frédéric
↳Guilbert            0.0
                                                   
↳    total_shots \
league              season game                team      player
ENG-Premier League 2021   2020-07-26 West Ham United-Aston Villa Aston Villa Anwar El
↳Ghazi              0.0
                                                    Conor
↳Hourihane          0.0
                                                    Douglas
↳Luiz                0.0
                                                    Ezri Konsa
↳                    0.0
                                                    Frédéric
↳Guilbert            0.0
                                                   
↳    goals_conceded \
league              season game                team      player
ENG-Premier League 2021   2020-07-26 West Ham United-Aston Villa Aston Villa Anwar El
↳Ghazi              0.0
                                                    Conor
↳Hourihane          0.0
                                                    Douglas
↳Luiz                1.0
                                                    Ezri Konsa
↳                    1.0
                                                    Frédéric
↳Guilbert            0.0
                                                   
↳    saves \
league              season game                team      player
ENG-Premier League 2021   2020-07-26 West Ham United-Aston Villa Aston Villa Anwar El
↳Ghazi              NaN
                                                    Conor
↳Hourihane          NaN
                                                    Douglas
↳Luiz                NaN
                                                    Ezri Konsa
↳                    NaN
                                                    Frédéric
↳Guilbert            NaN
                                                   
↳    shots_faced \
league              season game                team      player
ENG-Premier League 2021   2020-07-26 West Ham United-Aston Villa Aston Villa Anwar El

```

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```

↪Ghazi          0.0
↪Hourihane      0.0
↪Luiz           0.0
↪              0.0
↪Guilbert      0.0

↪      offsides
league      season game      team      player
ENG-Premier League 2021  2020-07-26 West Ham United-Aston Villa Aston Villa Anwar El
↪Ghazi      0.0
↪Hourihane  0.0
↪Luiz       0.0
↪          0.0
↪Guilbert  0.0

```

```
[3]: import soccerdata as sd
```

1.2.3 FBref

```
[4]: fbref = sd.FBref(leagues="ENG-Premier League", seasons=2021)
print(fbref.__doc__)
```

```

/cw/dtaijupiter/NoCsBack/dtai/pieterr/Projects/soccerdata/soccerdata/_common.py:466:
↪UserWarning: Season id "2021" is ambiguous: interpreting as "20-21"
warnings.warn(msg)

```

Provides pd.DataFrames from data at <http://fbref.com>.

Data will be downloaded as necessary and cached locally in
`~/soccerdata/data/FBref`.

Parameters

```

-----
leagues : string or iterable, optional
    IDs of leagues to include.
seasons : string, int or list, optional
    Seasons to include. Supports multiple formats.
    Examples: '16-17'; 2016; '2016-17'; [14, 15, 16]
proxy : 'tor' or dict or list(dict) or callable, optional
    Use a proxy to hide your IP address. Valid options are:
    - "tor": Uses the Tor network. Tor should be running in
      the background on port 9050.

```

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```

- dict: A dictionary with the proxy to use. The dict should be
  a mapping of supported protocols to proxy addresses. For example::

  {
    'http': 'http://10.10.1.10:3128',
    'https': 'http://10.10.1.10:1080',
  }

- list(dict): A list of proxies to choose from. A different proxy will
  be selected from this list after failed requests, allowing rotating
  proxies.
- callable: A function that returns a valid proxy. This function will
  be called after failed requests, allowing rotating proxies.
no_cache : bool
  If True, will not use cached data.
no_store : bool
  If True, will not store downloaded data.
data_dir : Path
  Path to directory where data will be cached.

```

Team season stats

```
[5]: team_season_stats = fbref.read_team_season_stats(stat_type="standard")
team_season_stats.head()
```

```
[5]:
```

league	season	team	# Pl	Age	Poss	Playing Time	MP	Starts
ENG-Premier League	2021	Arsenal	29	25.9	53.8	38	418	
		Aston Villa	24	25.2	48.1	38	418	
		Brighton	27	25.8	51.3	38	418	
		Burnley	25	28.3	41.7	38	418	
		Chelsea	27	26.0	61.4	38	418	

league	season	team	Performance					
			Min	90s	Gls	Ast	G-PK	PK
ENG-Premier League	2021	Arsenal	3420	38.0	53	38	47	6
		Aston Villa	3420	38.0	52	38	47	5
		Brighton	3420	38.0	39	24	33	6
		Burnley	3420	38.0	32	20	29	3
		Chelsea	3420	38.0	56	38	48	8

league	season	team	Per 90 Minutes				
			PKatt	CrdY	CrdR	Gls	Ast
ENG-Premier League	2021	Arsenal	6	49	5	1.39	1.00
		Aston Villa	6	71	4	1.37	1.00
		Brighton	9	49	6	1.03	0.63
		Burnley	3	48	0	0.84	0.53

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league	season	team	G+A	G-PK	G+A-PK	Expected xG	npxG	xA
		Chelsea	10	51	3	1.47	1.00	
league	season	team	Per 90 Minutes					
			npxG+xA	xG	xA	xG+xA		
ENG-Premier League	2021	Arsenal	85.5	1.41	0.96	2.37		
		Aston Villa	85.6	1.39	0.98	2.37		
		Brighton	77.8	1.36	0.87	2.23		
		Burnley	64.8	1.05	0.71	1.76		
		Chelsea	98.8	1.68	1.12	2.80		
league	season	team	npxG	npxG+xA				
ENG-Premier League	2021	Arsenal	1.29	2.25				
		Aston Villa	1.28	2.25				
		Brighton	1.18	2.05				
		Burnley	0.99	1.70				
		Chelsea	1.48	2.60				
league	season	team	url					
ENG-Premier League	2021	Arsenal	/en/squads/18bb7c10/2020-2021/Arsenal-Stats					
		Aston Villa	/en/squads/8602292d/2020-2021/Aston-Villa-Stats					
		Brighton	/en/squads/d07537b9/2020-2021/Brighton-and-Hov...					
		Burnley	/en/squads/943e8050/2020-2021/Burnley-Stats					
		Chelsea	/en/squads/cff3d9bb/2020-2021/Chelsea-Stats					

Player season stats

```
[6]: player_season_stats = fbref.read_player_season_stats(stat_type="standard")
player_season_stats.head()
```

league	season	team	player	Expected npxG	npxG+xA
ENG-Premier League	2021	Arsenal	Aaron Ramsdale	0.0	0.0
			Ainsley Maitland-Niles	0.0	0.4
			Albert Sambi Lokonga	0.5	1.3
			Alexandre Lacazette	5.6	7.5
			Arthur Okonkwo	NaN	NaN

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league	season	team	player	xA	xG
ENG-Premier League	2021	Arsenal	Aaron Ramsdale	0.0	0.0
			Ainsley Maitland-Niles	0.3	0.0
			Albert Sambi Lokonga	0.7	0.5
			Alexandre Lacazette	1.9	7.8
			Arthur Okonkwo	NaN	NaN

league	season	team	player	Per 90 Minutes	
				Ast	G+A
ENG-Premier League	2021	Arsenal	Aaron Ramsdale	0.00	0.00
			Ainsley Maitland-Niles	0.00	0.00
			Albert Sambi Lokonga	0.00	0.00
			Alexandre Lacazette	0.37	0.58
			Arthur Okonkwo	NaN	NaN

league	season	team	player	G+A-PK	G-PK	Gls
ENG-Premier League	2021	Arsenal	Aaron Ramsdale	0.00	0.00	0.00
			Ainsley Maitland-Niles	0.00	0.00	0.00
			Albert Sambi Lokonga	0.00	0.00	0.00
			Alexandre Lacazette	0.47	0.11	0.21
			Arthur Okonkwo	NaN	NaN	NaN

league	season	team	player	npxG	npxG+xA	xA
ENG-Premier League	2021	Arsenal	Aaron Ramsdale	0.00	0.00	0.00
			Ainsley Maitland-Niles	0.01	0.13	0.12
			Albert Sambi Lokonga	0.04	0.10	0.06
			Alexandre Lacazette	0.29	0.40	0.10
			Arthur Okonkwo	NaN	NaN	NaN

league	season	team	player	xG	xG+xA
ENG-Premier League	2021	Arsenal	Aaron Ramsdale	0.00	0.00
			Ainsley Maitland-Niles	0.01	0.13
			Albert Sambi Lokonga	0.04	0.10
			Alexandre Lacazette	0.41	0.52
			Arthur Okonkwo	NaN	NaN

league	season	team	player	Performance	
				Ast	CrdR
ENG-Premier League	2021	Arsenal	Aaron Ramsdale	0.0	0.0
			Ainsley Maitland-Niles	0.0	0.0
			Albert Sambi Lokonga	0.0	0.0

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league	season	team	player	CrdY	G-PK	Gls	PK
			Alexandre Lacazette	7.0	0.0		
			Arthur Okonkwo	NaN	NaN		

league	season	team	player	CrdY	G-PK	Gls	PK
ENG-Premier League	2021	Arsenal	Aaron Ramsdale	1.0	0.0	0.0	0.0
			Ainsley Maitland-Niles	0.0	0.0	0.0	0.0
			Albert Sambi Lokonga	5.0	0.0	0.0	0.0
			Alexandre Lacazette	0.0	2.0	4.0	2.0
			Arthur Okonkwo	NaN	NaN	NaN	NaN

league	season	team	player	PKatt	Playing Time
					90s
ENG-Premier League	2021	Arsenal	Aaron Ramsdale	0.0	28.0
			Ainsley Maitland-Niles	0.0	3.0
			Albert Sambi Lokonga	0.0	12.3
			Alexandre Lacazette	3.0	19.0
			Arthur Okonkwo	NaN	NaN

league	season	team	player	MP	Min	Starts
ENG-Premier League	2021	Arsenal	Aaron Ramsdale	28	2520.0	28
			Ainsley Maitland-Niles	8	268.0	2
			Albert Sambi Lokonga	17	1105.0	12
			Alexandre Lacazette	26	1710.0	20
			Arthur Okonkwo	0	NaN	0

league	season	team	player	Nation	Pos	Age
ENG-Premier League	2021	Arsenal	Aaron Ramsdale	ENG	GK	23-344
			Ainsley Maitland-Niles	ENG	MF	24-237
			Albert Sambi Lokonga	BEL	MF	22-183
			Alexandre Lacazette	FRA	FW,MF	30-330
			Arthur Okonkwo	ENG	GK	20-226

Game schedule

```
[7]: epl_schedule = fbref.read_schedule()
     epl_schedule.head()
```

```
[7]:
```

league	season	game	week	day
ENG-Premier League	2021	2020-09-12 Crystal Palace-Southampton	1.0	Sat
		2020-09-12 Fulham-Arsenal	1.0	Sat
		2020-09-12 Liverpool-Leeds United	1.0	Sat
		2020-09-12 West Ham-Newcastle Utd	1.0	Sat
		2020-09-13 Tottenham-Everton	1.0	Sun

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league	season	game	date	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	2020-09-12
		2020-09-12	Fulham-Arsenal	2020-09-12
		2020-09-12	Liverpool-Leeds United	2020-09-12
		2020-09-12	West Ham-Newcastle Utd	2020-09-12
		2020-09-13	Tottenham-Everton	2020-09-13

league	season	game	time	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	15:00
		2020-09-12	Fulham-Arsenal	12:30
		2020-09-12	Liverpool-Leeds United	17:30
		2020-09-12	West Ham-Newcastle Utd	20:00
		2020-09-13	Tottenham-Everton	16:30

league	season	game	home_team	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Crystal Palace
		2020-09-12	Fulham-Arsenal	Fulham
		2020-09-12	Liverpool-Leeds United	Liverpool
		2020-09-12	West Ham-Newcastle Utd	West Ham
		2020-09-13	Tottenham-Everton	Tottenham

league	season	game	home_xg	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	0.7
		2020-09-12	Fulham-Arsenal	0.2
		2020-09-12	Liverpool-Leeds United	3.3
		2020-09-12	West Ham-Newcastle Utd	1.1
		2020-09-13	Tottenham-Everton	1.0

league	season	game	score	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	1-0
		2020-09-12	Fulham-Arsenal	0-3
		2020-09-12	Liverpool-Leeds United	4-3
		2020-09-12	West Ham-Newcastle Utd	0-2
		2020-09-13	Tottenham-Everton	0-1

league	season	game	away_xg	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	0.8
		2020-09-12	Fulham-Arsenal	1.8
		2020-09-12	Liverpool-Leeds United	0.6
		2020-09-12	West Ham-Newcastle Utd	1.5
		2020-09-13	Tottenham-Everton	1.4

league	season	game	away_team	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton

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		2020-09-12	Fulham-Arsenal	Arsenal
		2020-09-12	Liverpool-Leeds United	Leeds United
		2020-09-12	West Ham-Newcastle Utd	Newcastle Utd
		2020-09-13	Tottenham-Everton	Everton
				attendance \
league	season	game		
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	NaN
		2020-09-12	Fulham-Arsenal	NaN
		2020-09-12	Liverpool-Leeds United	NaN
		2020-09-12	West Ham-Newcastle Utd	NaN
		2020-09-13	Tottenham-Everton	NaN
↪venue \				
league	season	game		
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Selhurst
↪Park		2020-09-12	Fulham-Arsenal	Craven
↪Cottage		2020-09-12	Liverpool-Leeds United	
↪Anfield		2020-09-12	West Ham-Newcastle Utd	London
↪Stadium		2020-09-13	Tottenham-Everton	Tottenham Hotspur
↪Stadium				
				referee \
league	season	game		
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Jonathan Moss
		2020-09-12	Fulham-Arsenal	Chris Kavanagh
		2020-09-12	Liverpool-Leeds United	Michael Oliver
		2020-09-12	West Ham-Newcastle Utd	Stuart Attwell
		2020-09-13	Tottenham-Everton	Martin Atkinson
↪	match_report \			
league	season	game		
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	/en/matches/db261cb0/
↪Crystal-Palace-Southampto...		2020-09-12	Fulham-Arsenal	/en/matches/bf52349b/
↪Fulham-Arsenal-September-...		2020-09-12	Liverpool-Leeds United	/en/matches/21b58926/
↪Liverpool-Leeds-United-Se...		2020-09-12	West Ham-Newcastle Utd	/en/matches/78495ced/
↪West-Ham-United-Newcastle...		2020-09-13	Tottenham-Everton	/en/matches/fc7f9aa1/
↪Tottenham-Hotspur-Everton...				
				notes \
league	season	game		
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	NaN

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league	season	game	game_id
		2020-09-12 Fulham-Arsenal	NaN
		2020-09-12 Liverpool-Leeds United	NaN
		2020-09-12 West Ham-Newcastle Utd	NaN
		2020-09-13 Tottenham-Everton	NaN
ENG-Premier League	2021	2020-09-12 Crystal Palace-Southampton	db261cb0
		2020-09-12 Fulham-Arsenal	bf52349b
		2020-09-12 Liverpool-Leeds United	21b58926
		2020-09-12 West Ham-Newcastle Utd	78495ced
		2020-09-13 Tottenham-Everton	fc7f9aa1

Line ups

```
[8]: lineups = fbref.read_lineup(match_id='db261cb0')
lineups.head()
```

```
[8]:
```

league	season	game	team	player
ENG-Premier League	2021	2020-09-12 Crystal Palace-Southampton	Crystal Palace	Vicente
				Guaita
				Joel Ward
				Scott
				Dann
				Cheikhou
				Kouyaté
				Jordan
				Ayew

league	season	game	team	player
ENG-Premier League	2021	2020-09-12 Crystal Palace-Southampton	Crystal Palace	Vicente
				Guaita
				Joel Ward
				Scott
				Dann
				Cheikhou
				Kouyaté
				Jordan
				Ayew

Player match stats

```
[9]: player_match_stats = fbref.read_player_match_stats(stat_type="passing", match_id=
      ↳ 'db261cb0')
      player_match_stats.head()
```

```
[9]:
↳ Long \
↳ Att
league          season game          team          player
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton Southampton Alex
↳McCarthy      23
                                  Che Adams
↳          1
                                  Danny Ings
↳          1
                                  Jack
↳Stephens      21
                                  James Ward-
↳Prowse       10
\
↳ Cmp
league          season game          team          player
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton Southampton Alex
↳McCarthy      11
                                  Che Adams
↳          0
                                  Danny Ings
↳          0
                                  Jack
↳Stephens      11
                                  James Ward-
↳Prowse        7
\
↳ Cmp%
league          season game          team          player
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton Southampton Alex
↳McCarthy      47.8
                                  Che Adams
↳          0.0
                                  Danny Ings
↳          0.0
                                  Jack
↳Stephens      52.4
                                  James Ward-
↳Prowse       70.0
```

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league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
↳McCarthy	15			
↳	4			Che Adams
↳	4			Danny Ings
↳Stephens	42			Jack
↳Prowse	21			James Ward-
↳				
league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
↳McCarthy	15			
↳	4			Che Adams
↳	2			Danny Ings
↳Stephens	38			Jack
↳Prowse	19			James Ward-
↳				
league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
↳McCarthy	100.0			
↳	100.0			Che Adams
↳	50.0			Danny Ings
↳Stephens	90.5			Jack
↳Prowse	90.5			James Ward-
↳				

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Att				
league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
↳McCarthy	13			
	12			Che Adams
	8			Danny Ings
↳Stephens	21			Jack
↳Prowse	33			James Ward-
	\			
Cmp				
league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
↳McCarthy	13			
	9			Che Adams
	7			Danny Ings
↳Stephens	17			Jack
↳Prowse	27			James Ward-
	\			
Cmp%				
league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
↳McCarthy	100.0			
	75.0			Che Adams
	87.5			Danny Ings
↳Stephens	81.0			Jack
↳Prowse	81.8			James Ward-
	Total	\		
Att				
league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
↳McCarthy	51			

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↔	18						Che Adams	↔
↔	18						Danny Ings	↔
↔	Stephens	86					Jack	↔
↔	Prowse	66					James Ward-	↔
↔								↔
↔	Cmp							↔
	league	season	game			team	player	
	ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton		Southampton	Alex	↔
↔	McCarthy	39						↔
↔	14						Che Adams	↔
↔	11						Danny Ings	↔
↔	Stephens	66					Jack	↔
↔	Prowse	54					James Ward-	↔
↔								↔
↔	Cmp%							↔
	league	season	game			team	player	
	ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton		Southampton	Alex	↔
↔	McCarthy	76.5						↔
↔	77.8						Che Adams	↔
↔	61.1						Danny Ings	↔
↔	Stephens	76.7					Jack	↔
↔	Prowse	81.8					James Ward-	↔
↔								↔
↔	PrgDist							↔
	league	season	game			team	player	
	ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton		Southampton	Alex	↔
↔	McCarthy	623						↔
↔	45						Che Adams	↔
↔	61						Danny Ings	↔

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league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
→McCarthy	0.0			
→	0.1			Che Adams
→	0.1			Danny Ings
→Stephens	0.0			Jack
→Prowse	0.1			James Ward-
→				
→ KP \				
league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
→McCarthy	0			
→	1			Che Adams
→	1			Danny Ings
→Stephens	0			Jack
→Prowse	1			James Ward-
→				
→ 1/3 \				
league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
→McCarthy	1			
→	1			Che Adams
→	1			Danny Ings
→Stephens	5			Jack
→Prowse	3			James Ward-
→				
→ PPA \				
league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
→McCarthy	1			
→	1			Che Adams

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↔	2						Danny Ings	↔
↔	Stephens	2					Jack	↔
↔	Prowse	0					James Ward-	
↔	CrsPA	\						↔
league	season	game			team		player	
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton		Southampton		Alex	↔
↔	McCarthy	0					Che Adams	↔
↔	0						Danny Ings	↔
↔	1						Jack	↔
↔	Stephens	0					James Ward-	
↔	Prowse	0						↔
↔	Prog	\						↔
league	season	game			team		player	
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton		Southampton		Alex	↔
↔	McCarthy	0					Che Adams	↔
↔	2						Danny Ings	↔
↔	2						Jack	↔
↔	Stephens	6					James Ward-	
↔	Prowse	5						↔
↔	Nation	\						↔
league	season	game			team		player	
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton		Southampton		Alex	↔
↔	McCarthy	eng ENG					Che Adams	↔
↔	sct	SCO					Danny Ings	↔
↔	eng	ENG					Jack	↔
↔	Stephens	eng ENG					James Ward-	
↔	Prowse	eng ENG						↔

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league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
→McCarthy	GK			
				Che Adams
				Danny Ings
				Jack
→Stephens	CB			James Ward-
→Prowse	DM			

league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
→McCarthy	30-284			
	24-061			Che Adams
	28-051			Danny Ings
				Jack
→Stephens	26-229			James Ward-
→Prowse	25-316			

league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
→McCarthy	90			
	84			Che Adams
	90			Danny Ings
				Jack
→Stephens	90			James Ward-
→Prowse	90			

league	season	game	team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Southampton Alex
→McCarthy	NaN			
				Che Adams

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↔Ayew	10.0				Jordan
↔Dann	10.0				Scott
↔Zaha	10.0				Wilfried
↔	body_part	\			
league	season	game		team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Crystal Palace	Cheikhou
↔Kouyaté	Right Foot				James
↔McArthur	Head				Jordan
↔Ayew	Head				Scott
↔Dann	Head				Wilfried
↔Zaha	Right Foot				
↔	notes	\			
league	season	game		team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Crystal Palace	Cheikhou
↔Kouyaté	Half volley				James
↔McArthur	NaN				Jordan
↔Ayew	NaN				Scott
↔Dann	NaN				Wilfried
↔Zaha	Volley				
↔	SCA 1	\			
↔	player				
league	season	game		team	player
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	Crystal Palace	Cheikhou
↔Kouyaté	Andros Townsend				James
↔McArthur	Luka Milivojević				Jordan
↔Ayew	Luka Milivojević				Scott
↔Dann	James McCarthy				Wilfried
↔Zaha	Andros Townsend				

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```

↪                                     \
↪                                     \
↪          event
league          season game          team          player
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton Crystal Palace Cheikhou_
↪Kouyaté Pass (Dead)
↪McArthur Pass (Dead)
↪Ayew Pass (Dead)
↪Dann Pass (Dead)
↪Zaha Pass (Live)

↪          SCA 2 \
↪          player
league          season game          team          player
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton Crystal Palace Cheikhou_
↪Kouyaté Wilfried Zaha
↪McArthur James McArthur
↪Ayew Jordan Ayew
↪Dann NaN
↪Zaha James McCarthy

↪          event
league          season game          team          player
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton Crystal Palace Cheikhou_
↪Kouyaté Fouled
↪McArthur Pass (Live)
↪Ayew Fouled
↪Dann NaN
↪Zaha Interception

```

```
[3]: import soccerdata as sd
```


1.2.4 FiveThirtyEight

```
[4]: five38 = sd.FiveThirtyEight(leagues="ENG-Premier League", seasons=2021)
print(five38.__doc__)
```

```
/cw/dtaijupiter/NoCsBack/dtai/pieterr/Projects/soccerdata/soccerdata/_common.py:466:
↳UserWarning: Season id "2021" is ambiguous: interpreting as "20-21"
warnings.warn(msg)
```

Provides `pd.DataFrames` from `fivethirtyeight`'s "Club Soccer Predictions" project.

Data will be downloaded as necessary and cached locally in
`~/soccerdata/data/FiveThirtyEight`.

Original project and background info:

<https://projects.fivethirtyeight.com/soccer-predictions/> and

<https://fivethirtyeight.com/features/how-our-club-soccer-projections-work/>

Parameters

`leagues` : string or iterable, optional

IDs of Leagues to include.

`seasons` : string, int or list, optional

Seasons to include. Supports multiple formats.

Examples: '16-17'; 2016; '2016-17'; [14, 15, 16]

`proxy` : 'tor' or dict or list(dict) or callable, optional

Use a proxy to hide your IP address. Valid options are:

- "tor": Uses the Tor network. Tor should be running in the background on port 9050.
- dict: A dictionary with the proxy to use. The dict should be a mapping of supported protocols to proxy addresses. For example::

```
{
    'http': 'http://10.10.1.10:3128',
    'https': 'http://10.10.1.10:1080',
}
```

- list(dict): A list of proxies to choose from. A different proxy will be selected from this list after failed requests, allowing rotating proxies.
- callable: A function that returns a valid proxy. This function will be called after failed requests, allowing rotating proxies.

`no_cache` : bool

If True, will not use cached data.

`no_store` : bool

If True, will not store downloaded data.

`data_dir` : Path

Path to directory where data will be cached.

Game schedule and predicted results

```
[5]: epl_schedule = five38.read_games()
     epl_schedule.head()
```

[5]:

```
↪date \
league      season game
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton 2020-09-12 14:00:00+00:00
                2020-09-12 Fulham-Arsenal                2020-09-12 11:30:00+00:00
                2020-09-12 Liverpool-Leeds United        2020-09-12 16:30:00+00:00
                2020-09-12 West Ham United-Newcastle     2020-09-12 19:00:00+00:00
                2020-09-13 Tottenham Hotspur-Everton    2020-09-13 15:30:00+00:00

league      season game      status  leg \
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton  post  None
                2020-09-12 Fulham-Arsenal                post  None
                2020-09-12 Liverpool-Leeds United        post  None
                2020-09-12 West Ham United-Newcastle     post  None
                2020-09-13 Tottenham Hotspur-Everton    post  None

league      season game      home_team \
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton  Crystal Palace
                2020-09-12 Fulham-Arsenal                Fulham
                2020-09-12 Liverpool-Leeds United        Liverpool
                2020-09-12 West Ham United-Newcastle     West Ham United
                2020-09-13 Tottenham Hotspur-Everton    Tottenham Hotspur

league      season game      away_team \
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton  Southampton
                2020-09-12 Fulham-Arsenal                Arsenal
                2020-09-12 Liverpool-Leeds United        Leeds United
                2020-09-12 West Ham United-Newcastle     Newcastle
                2020-09-13 Tottenham Hotspur-Everton    Everton

league      season game      home_id \
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton  384
                2020-09-12 Fulham-Arsenal                370
                2020-09-12 Liverpool-Leeds United        364
                2020-09-12 West Ham United-Newcastle     371
                2020-09-13 Tottenham Hotspur-Everton    367

league      season game      away_id \
ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton  376
                2020-09-12 Fulham-Arsenal                359
                2020-09-12 Liverpool-Leeds United        357
                2020-09-12 West Ham United-Newcastle     361
                2020-09-13 Tottenham Hotspur-Everton    368
```

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league	season	game	home_code	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	CRY
		2020-09-12	Fulham-Arsenal	FUL
		2020-09-12	Liverpool-Leeds United	LIV
		2020-09-12	West Ham United-Newcastle	WHU
		2020-09-13	Tottenham Hotspur-Everton	TOT
league	season	game	away_code	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	SOU
		2020-09-12	Fulham-Arsenal	ARS
		2020-09-12	Liverpool-Leeds United	LEE
		2020-09-12	West Ham United-Newcastle	NEW
		2020-09-13	Tottenham Hotspur-Everton	EVE
league	season	game	prob_home	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	0.36979
		2020-09-12	Fulham-Arsenal	0.28167
		2020-09-12	Liverpool-Leeds United	0.83582
		2020-09-12	West Ham United-Newcastle	0.48865
		2020-09-13	Tottenham Hotspur-Everton	0.50235
league	season	game	prob_away	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	0.35311
		2020-09-12	Fulham-Arsenal	0.46081
		2020-09-12	Liverpool-Leeds United	0.04384
		2020-09-12	West Ham United-Newcastle	0.25556
		2020-09-13	Tottenham Hotspur-Everton	0.24434
league	season	game	prob_tie	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	0.27710
		2020-09-12	Fulham-Arsenal	0.25752
		2020-09-12	Liverpool-Leeds United	0.12034
		2020-09-12	West Ham United-Newcastle	0.25579
		2020-09-13	Tottenham Hotspur-Everton	0.25331
league	season	game	round	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	None
		2020-09-12	Fulham-Arsenal	None
		2020-09-12	Liverpool-Leeds United	None
		2020-09-12	West Ham United-Newcastle	None
		2020-09-13	Tottenham Hotspur-Everton	None
league	season	game	matchday	\
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	None

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		2020-09-12	Fulham-Arsenal	None
		2020-09-12	Liverpool-Leeds United	None
		2020-09-12	West Ham United-Newcastle	None
		2020-09-13	Tottenham Hotspur-Everton	None
				score_home \
league	season	game		
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	1
		2020-09-12	Fulham-Arsenal	0
		2020-09-12	Liverpool-Leeds United	4
		2020-09-12	West Ham United-Newcastle	0
		2020-09-13	Tottenham Hotspur-Everton	0
				score_away \
league	season	game		
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	0
		2020-09-12	Fulham-Arsenal	3
		2020-09-12	Liverpool-Leeds United	3
		2020-09-12	West Ham United-Newcastle	2
		2020-09-13	Tottenham Hotspur-Everton	1
				adj_score_home \
league	season	game		
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	1.05
		2020-09-12	Fulham-Arsenal	0.00
		2020-09-12	Liverpool-Leeds United	4.20
		2020-09-12	West Ham United-Newcastle	0.00
		2020-09-13	Tottenham Hotspur-Everton	0.00
				adj_score_away \
league	season	game		
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	0.000
		2020-09-12	Fulham-Arsenal	3.150
		2020-09-12	Liverpool-Leeds United	3.150
		2020-09-12	West Ham United-Newcastle	1.666
		2020-09-13	Tottenham Hotspur-Everton	1.050
				chances_home \
league	season	game		
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	1.507
		2020-09-12	Fulham-Arsenal	0.141
		2020-09-12	Liverpool-Leeds United	3.328
		2020-09-12	West Ham United-Newcastle	0.973
		2020-09-13	Tottenham Hotspur-Everton	1.029
				chances_away \
league	season	game		
ENG-Premier League	2021	2020-09-12	Crystal Palace-Southampton	1.160
		2020-09-12	Fulham-Arsenal	2.989
		2020-09-12	Liverpool-Leeds United	0.368
		2020-09-12	West Ham United-Newcastle	1.475
		2020-09-13	Tottenham Hotspur-Everton	1.109

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league	season	game	moves_home	\
ENG-Premier League	2021	2020-09-12 Crystal Palace-Southampton	0.943	
		2020-09-12 Fulham-Arsenal	0.270	
		2020-09-12 Liverpool-Leeds United	3.006	
		2020-09-12 West Ham United-Newcastle	1.103	
		2020-09-13 Tottenham Hotspur-Everton	1.316	

league	season	game	moves_away	\
ENG-Premier League	2021	2020-09-12 Crystal Palace-Southampton	1.652	
		2020-09-12 Fulham-Arsenal	1.528	
		2020-09-12 Liverpool-Leeds United	0.747	
		2020-09-12 West Ham United-Newcastle	1.860	
		2020-09-13 Tottenham Hotspur-Everton	1.110	

league	season	game	aggregate_winner	\
ENG-Premier League	2021	2020-09-12 Crystal Palace-Southampton	None	
		2020-09-12 Fulham-Arsenal	None	
		2020-09-12 Liverpool-Leeds United	None	
		2020-09-12 West Ham United-Newcastle	None	
		2020-09-13 Tottenham Hotspur-Everton	None	

league	season	game	shootout_winner	\
ENG-Premier League	2021	2020-09-12 Crystal Palace-Southampton	None	
		2020-09-12 Fulham-Arsenal	None	
		2020-09-12 Liverpool-Leeds United	None	
		2020-09-12 West Ham United-Newcastle	None	
		2020-09-13 Tottenham Hotspur-Everton	None	

Forecasted league table

```
[6]: forecasts = five38.read_forecasts()
forecasts.head()
```

```
[6]: league          season last_updated          team          code \
ENG-Premier League 2021  2020-09-09T14:46:49.136Z Arsenal          ARS
                                     Aston Villa          AVL
                                     Brighton and Hove Albion BHA
                                     Burnley              BRN
                                     Chelsea              CHE

                                     current_
↳ losses \
league          season last_updated          team
ENG-Premier League 2021  2020-09-09T14:46:49.136Z Arsenal
↳ 0.0
```

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↪0.0			Aston Villa	↪
↪0.0			Brighton and Hove Albion	↪
↪0.0			Burnley	↪
↪0.0			Chelsea	↪
				current_
↪points \				
league	season	last_updated	team	
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	↪
↪0.0			Aston Villa	↪
↪0.0			Brighton and Hove Albion	↪
↪0.0			Burnley	↪
↪0.0			Chelsea	↪
↪0.0				current_
↪ties \				
league	season	last_updated	team	
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.0
			Aston Villa	0.0
			Brighton and Hove Albion	0.0
			Burnley	0.0
			Chelsea	0.0
				current_
↪wins \				
league	season	last_updated	team	
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.0
			Aston Villa	0.0
			Brighton and Hove Albion	0.0
			Burnley	0.0
			Chelsea	0.0
				d_rating \
league	season	last_updated	team	
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	1.33114
			Aston Villa	1.52263
			Brighton and Hove Albion	1.45713
			Burnley	1.41912
			Chelsea	1.16934
				global_d \
league	season	last_updated	team	
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.68339

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league	season	last_updated	team	global_o
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Aston Villa	0.87488
			Brighton and Hove Albion	0.80938
			Burnley	0.77137
			Chelsea	0.52160
				global_o \
league	season	last_updated	team	global_o
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	2.13421
			Aston Villa	1.77744
			Brighton and Hove Albion	1.77377
			Burnley	1.77961
			Chelsea	2.51615
				global_
↪rating \				
league	season	last_updated	team	global_
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	77.
↪16360			Aston Villa	66.
↪48339			Brighton and Hove Albion	68.
↪02657			Burnley	69.
↪08173			Chelsea	85.
↪37204				
				goal_diff \
league	season	last_updated	team	goal_diff
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	4.13260
			Aston Villa	-17.57325
			Brighton and Hove Albion	-15.24810
			Burnley	-13.63310
			Chelsea	26.57990
				goals_
↪against \				
league	season	last_updated	team	goals_
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	49.
↪72715			Aston Villa	57.
↪65595			Brighton and Hove Albion	55.
↪36300			Burnley	53.
↪84085			Chelsea	42.
↪20305				
				goals_
↪scored \				
league	season	last_updated	team	goals_

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league	season	last_updated	team	id \
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	53.85975
			Aston Villa	40.08270
			Brighton and Hove Albion	40.11490
			Burnley	40.20775
			Chelsea	68.78295
				losses \
league	season	last_updated	team	losses \
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	13.27675
			Aston Villa	17.72125
			Brighton and Hove Albion	17.18525
			Burnley	16.80205
			Chelsea	9.34340
				make_champs_
↔ \				
league	season	last_updated	team	make_champs_
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.16095
			Aston Villa	0.02335
			Brighton and Hove Albion	0.02950
			Burnley	0.03210
			Chelsea	0.53090
				make_europa_
↔ \				
league	season	last_updated	team	make_europa_
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.0
			Aston Villa	0.0
			Brighton and Hove Albion	0.0
			Burnley	0.0
			Chelsea	0.0
				make_
↔playoffs \				
league	season	last_updated	team	make_
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.
↔0			Aston Villa	0.
↔0			Brighton and Hove Albion	0.
↔0			Burnley	0.
↔0			Chelsea	0.

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league	season	last_updated	team	o_rating \
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	1.48647
			Aston Villa	1.12969
			Brighton and Hove Albion	1.12603
			Burnley	1.13187
			Chelsea	1.86841

league	season	last_updated	team	points \
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	55.50395
			Aston Villa	41.66985
			Brighton and Hove Albion	42.92225
			Burnley	43.86545
			Chelsea	69.17900

↩ \

league	season	last_updated	team	position_1 ↵
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.00720
			Aston Villa	0.00030
			Brighton and Hove Albion	0.00075
			Burnley	0.00100
			Chelsea	0.06525

↩ \

league	season	last_updated	team	position_10 ↵
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.06905
			Aston Villa	0.05405
			Brighton and Hove Albion	0.05475
			Burnley	0.05910
			Chelsea	0.02775

↩ \

league	season	last_updated	team	position_11 ↵
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.06170
			Aston Villa	0.06005
			Brighton and Hove Albion	0.06255
			Burnley	0.06525
			Chelsea	0.02295

↩ \

league	season	last_updated	team	position_12 ↵
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.05220
			Aston Villa	0.06500
			Brighton and Hove Albion	0.06575
			Burnley	0.06555

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league	season	last_updated	team	position
			Chelsea	0.01715
				position_13_
↩ \				
league	season	last_updated	team	position
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.04835
			Aston Villa	0.06855
			Brighton and Hove Albion	0.07025
			Burnley	0.07245
			Chelsea	0.01315
				position_14_
↩ \				
league	season	last_updated	team	position
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.04075
			Aston Villa	0.07090
			Brighton and Hove Albion	0.07305
			Burnley	0.06670
			Chelsea	0.01000
				position_15_
↩ \				
league	season	last_updated	team	position
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.03595
			Aston Villa	0.07480
			Brighton and Hove Albion	0.07485
			Burnley	0.07370
			Chelsea	0.00735
				position_16_
↩ \				
league	season	last_updated	team	position
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.03045
			Aston Villa	0.07685
			Brighton and Hove Albion	0.07690
			Burnley	0.07325
			Chelsea	0.00585
				position_17_
↩ \				
league	season	last_updated	team	position
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.02650
			Aston Villa	0.07955
			Brighton and Hove Albion	0.07505
			Burnley	0.07340
			Chelsea	0.00400
				position_18_
↩ \				
league	season	last_updated	team	position
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.02035
			Aston Villa	0.08465

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league	season	last_updated	team	position_19
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Brighton and Hove Albion	0.07790
			Burnley	0.07010
			Chelsea	0.00230
				position_19
league	season	last_updated	team	position_2
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.01590
			Aston Villa	0.08315
			Brighton and Hove Albion	0.07590
			Burnley	0.06735
			Chelsea	0.00215
				position_2
league	season	last_updated	team	position_20
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.02725
			Aston Villa	0.00315
			Brighton and Hove Albion	0.00295
			Burnley	0.00325
			Chelsea	0.13860
				position_20
league	season	last_updated	team	position_3
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.01165
			Aston Villa	0.08465
			Brighton and Hove Albion	0.06700
			Burnley	0.06145
			Chelsea	0.00050
				position_3
league	season	last_updated	team	position_4
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.05280
			Aston Villa	0.00615
			Brighton and Hove Albion	0.00965
			Burnley	0.01065
			Chelsea	0.17560
				position_4
league	season	last_updated	team	position_5
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.07370
			Aston Villa	0.01375
			Brighton and Hove Albion	0.01615
			Burnley	0.01720
			Chelsea	0.15145
				position_5
league	season	last_updated	team	

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league	season	last_updated	team	position_6
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.08895
			Aston Villa	0.02105
			Brighton and Hove Albion	0.02415
			Burnley	0.02915
			Chelsea	0.11230
				position_6
				↩ \
league	season	last_updated	team	position_7
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.09120
			Aston Villa	0.02830
			Brighton and Hove Albion	0.03275
			Burnley	0.03935
			Chelsea	0.08610
				position_7
				↩ \
league	season	last_updated	team	position_8
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.08990
			Aston Villa	0.03375
			Brighton and Hove Albion	0.04185
			Burnley	0.04365
			Chelsea	0.06630
				position_8
				↩ \
league	season	last_updated	team	position_9
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.08340
			Aston Villa	0.04145
			Brighton and Hove Albion	0.04450
			Burnley	0.05110
			Chelsea	0.04965
				position_9
				↩ \
league	season	last_updated	team	promoted
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.0
			Aston Villa	0.0
			Brighton and Hove Albion	0.0
			Burnley	0.0
			Chelsea	0.0
				relegated
				↩ \
league	season	last_updated	team	relegated

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league	season	last_updated	team	sdr_id \
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.04790
			Aston Villa	0.25245
			Brighton and Hove Albion	0.22080
			Burnley	0.19890
			Chelsea	0.00495
league	season	last_updated	team	ties \
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	73616
			Aston Villa	73597
			Brighton and Hove Albion	73651
			Burnley	73618
			Chelsea	73598
league	season	last_updated	team	win_league ↵
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	9.3329
			Aston Villa	9.5832
			Brighton and Hove Albion	9.7610
			Burnley	9.8642
			Chelsea	8.3954
league	season	last_updated	team	wins
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	0.00720
			Aston Villa	0.00030
			Brighton and Hove Albion	0.00075
			Burnley	0.00100
			Chelsea	0.06525
league	season	last_updated	team	wins
ENG-Premier League	2021	2020-09-09T14:46:49.136Z	Arsenal	15.39035
			Aston Villa	10.69555
			Brighton and Hove Albion	11.05375
			Burnley	11.33375
			Chelsea	20.26120

Clinches

```
[7]: clinches = five38.read_clinches()
      clinches.head()
```

```
[7]:
```

league	season	date	typ	team
ENG-Premier League	2021	2021-02-13	relegated_elim	Manchester City
		2021-02-17	win_league_elim	Sheffield United
		2021-02-17	win_league_elim	West Bromwich Albion
		2021-02-27	win_league_elim	Fulham
		2021-03-02	win_league_elim	Newcastle

```
[3]: import soccerdata as sd
```

1.2.5 Match History

```
[4]: mh = sd.MatchHistory(leagues="ENG-Premier League", seasons=2021)
print(mh.__doc__)
```

```
/cw/dtaijupiter/NoCsBack/dtai/pieterr/Projects/soccerdata/soccerdata/_common.py:466:
↳UserWarning: Season id "2021" is ambiguous: interpreting as "20-21"
warnings.warn(msg)
```

Provides pd.DataFrames from CSV files available at <http://www.football-data.co.uk/data.php>.

Data will be downloaded as necessary and cached locally in
`~/soccerdata/data/MatchHistory`.

Parameters

leagues : string or iterable

IDs of leagues to include.

seasons : string, int or list

Seasons to include. Supports multiple formats.

Examples: '16-17'; 2016; '2016-17'; [14, 15, 16]

proxy : 'tor' or dict or list(dict) or callable, optional

Use a proxy to hide your IP address. Valid options are:

- "tor": Uses the Tor network. Tor should be running in the background on port 9050.
- dict: A dictionary with the proxy to use. The dict should be a mapping of supported protocols to proxy addresses. For example::

```
{
    'http': 'http://10.10.1.10:3128',
    'https': 'http://10.10.1.10:1080',
}
```

- list(dict): A list of proxies to choose from. A different proxy will be selected from this list after failed requests, allowing rotating proxies.
- callable: A function that returns a valid proxy. This function will be called after failed requests, allowing rotating proxies.

no_cache : bool

If True, will not use cached data.

no_store : bool

If True, will not store downloaded data.

data_dir : Path, optional

Path to directory where data will be cached.

Historic match results and betting odds

```
[5]: hist = mh.read_games()
hist.head()
```

```
[5]:
```

league	season	game	date	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2020-01-11 12:00:00	
		2020-01-11 Man United-Arsenal	2020-01-11 16:30:00	
		2020-01-11 Newcastle-Everton	2020-01-11 14:00:00	
		2020-01-11 Tottenham-Brighton	2020-01-11 19:15:00	
		2020-02-11 Fulham-West Brom	2020-02-11 17:30:00	

league	season	game	home_team	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	Aston Villa	
		2020-01-11 Man United-Arsenal	Man United	
		2020-01-11 Newcastle-Everton	Newcastle	
		2020-01-11 Tottenham-Brighton	Tottenham	
		2020-02-11 Fulham-West Brom	Fulham	

league	season	game	away_team	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	Southampton	
		2020-01-11 Man United-Arsenal	Arsenal	
		2020-01-11 Newcastle-Everton	Everton	
		2020-01-11 Tottenham-Brighton	Brighton	
		2020-02-11 Fulham-West Brom	West Brom	

league	season	game	FTHG	FTAG	FTR	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	3	4	A	
		2020-01-11 Man United-Arsenal	0	1	A	
		2020-01-11 Newcastle-Everton	2	1	H	
		2020-01-11 Tottenham-Brighton	2	1	H	
		2020-02-11 Fulham-West Brom	2	0	H	

league	season	game	HTHG	HTAG	HTR	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	0	3	A	
		2020-01-11 Man United-Arsenal	0	0	D	
		2020-01-11 Newcastle-Everton	0	0	D	
		2020-01-11 Tottenham-Brighton	1	0	H	
		2020-02-11 Fulham-West Brom	2	0	H	

league	season	game	referee	HS	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	D England	19	
		2020-01-11 Man United-Arsenal	M Dean	8	
		2020-01-11 Newcastle-Everton	S Attwell	11	
		2020-01-11 Tottenham-Brighton	G Scott	9	
		2020-02-11 Fulham-West Brom	S Hooper	13	

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league	season	game	AS	HST	AST	\	
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	9	10	4		
		2020-01-11 Man United-Arsenal	7	2	2		
		2020-01-11 Newcastle-Everton	15	4	4		
		2020-01-11 Tottenham-Brighton	6	3	2		
		2020-02-11 Fulham-West Brom	10	6	1		
league	season	game	HF	AF	HC	AC	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	12	17	11	1	
		2020-01-11 Man United-Arsenal	12	12	6	3	
		2020-01-11 Newcastle-Everton	9	10	5	4	
		2020-01-11 Tottenham-Brighton	14	13	4	5	
		2020-02-11 Fulham-West Brom	13	11	5	2	
league	season	game	HY	AY	HR	AR	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	1	2	0	0	
		2020-01-11 Man United-Arsenal	3	3	0	0	
		2020-01-11 Newcastle-Everton	2	4	0	0	
		2020-01-11 Tottenham-Brighton	2	1	0	0	
		2020-02-11 Fulham-West Brom	3	2	0	0	
league	season	game	B365H	B365D	\		
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.45	3.5			
		2020-01-11 Man United-Arsenal	2.00	3.6			
		2020-01-11 Newcastle-Everton	3.70	3.4			
		2020-01-11 Tottenham-Brighton	1.61	4.0			
		2020-02-11 Fulham-West Brom	2.40	3.3			
league	season	game	B365A	BWH	\		
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.80	2.35			
		2020-01-11 Man United-Arsenal	3.60	2.00			
		2020-01-11 Newcastle-Everton	2.05	3.75			
		2020-01-11 Tottenham-Brighton	5.50	1.62			
		2020-02-11 Fulham-West Brom	3.00	2.40			
league	season	game	BWD	BWA	\		
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	3.60	2.85			
		2020-01-11 Man United-Arsenal	3.70	3.60			
		2020-01-11 Newcastle-Everton	3.40	2.05			
		2020-01-11 Tottenham-Brighton	4.25	5.00			
		2020-02-11 Fulham-West Brom	3.30	3.00			
league	season	game	IWH	IWD	\		
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.50	3.35			
		2020-01-11 Man United-Arsenal	2.05	3.45			

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		2020-01-11	Newcastle-Everton	3.55	3.30			
		2020-01-11	Tottenham-Brighton	1.65	3.90			
		2020-02-11	Fulham-West Brom	2.45	3.10			
				IWA	PSH	\		
league	season	game						
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.75	2.53			
		2020-01-11	Man United-Arsenal	3.55	2.05			
		2020-01-11	Newcastle-Everton	2.10	3.82			
		2020-01-11	Tottenham-Brighton	5.00	1.65			
		2020-02-11	Fulham-West Brom	3.00	2.47			
				PSD	PSA	\		
league	season	game						
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	3.72	2.81			
		2020-01-11	Man United-Arsenal	3.78	3.73			
		2020-01-11	Newcastle-Everton	3.56	2.09			
		2020-01-11	Tottenham-Brighton	4.26	5.54			
		2020-02-11	Fulham-West Brom	3.40	3.13			
				WHH	WHD	WHA	\	
league	season	game						
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.50	3.5	2.75		
		2020-01-11	Man United-Arsenal	2.05	3.6	3.60		
		2020-01-11	Newcastle-Everton	3.70	3.4	2.05		
		2020-01-11	Tottenham-Brighton	1.63	4.0	5.25		
		2020-02-11	Fulham-West Brom	2.40	3.3	3.00		
				VCH	VCD	\		
league	season	game						
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.40	3.60			
		2020-01-11	Man United-Arsenal	2.05	3.60			
		2020-01-11	Newcastle-Everton	3.50	3.50			
		2020-01-11	Tottenham-Brighton	1.62	4.20			
		2020-02-11	Fulham-West Brom	2.45	3.25			
				VCA	MaxH	\		
league	season	game						
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.80	2.60			
		2020-01-11	Man United-Arsenal	3.50	2.10			
		2020-01-11	Newcastle-Everton	2.05	4.00			
		2020-01-11	Tottenham-Brighton	5.25	1.67			
		2020-02-11	Fulham-West Brom	3.00	2.56			
				MaxD	MaxA	\		
league	season	game						
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	3.84	2.85			
		2020-01-11	Man United-Arsenal	3.85	3.76			
		2020-01-11	Newcastle-Everton	3.59	2.15			
		2020-01-11	Tottenham-Brighton	4.30	5.75			
		2020-02-11	Fulham-West Brom	3.50	3.17			

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league	season	game	AvgH	AvgD	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.46	3.60	
		2020-01-11 Man United-Arsenal	2.04	3.66	
		2020-01-11 Newcastle-Everton	3.71	3.47	
		2020-01-11 Tottenham-Brighton	1.63	4.17	
		2020-02-11 Fulham-West Brom	2.44	3.32	
league	season	game	AvgA	B365>2.5	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.78	1.66	
		2020-01-11 Man United-Arsenal	3.58	1.72	
		2020-01-11 Newcastle-Everton	2.06	1.80	
		2020-01-11 Tottenham-Brighton	5.29	1.66	
		2020-02-11 Fulham-West Brom	3.01	2.00	
league	season	game	B365<2.5	P>2.5	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton		2.2	1.66
		2020-01-11 Man United-Arsenal		2.1	1.76
		2020-01-11 Newcastle-Everton		2.0	1.86
		2020-01-11 Tottenham-Brighton		2.2	1.68
		2020-02-11 Fulham-West Brom		1.8	2.13
league	season	game	P<2.5	Max>2.5	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.37	1.69	
		2020-01-11 Man United-Arsenal	2.19	1.81	
		2020-01-11 Newcastle-Everton	2.07	1.88	
		2020-01-11 Tottenham-Brighton	2.32	1.71	
		2020-02-11 Fulham-West Brom	1.80	2.14	
league	season	game	Max<2.5	\	
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.38		
		2020-01-11 Man United-Arsenal	2.22		
		2020-01-11 Newcastle-Everton	2.08		
		2020-01-11 Tottenham-Brighton	2.35		
		2020-02-11 Fulham-West Brom	1.85		
league	season	game	Avg>2.5	\	
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	1.65		
		2020-01-11 Man United-Arsenal	1.74		
		2020-01-11 Newcastle-Everton	1.82		
		2020-01-11 Tottenham-Brighton	1.65		
		2020-02-11 Fulham-West Brom	2.06		
league	season	game	Avg<2.5	AHh	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.27	0.00	
		2020-01-11 Man United-Arsenal	2.12	-0.50	

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			2020-01-11	Newcastle-Everton	2.01	0.25	
			2020-01-11	Tottenham-Brighton	2.26	-1.00	
			2020-02-11	Fulham-West Brom	1.78	-0.25	
					B365AHH	\	
league	season	game					
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	1.83			
		2020-01-11	Man United-Arsenal	2.05			
		2020-01-11	Newcastle-Everton	2.05			
		2020-01-11	Tottenham-Brighton	2.02			
		2020-02-11	Fulham-West Brom	2.10			
					B365AHA	PAHH	\
league	season	game					
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.07	1.87		
		2020-01-11	Man United-Arsenal	1.85	2.05		
		2020-01-11	Newcastle-Everton	1.75	2.15		
		2020-01-11	Tottenham-Brighton	1.77	2.15		
		2020-02-11	Fulham-West Brom	1.80	2.11		
					PAHA	MaxAHH	\
league	season	game					
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.07	1.87		
		2020-01-11	Man United-Arsenal	1.88	2.09		
		2020-01-11	Newcastle-Everton	1.80	2.17		
		2020-01-11	Tottenham-Brighton	1.80	2.16		
		2020-02-11	Fulham-West Brom	1.84	2.15		
					MaxAHA	AvgAHH	\
league	season	game					
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.09	1.83		
		2020-01-11	Man United-Arsenal	1.90	2.04		
		2020-01-11	Newcastle-Everton	1.83	2.12		
		2020-01-11	Tottenham-Brighton	1.84	2.09		
		2020-02-11	Fulham-West Brom	1.86	2.10		
					AvgAHA	B365CH	\
league	season	game					
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.05	2.60		
		2020-01-11	Man United-Arsenal	1.84	1.95		
		2020-01-11	Newcastle-Everton	1.77	3.30		
		2020-01-11	Tottenham-Brighton	1.80	1.55		
		2020-02-11	Fulham-West Brom	1.80	2.40		
					B365CD	B365CA	\
league	season	game					
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	3.50	2.62		
		2020-01-11	Man United-Arsenal	3.60	3.80		
		2020-01-11	Newcastle-Everton	3.30	2.25		
		2020-01-11	Tottenham-Brighton	4.33	6.00		
		2020-02-11	Fulham-West Brom	3.30	3.00		

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league	season	game	BWCH	BWCD	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.50	3.60	
		2020-01-11 Man United-Arsenal	1.95	3.60	
		2020-01-11 Newcastle-Everton	3.30	3.30	
		2020-01-11 Tottenham-Brighton	1.57	4.25	
		2020-02-11 Fulham-West Brom	2.45	3.30	
league	season	game	BWCA	IWCH	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.70	2.55	
		2020-01-11 Man United-Arsenal	3.90	2.00	
		2020-01-11 Newcastle-Everton	2.25	3.15	
		2020-01-11 Tottenham-Brighton	5.50	1.60	
		2020-02-11 Fulham-West Brom	2.95	2.40	
league	season	game	IWCD	IWCA	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	3.50	2.70	
		2020-01-11 Man United-Arsenal	3.50	3.80	
		2020-01-11 Newcastle-Everton	3.35	2.30	
		2020-01-11 Tottenham-Brighton	4.20	5.75	
		2020-02-11 Fulham-West Brom	3.05	3.10	
league	season	game	PSCH	PSCD	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.69	3.56	
		2020-01-11 Man United-Arsenal	2.02	3.65	
		2020-01-11 Newcastle-Everton	3.34	3.43	
		2020-01-11 Tottenham-Brighton	1.61	4.36	
		2020-02-11 Fulham-West Brom	2.48	3.32	
league	season	game	PSCA	WHCH	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.73	2.60	
		2020-01-11 Man United-Arsenal	3.97	2.00	
		2020-01-11 Newcastle-Everton	2.33	3.40	
		2020-01-11 Tottenham-Brighton	5.77	1.57	
		2020-02-11 Fulham-West Brom	3.19	2.40	
league	season	game	WHCD	WHCA	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	3.50	2.62	
		2020-01-11 Man United-Arsenal	3.50	3.80	
		2020-01-11 Newcastle-Everton	3.25	2.25	
		2020-01-11 Tottenham-Brighton	4.00	6.00	
		2020-02-11 Fulham-West Brom	3.20	3.10	
league	season	game	VCCH	VCCD	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.50	3.60	
		2020-01-11 Man United-Arsenal	1.95	3.50	

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		2020-01-11	Newcastle-Everton	3.30	3.30	
		2020-01-11	Tottenham-Brighton	1.57	4.20	
		2020-02-11	Fulham-West Brom	2.40	3.25	
				VCCA	MaxCH	\
league	season	game				
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.70	2.70	
		2020-01-11	Man United-Arsenal	4.00	2.06	
		2020-01-11	Newcastle-Everton	2.25	3.62	
		2020-01-11	Tottenham-Brighton	5.75	1.63	
		2020-02-11	Fulham-West Brom	3.10	2.48	
				MaxCD	MaxCA	\
league	season	game				
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	3.70	2.80	
		2020-01-11	Man United-Arsenal	3.75	4.00	
		2020-01-11	Newcastle-Everton	3.50	2.34	
		2020-01-11	Tottenham-Brighton	4.45	6.39	
		2020-02-11	Fulham-West Brom	3.45	3.22	
				AvgCH	AvgCD	\
league	season	game				
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.57	3.55	
		2020-01-11	Man United-Arsenal	1.99	3.59	
		2020-01-11	Newcastle-Everton	3.34	3.33	
		2020-01-11	Tottenham-Brighton	1.59	4.29	
		2020-02-11	Fulham-West Brom	2.41	3.27	
				AvgCA	\	
league	season	game				
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.69		
		2020-01-11	Man United-Arsenal	3.87		
		2020-01-11	Newcastle-Everton	2.27		
		2020-01-11	Tottenham-Brighton	5.62		
		2020-02-11	Fulham-West Brom	3.09		
				B365C>2.5	\	
league	season	game				
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	1.66		
		2020-01-11	Man United-Arsenal	1.90		
		2020-01-11	Newcastle-Everton	2.00		
		2020-01-11	Tottenham-Brighton	1.66		
		2020-02-11	Fulham-West Brom	2.05		
				B365C<2.5	\	
league	season	game				
ENG-Premier League	2021	2020-01-11	Aston Villa-Southampton	2.20		
		2020-01-11	Man United-Arsenal	1.90		
		2020-01-11	Newcastle-Everton	1.80		
		2020-01-11	Tottenham-Brighton	2.20		
		2020-02-11	Fulham-West Brom	1.85		

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league	season	game	PC>2.5	PC<2.5	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	1.70	2.29	
		2020-01-11 Man United-Arsenal	1.96	1.96	
		2020-01-11 Newcastle-Everton	2.12	1.81	
		2020-01-11 Tottenham-Brighton	1.68	2.32	
		2020-02-11 Fulham-West Brom	2.05	1.88	
			MaxC>2.5	\	
league	season	game			
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	1.71		
		2020-01-11 Man United-Arsenal	1.99		
		2020-01-11 Newcastle-Everton	2.14		
		2020-01-11 Tottenham-Brighton	1.72		
		2020-02-11 Fulham-West Brom	2.11		
			MaxC<2.5	\	
league	season	game			
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.37		
		2020-01-11 Man United-Arsenal	2.10		
		2020-01-11 Newcastle-Everton	1.92		
		2020-01-11 Tottenham-Brighton	2.37		
		2020-02-11 Fulham-West Brom	1.92		
			AvgC>2.5	\	
league	season	game			
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	1.66		
		2020-01-11 Man United-Arsenal	1.88		
		2020-01-11 Newcastle-Everton	2.04		
		2020-01-11 Tottenham-Brighton	1.65		
		2020-02-11 Fulham-West Brom	2.02		
			AvgC<2.5	AHCh	\
league	season	game			
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.24	0.00	
		2020-01-11 Man United-Arsenal	1.95	-0.50	
		2020-01-11 Newcastle-Everton	1.80	0.25	
		2020-01-11 Tottenham-Brighton	2.27	-1.00	
		2020-02-11 Fulham-West Brom	1.81	-0.25	
			B365CAHH	\	
league	season	game			
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	1.93		
		2020-01-11 Man United-Arsenal	2.00		
		2020-01-11 Newcastle-Everton	1.95		
		2020-01-11 Tottenham-Brighton	2.06		
		2020-02-11 Fulham-West Brom	2.06		
			B365CAHA	PCAHH	\
league	season	game			
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	1.97	1.95	
		2020-01-11 Man United-Arsenal	1.90	2.03	

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league	season	game	PCAHA	MaxCAHH	\
		2020-01-11 Newcastle-Everton	1.95	1.93	
		2020-01-11 Tottenham-Brighton	1.84	2.11	
		2020-02-11 Fulham-West Brom	1.84	2.11	
league	season	game	PCAHA	MaxCAHH	\
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	1.98	1.97	
		2020-01-11 Man United-Arsenal	1.90	2.05	
		2020-01-11 Newcastle-Everton	2.00	1.99	
		2020-01-11 Tottenham-Brighton	1.84	2.13	
		2020-02-11 Fulham-West Brom	1.84	2.12	
league	season	game	MaxCAHA	\	
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	2.04		
		2020-01-11 Man United-Arsenal	1.92		
		2020-01-11 Newcastle-Everton	2.03		
		2020-01-11 Tottenham-Brighton	1.99		
		2020-02-11 Fulham-West Brom	1.87		
league	season	game	AvgCAHH	AvgCAHA	
ENG-Premier League	2021	2020-01-11 Aston Villa-Southampton	1.89	1.98	
		2020-01-11 Man United-Arsenal	2.00	1.88	
		2020-01-11 Newcastle-Everton	1.93	1.95	
		2020-01-11 Tottenham-Brighton	2.02	1.86	
		2020-02-11 Fulham-West Brom	2.08	1.82	

```
[3]: import soccerdata as sd
```

1.2.6 SoFIFA

```
[4]: sofifa = sd.SoFIFA(leagues="ENG-Premier League", seasons=2021)
print(sofifa.__doc__)
```

```
/cw/dtaijupiter/NoCsBack/dtai/pieterr/Projects/soccerdata/soccerdata/_common.py:466:
↳ UserWarning: Season id "2021" is ambiguous: interpreting as "20-21"
warnings.warn(msg)
```

Provides pd.DataFrames from data at <http://sofifa.com>.

Data will be downloaded as necessary and cached locally in
`~/soccerdata/data/SoFIFA`.

Parameters

```
-----
leagues : string or iterable, optional
    IDs of leagues to include.
seasons : string, int or list, optional
    Seasons to include. Supports multiple formats.
    Examples: '16-17'; 2016; '2016-17'; [14, 15, 16]
```

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```

proxy : 'tor' or dict or list(dict) or callable, optional
    Use a proxy to hide your IP address. Valid options are:
    - "tor": Uses the Tor network. Tor should be running in
      the background on port 9050.
    - dict: A dictionary with the proxy to use. The dict should be
      a mapping of supported protocols to proxy addresses. For example::

        {
            'http': 'http://10.10.1.10:3128',
            'https': 'http://10.10.1.10:1080',
        }

    - list(dict): A list of proxies to choose from. A different proxy will
      be selected from this list after failed requests, allowing rotating
      proxies.
    - callable: A function that returns a valid proxy. This function will
      be called after failed requests, allowing rotating proxies.
no_cache : bool
    If True, will not use cached data.
no_store : bool
    If True, will not store downloaded data.
data_dir : Path
    Path to directory where data will be cached.
    
```

EA Sports FIFA player ratings

```
[5]: ratings = sofifa.read_ratings()
ratings.head()
```

```
[5]:
```

league	season	player	overall_rating	potential
ENG-Premier League	2021	Aaron Cresswell	Best Overall Rating	None
		Aaron Lennon	Best Overall Rating	None
		Aaron Ramsdale	Best Overall Rating	None
		Abdoulaye Doucouré	Best Overall Rating	None
		Adam Webster	Best Overall Rating	None

league	season	player	crossing	finishing
ENG-Premier League	2021	Aaron Cresswell	83	54
		Aaron Lennon	74	58
		Aaron Ramsdale	15	14
		Abdoulaye Doucouré	69	75
		Adam Webster	50	30

league	season	player	heading_accuracy	short_passing
ENG-Premier League	2021	Aaron Cresswell	68	77
		Aaron Lennon	26	72
		Aaron Ramsdale	15	54

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		Abdoulaye Doucouré	69	81
		Adam Webster	78	74
			volleys dribbling curve \	
league	season	player		
ENG-Premier League	2021	Aaron Cresswell	48	76 80
		Aaron Lennon	68	79 66
		Aaron Ramsdale	16	18 17
		Abdoulaye Doucouré	68	79 44
		Adam Webster	27	68 27
			fk_accuracy long_passing \	
league	season	player		
ENG-Premier League	2021	Aaron Cresswell	76	69
		Aaron Lennon	53	64
		Aaron Ramsdale	16	54
		Abdoulaye Doucouré	42	77
		Adam Webster	25	70
			ball_control acceleration \	
league	season	player		
ENG-Premier League	2021	Aaron Cresswell	77	72
		Aaron Lennon	72	80
		Aaron Ramsdale	35	47
		Abdoulaye Doucouré	81	67
		Adam Webster	73	64
			sprint_speed agility reactions \	
league	season	player		
ENG-Premier League	2021	Aaron Cresswell	67	73 78
		Aaron Lennon	77	81 73
		Aaron Ramsdale	50	53 80
		Abdoulaye Doucouré	76	65 79
		Adam Webster	74	63 74
			balance shot_power jumping \	
league	season	player		
ENG-Premier League	2021	Aaron Cresswell	81	71 86
		Aaron Lennon	93	64 60
		Aaron Ramsdale	49	63 66
		Abdoulaye Doucouré	68	84 73
		Adam Webster	57	37 77
			stamina strength long_shots \	
league	season	player		
ENG-Premier League	2021	Aaron Cresswell	75	61 66
		Aaron Lennon	68	53 57
		Aaron Ramsdale	35	59 15
		Abdoulaye Doucouré	90	82 77
		Adam Webster	69	77 32
			aggression interceptions \	

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league	season	player		
ENG-Premier League	2021	Aaron Cresswell	73	77
		Aaron Lennon	55	50
		Aaron Ramsdale	35	24
		Abdoulaye Doucouré	78	81
		Adam Webster	75	76

league	season	player	positioning	vision	penalties
ENG-Premier League	2021	Aaron Cresswell	60	68	59
		Aaron Lennon	72	72	62
		Aaron Ramsdale	18	64	25
		Abdoulaye Doucouré	77	75	54
		Adam Webster	26	53	24

league	season	player	composure	marking
ENG-Premier League	2021	Aaron Cresswell	73	None
		Aaron Lennon	73	None
		Aaron Ramsdale	65	None
		Abdoulaye Doucouré	77	None
		Adam Webster	77	None

league	season	player	standing_tackle	sliding_tackle
ENG-Premier League	2021	Aaron Cresswell	78	79
		Aaron Lennon	50	43
		Aaron Ramsdale	16	15
		Abdoulaye Doucouré	80	76
		Adam Webster	77	75

league	season	player	gk_diving	gk_handling	gk_kicking
ENG-Premier League	2021	Aaron Cresswell	14	7	9
		Aaron Lennon	14	7	7
		Aaron Ramsdale	82	77	84
		Abdoulaye Doucouré	15	12	12
		Adam Webster	10	8	14

league	season	player	gk_positioning	gk_reflexes
ENG-Premier League	2021	Aaron Cresswell	9	12
		Aaron Lennon	16	11
		Aaron Ramsdale	78	84
		Abdoulaye Doucouré	15	14
		Adam Webster	7	12

```
[3]: import soccerdata as sd
```

1.2.7 WhoScored

```
[4]: ws = sd.WhoScored(leagues="ENG-Premier League", seasons=2021)
print(ws.__doc__)
```

```
/cw/dtaijupiter/NoCsBack/dtai/pieterr/Projects/soccerdata/soccerdata/_common.py:462:
↳UserWarning: Season id "2021" is ambiguous: interpreting as "20-21"
warnings.warn(msg)
```

Provides `pd.DataFrames` from data available at <http://whoscored.com>.

Data will be downloaded as necessary and cached locally in
`~/soccerdata/data/WhoScored`.

Parameters

```
-----
leagues : string or iterable, optional
    IDs of Leagues to include.
seasons : string, int or list, optional
    Seasons to include. Supports multiple formats.
    Examples: '16-17'; 2016; '2016-17'; [14, 15, 16]
proxy : 'tor' or dict or list(dict) or callable, optional
    Use a proxy to hide your IP address. Valid options are:
    - "tor": Uses the Tor network. Tor should be running in
      the background on port 9050.
    - dict: A dictionary with the proxy to use. The dict should be
      a mapping of supported protocols to proxy addresses. For example::

        {
            'http': 'http://10.10.1.10:3128',
            'https': 'http://10.10.1.10:1080',
        }

    - list(dict): A list of proxies to choose from. A different proxy will
      be selected from this list after failed requests, allowing rotating
      proxies.
    - callable: A function that returns a valid proxy. This function will
      be called after failed requests, allowing rotating proxies.
no_cache : bool
    If True, will not use cached data.
no_store : bool
    If True, will not store downloaded data.
data_dir : Path
    Path to directory where data will be cached.
path_to_browser : Path, optional
    Path to the Chrome executable.
headless : bool, default: True
    If True, will run Chrome in headless mode. Setting this to False might
    help to avoid getting blocked.
```

Game schedule

```
[5]: epl_schedule = ws.read_schedule()
     epl_schedule.head()
```

```
[5]: league          season game          game_id \
     ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton  1485186
                                           2020-09-12 Fulham-Arsenal      1485187
                                           2020-09-12 Liverpool-Leeds United  1485188
                                           2020-09-12 West Ham United-Newcastle United 1485191
                                           2020-09-13 Tottenham-Everton    1485189

     league          season game          home_team \
     ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton  Crystal Palace
                                           2020-09-12 Fulham-Arsenal      Fulham
                                           2020-09-12 Liverpool-Leeds United  Liverpool
                                           2020-09-12 West Ham United-Newcastle United West Ham United
                                           2020-09-13 Tottenham-Everton    Tottenham

     league          season game          away_team \
     ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton  Southampton
                                           2020-09-12 Fulham-Arsenal      Arsenal
                                           2020-09-12 Liverpool-Leeds United  Leeds United
                                           2020-09-12 West Ham United-Newcastle United Newcastle United
                                           2020-09-13 Tottenham-Everton    Everton

     league          season game          date \
     ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton  2020-09-12 15:00:00
                                           2020-09-12 Fulham-Arsenal      2020-09-12 12:30:00
                                           2020-09-12 Liverpool-Leeds United  2020-09-12 17:30:00
                                           2020-09-12 West Ham United-Newcastle United 2020-09-12 20:00:00
                                           2020-09-13 Tottenham-Everton    2020-09-13 16:30:00

     league          season game          url \
     ENG-Premier League 2021  2020-09-12 Crystal Palace-Southampton  https://www.
     ↪whoscored.com/Matches/1485186/Live...
                                           2020-09-12 Fulham-Arsenal      https://www.
     ↪whoscored.com/Matches/1485187/Live...
                                           2020-09-12 Liverpool-Leeds United  https://www.
     ↪whoscored.com/Matches/1485188/Live...
                                           2020-09-12 West Ham United-Newcastle United https://www.
     ↪whoscored.com/Matches/1485191/Live...
                                           2020-09-13 Tottenham-Everton    https://www.
     ↪whoscored.com/Matches/1485189/Live...
```

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league	season	game	stage
ENG-Premier League	2021	2020-09-12 Crystal Palace-Southampton	NaN
		2020-09-12 Fulham-Arsenal	NaN
		2020-09-12 Liverpool-Leeds United	NaN
		2020-09-12 West Ham United-Newcastle United	NaN
		2020-09-13 Tottenham-Everton	NaN

Injured and suspended players

```
[6]: missing_players = ws.read_missing_players(match_id=1485184)
missing_players.head()
```

```
[6]:
```

game_id \	league	season	game	team	player
	ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	Burnley
↳Taylor 1485184					Charlie
↳McNeil 1485184					Dwight
↳Rodriguez 1485184					Jay
↳Dunne 1485184					Jimmy
↳Bailly 1485184				Manchester United	Eric

player_id \	league	season	game	team	player
	ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	Burnley
↳Taylor 107462					Charlie
↳McNeil 357427					Dwight
↳Rodriguez 33891					Jay
↳Dunne 366743					Jimmy
↳Bailly 243814				Manchester United	Eric

reason \	league	season	game	team	player
	ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	Burnley
↳Taylor injured doubtful					Charlie
↳McNeil injured doubtful					Dwight
↳Rodriguez injured doubtful					Jay
					Jimmy

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↳Dunne	injured doubtful			Manchester United Eric
↳Bailly	injured doubtful			
↳	status			
league	season	game	team	player
ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	Burnley
↳Taylor	Doubtful			Charlie
↳McNeil	Doubtful			Dwight
↳Rodriguez	Doubtful			Jay
↳Dunne	Doubtful			Jimmy
↳Bailly	Doubtful			Manchester United Eric

Match event stream data

```
[7]: events = ws.read_events(match_id=1485184)
events.head()
```

```
[7]:
```

league	season	game	id	period	\
ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	2253458317	PreMatch
				2253458375	PreMatch
				2253487469	FirstHalf
				2253487473	FirstHalf
				2253487625	FirstHalf

league	season	game	id	minute	\
ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	2253458317	0
				2253458375	0
				2253487469	0
				2253487473	0
				2253487625	0

↳minute	\	expanded_
league	season	game
ENG-Premier League	2021	2021-01-12
↳0	Burnley-Manchester United	2253458317
↳0		2253458375
↳0		2253487469
↳0		2253487473
↳0		2253487625

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```

↪0
                                                                 type ↵
↪ \
league          season game          id
ENG-Premier League 2021  2021-01-12 Burnley-Manchester United 2253458317 FormationSet
                                                                2253458375 FormationSet
                                                                2253487469 Start
                                                                2253487473 Start
                                                                2253487625 Pass

league          season game          id          outcome_type \
ENG-Premier League 2021  2021-01-12 Burnley-Manchester United 2253458317 Successful
                                                                2253458375 Successful
                                                                2253487469 Successful
                                                                2253487473 Successful
                                                                2253487625 Successful

league          season game          id          team \
ENG-Premier League 2021  2021-01-12 Burnley-Manchester United 2253458317 Burnley
                                                                2253458375 Man Utd
                                                                2253487469 Burnley
                                                                2253487473 Man Utd
                                                                2253487625 Burnley

↪player \
league          season game          id
ENG-Premier League 2021  2021-01-12 Burnley-Manchester United 2253458317 ↵
↪NaN
                                                                2253458375 ↵
↪NaN
                                                                2253487469 ↵
↪NaN
                                                                2253487473 ↵
↪NaN
                                                                2253487625 Ashley ↵
↪Westwood

↪          qualifiers \
league          season game          id
ENG-Premier League 2021  2021-01-12 Burnley-Manchester United 2253458317 [{'type': {
↪ 'displayName': 'TeamPlayerFormation...
                                                                2253458375 [{'type': {
↪ 'displayName': 'CaptainPlayerId', '...
                                                                2253487469 ↵
↪          []
                                                                2253487473 ↵
↪          []

```

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```

2253487625 [{"type": {
↳ 'displayName': 'Angle', 'value': 21...

league          season game          id          x \
ENG-Premier League 2021  2021-01-12 Burnley-Manchester United 2253458317  0.0
                                                         2253458375  0.0
                                                         2253487469  0.0
                                                         2253487473  0.0
                                                         2253487625 50.3

league          season game          id          y \
ENG-Premier League 2021  2021-01-12 Burnley-Manchester United 2253458317  0.0
                                                         2253458375  0.0
                                                         2253487469  0.0
                                                         2253487473  0.0
                                                         2253487625 50.3

league          season game          id          end_x \
ENG-Premier League 2021  2021-01-12 Burnley-Manchester United 2253458317  NaN
                                                         2253458375  NaN
                                                         2253487469  NaN
                                                         2253487473  NaN
                                                         2253487625 30.5

league          season game          id          end_y \
ENG-Premier League 2021  2021-01-12 Burnley-Manchester United 2253458317  NaN
                                                         2253458375  NaN
                                                         2253487469  NaN
                                                         2253487473  NaN
                                                         2253487625 50.3

↳ \
league          season game          id          goal_mouth_y ↵
ENG-Premier League 2021  2021-01-12 Burnley-Manchester United 2253458317  NaN
                                                         2253458375  NaN
                                                         2253487469  NaN
                                                         2253487473  NaN
                                                         2253487625  NaN

↳ \
league          season game          id          goal_mouth_z ↵
ENG-Premier League 2021  2021-01-12 Burnley-Manchester United 2253458317  NaN
                                                         2253458375  NaN
                                                         2253487469  NaN
                                                         2253487473  NaN
                                                         2253487625  NaN

```

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league	season	game	id	is_touch
ENG-Premier League	2021	2021-01-12 Burnley-Manchester United	2253458317	False
			2253458375	False
			2253487469	False
			2253487473	False
			2253487625	True

league	season	game	id	is_shot
ENG-Premier League	2021	2021-01-12 Burnley-Manchester United	2253458317	NaN
			2253458375	NaN
			2253487469	NaN
			2253487473	NaN
			2253487625	NaN

league	season	game	id	is_goal
ENG-Premier League	2021	2021-01-12 Burnley-Manchester United	2253458317	NaN
			2253458375	NaN
			2253487469	NaN
			2253487473	NaN
			2253487625	NaN

league	season	game	id	related_event_
ENG-Premier League	2021	2021-01-12 Burnley-Manchester United	2253458317	↳
			2253458375	↳
			2253487469	↳
			2253487473	↳
			2253487625	↳

league	season	game	id	related_
ENG-Premier League	2021	2021-01-12 Burnley-Manchester United	2253458317	↳
			2253458375	↳
			2253487469	↳
			2253487473	↳
			2253487625	↳

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league	season	game	id	blocked_x	\
ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	2253458317	NaN
				2253458375	NaN
				2253487469	NaN
				2253487473	NaN
				2253487625	NaN

league	season	game	id	blocked_y	\
ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	2253458317	NaN
				2253458375	NaN
				2253487469	NaN
				2253487473	NaN
				2253487625	NaN

league	season	game	id	card_type	\
ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	2253458317	NaN
				2253458375	NaN
				2253487469	NaN
				2253487473	NaN
				2253487625	NaN

league	season	game	id	game_id	\
ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	2253458317	1485184
				2253458375	1485184
				2253487469	1485184
				2253487473	1485184
				2253487625	1485184

league	season	game	id	team_id	\
ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	2253458317	184
				2253458375	32
				2253487469	184
				2253487473	32
				2253487625	184

league	season	game	id	player_id	
ENG-Premier League	2021	2021-01-12	Burnley-Manchester United	2253458317	NaN
				2253458375	NaN
				2253487469	NaN
				2253487473	NaN
				2253487625	79050.0

Match event stream data can be returned in various formats, which can be selected with the “output_fmt” parameter.

- events (default): Returns a dataframe with all events.
- raw: Returns the original unformatted WhoScored JSON.

- `spadl`: Returns a dataframe with the [SPADL representation](#) of the original events.
- `atomic-spadl`: Returns a dataframe with the [Atomic-SPADL representation](#) of the original events.
- `loader`: Returns a `socceration.data.opta.OptaLoader` instance

```
[12]: events = ws.read_events(match_id=1485184, output_fmt="raw")
```

```
import json
print(json.dumps(events[1485184][0], indent=2))
```

```
{
  "eventId": 2,
  "expandedMinute": 0,
  "id": 2253487473,
  "isTouch": false,
  "minute": 0,
  "outcomeType": {
    "displayName": "Successful",
    "value": 1
  },
  "period": {
    "displayName": "FirstHalf",
    "value": 1
  },
  "qualifiers": [],
  "satisfiedEventsTypes": [],
  "second": 0,
  "teamId": 32,
  "type": {
    "displayName": "Start",
    "value": 32
  },
  "x": 0,
  "y": 0
}
```

```
[13]: actions = ws.read_events(match_id=1485184, output_fmt='spadl')
actions.head()
```

```
[13]:
```

	game_id	original_event_id	period_id	time_seconds	team_id	player_id	\
0	1485184	2253487625	1	0.0	184	79050.0	
1	1485184	2253487639	1	2.0	184	131464.0	
2	1485184	NaN	1	4.5	184	80067.0	
3	1485184	2253487685	1	7.0	184	80067.0	
4	1485184	2253487689	1	11.0	184	93473.0	

	start_x	end_x	start_y	end_y	type_id	result_id	bodypart_id	\
0	52.815	32.025	34.204	34.204	0	1	0	
1	31.080	38.220	36.312	15.844	0	1	0	
2	38.220	43.365	15.844	12.512	21	1	0	
3	43.365	90.300	12.512	49.708	0	1	0	
4	90.300	105.000	49.708	38.828	11	0	0	

action_id	player	team
-----------	--------	------

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```

0      0 Ashley Westwood Burnley
1      1 James Tarkowski Burnley
2      2 Matthew Lowton Burnley
3      3 Matthew Lowton Burnley
4      4 Robbie Brady Burnley

```

```
[14]: atomic_actions = ws.read_events(match_id=1485184, output_fmt='atomic-spndl')
atomic_actions.head()
```

```
[14]:
```

	game_id	original_event_id	action_id	period_id	time_seconds	team_id	\
0	1485184	2253487625	0	1	0.00	184	
1	1485184	2253487625	1	1	1.00	184	
2	1485184	2253487639	2	1	2.00	184	
3	1485184	2253487639	3	1	3.25	184	
4	1485184	NaN	4	1	4.50	184	

	player_id	x	y	dx	dy	type_id	bodypart_id	\
0	79050.0	52.815	34.204	-20.790	0.000	0	0	
1	131464.0	32.025	34.204	0.000	0.000	23	0	
2	131464.0	31.080	36.312	7.140	-20.468	0	0	
3	80067.0	38.220	15.844	0.000	0.000	23	0	
4	80067.0	38.220	15.844	5.145	-3.332	21	0	

	player	team
0	Ashley Westwood	Burnley
1	James Tarkowski	Burnley
2	James Tarkowski	Burnley
3	Matthew Lowton	Burnley
4	Matthew Lowton	Burnley

```
[15]: # Scrape all games and return a socceraction.data.opta.OptaLoader
loader = ws.read_events(output_fmt='loader')

# Now use this loader to load the data
print("Games:")
df_games = loader.games(competition_id="ENG-Premier League", season_id="2021")
display(df_games.head())

print("Teams:")
df_teams = loader.teams(game_id=1485184)
display(df_teams.head())

print("Players:")
df_players = loader.players(game_id=1485184)
display(df_players.head())

print("Events:")
df_events = loader.events(game_id=1485184)
display(df_events.head())

# You can use the socceraction package to convert the events
# to SPADL and to compute xT or VAEP action values
```

Games:							
	game_id	season_id	competition_id	game_day	game_date	\	
0	1485494	2021	ENG-Premier League	None	2021-04-04 12:00:00		
1	1485300	2021	ENG-Premier League	None	2020-12-16 20:00:00		
2	1485264	2021	ENG-Premier League	None	2020-12-06 19:15:00		
3	1485519	2021	ENG-Premier League	None	2021-05-16 16:30:00		
4	1485436	2021	ENG-Premier League	None	2021-03-19 20:00:00		
	home_team_id	away_team_id	home_score	away_score	duration	\	
0	18	184	3	2	98		
1	170	211	0	0	95		
2	26	161	4	0	97		
3	175	26	1	2	102		
4	170	19	1	2	100		
	referee	venue	attendance	home_manager	\		
0	Andre Marriner	St. Mary's Stadium	0	Ralph Hasenhüttl			
1	Robert Jones	Craven Cottage	0	Scott Parker			
2	Craig Pawson	Anfield	2000	Jürgen Klopp			
3	Mike Dean	The Hawthorns	0	Sam Allardyce			
4	David Coote	Craven Cottage	0	Scott Parker			
	away_manager						
0	Sean Dyche						
1	Graham Potter						
2	Nuno Espírito Santo						
3	Jürgen Klopp						
4	Marcelo Bielsa						
Teams:							
	team_id	team_name					
0	184	Burnley					
1	32	Man Utd					
Players:							
	game_id	team_id	player_id	player_name	is_starter	minutes_played	\
0	1485184	184	105720	Nick Pope	True	102	
1	1485184	184	80067	Matthew Lowton	True	102	
2	1485184	184	94935	Ben Mee	True	102	
3	1485184	184	131464	James Tarkowski	True	102	
4	1485184	184	24148	Erik Pieters	True	102	
	jersey_number	starting_position					
0	1	GK					
1	2	DR					
2	6	DC					
3	5	DC					
4	23	DL					
Events:							
	game_id	event_id	period_id	team_id	player_id	type_id	\
0	1485184	2253487473	1	32	NaN	32	

(continues on next page)

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1	1485184	2253487469	1	184	NaN	32		
2	1485184	2253487625	1	184	79050.0	1		
3	1485184	2253487639	1	184	131464.0	1		
4	1485184	2253487685	1	184	80067.0	1		
		timestamp	minute	second	outcome	start_x	start_y	end_x \
0	2021-01-12	20:15:00	0	0	True	0.0	0.0	0.0
1	2021-01-12	20:15:00	0	0	True	0.0	0.0	0.0
2	2021-01-12	20:15:00	0	0	True	50.3	50.3	30.5
3	2021-01-12	20:15:02	0	2	True	29.6	53.4	36.4
4	2021-01-12	20:15:07	0	7	True	41.3	18.4	86.0
		end_y			qualifiers			\
0	0.0							{}
1	0.0							{}
2	50.3	{213: '3.1', 178: True, 141: '50.3', 212: '20...						
3	23.3	{178: True, 213: '5.0', 212: '21.7', 141: '23...						
4	73.1	{1: True, 213: '0.7', 56: 'Center', 178: True,...						
		related_player_id	touch	shot	goal	type_name		
0		NaN	False	False	False	start		
1		NaN	False	False	False	start		
2		NaN	True	False	False	pass		
3		NaN	True	False	False	pass		
4		NaN	True	False	False	pass		

[]:

1.3 API

<i>Club Elo</i>	ClubElo reader.
<i>ESPN</i>	ESPN reader.
<i>FBref</i>	FBref reader.
<i>FiveThirtyEight</i>	FiveThirtyEight reader.
<i>MatchHistory</i>	Football-data.co.uk reader.
<i>SoFIFA</i>	SoFIFA reader.
<i>WhoScored</i>	WhoScored reader.

1.3.1 Club Elo

```
class soccerdata.ClubElo(proxy=None, no_cache=False, no_store=False,
                        data_dir=PosixPath('/home/docs/soccerdata/data/ClubElo'))
```

Provides pd.DataFrames from CSV API at <http://api.clubelo.com>.

Data will be downloaded as necessary and cached locally in `~/soccerdata/data/ClubElo`.

Since the source does not provide league names, this class will not filter by league. League names will be inserted from the other sources where available. Leagues that are only covered by clubelo.com will have NaN values.

Parameters

- **proxy** (*'tor' or dict or list(dict) or callable, optional*) –

Use a proxy to hide your IP address. Valid options are:

- "tor": Uses the Tor network. Tor should be running in the background on port 9050.
- dict: A dictionary with the proxy to use. The dict should be a mapping of supported protocols to proxy addresses. For example:

```
{
  'http': 'http://10.10.1.10:3128',
  'https': 'http://10.10.1.10:1080',
}
```

- list(dict): A list of proxies to choose from. A different proxy will be selected from this list after failed requests, allowing rotating proxies.
 - callable: A function that returns a valid proxy. This function will be called after failed requests, allowing rotating proxies.
- **no_cache** (*bool*) – If True, will not use cached data.
 - **no_store** (*bool*) – If True, will not store downloaded data.
 - **data_dir** (*Path*) – Path to directory where data will be cached.

read_by_date(*date=None*)

Retrieve ELO scores for all teams at specified date.

Elo scores are available as early as 1939. Values before 1960 should be considered provisional.

Parameters

date (*datetime object or string like 'YYYY-MM-DD'*) – Date for which to retrieve ELO scores. If no date is specified, get today's scores.

Return type

pd.DataFrame

read_team_history(*team, max_age=1*)

Retrieve full ELO history for one club.

For the exact spelling of a club's name, check the result of [read_by_date\(\)](#) or [clubelo.com](#). You can also use alternative team names specified in *teamname_replacements.json*. Values before 1960 should be considered provisional.

Parameters

- **team** (*str*) – The club's name
- **max_age** (*int for age in days, or timedelta object*) – The max. age of locally cached file before re-download.

Raises

- **TypeError** – If max_age is not an integer or timedelta object.
- **ValueError** – If no ratings for the given team are available.

Return type

pd.DataFrame

classmethod `available_leagues()`

Return a list of league IDs available for this source.

Return type

`List[str]`

get(*url*, *filepath=None*, *max_age=None*, *no_cache=False*, *var=None*)

Load data from *url*.

By default, the source of *url* is downloaded and saved to *filepath*. If *filepath* exists, the *url* is not visited and the cached data is returned.

Parameters

- **url** (*str*) – URL to download.
- **filepath** (*Path*, *optional*) – Path to save downloaded file. If *None*, downloaded data is not cached.
- **max_age** (*int for age in days, or timedelta object*) – The max. age of locally cached file before re-download.
- **no_cache** (*bool*) – If *True*, will not use cached data. Overrides the class property.
- **var** (*str, optional*) – Return a javascript variable instead of the page source.

Raises

TypeError – If *max_age* is not an integer or *timedelta* object.

Returns

File-like object of downloaded data.

Return type

`io.BufferedIOBase`

property `leagues: List[str]`

Return a list of selected leagues.

property `seasons: List[str]`

Return a list of selected seasons.

1.3.2 ESPN

class `soccerdata.ESPN`(*leagues=None*, *seasons=None*, *proxy=None*, *no_cache=False*, *no_store=False*, *data_dir=PosixPath('/home/docs/soccerdata/data/ESPN')*)

Provides `pd.DataFrame`s from JSON api available at <http://site.api.espn.com>.

Data will be downloaded as necessary and cached locally in `~/soccerdata/data/ESPN`.

Parameters

- **leagues** (*string or iterable, optional*) – IDs of leagues to include.
- **seasons** (*string, int or list, optional*) – Seasons to include. Supports multiple formats. Examples: '16-17'; 2016; '2016-17'; [14, 15, 16]
- **proxy** (*'tor' or dict or list(dict) or callable, optional*) –

Use a proxy to hide your IP address. Valid options are:

- "tor": Uses the Tor network. Tor should be running in the background on port 9050.

- `dict`: A dictionary with the proxy to use. The dict should be a mapping of supported protocols to proxy addresses. For example:

```
{
    'http': 'http://10.10.1.10:3128',
    'https': 'http://10.10.1.10:1080',
}
```

- `list(dict)`: A list of proxies to choose from. A different proxy will be selected from this list after failed requests, allowing rotating proxies.
- `callable`: A function that returns a valid proxy. This function will be called after failed requests, allowing rotating proxies.

- **`no_cache`** (*bool*) – If True, will not use cached data.
- **`no_store`** (*bool*) – If True, will not store downloaded data.
- **`data_dir`** (*Path*) – Path to directory where data will be cached.

property seasons: `List[str]`

Return a list of selected seasons.

read_schedule(*force_cache=False*)

Retrieve the game schedule for the selected leagues and seasons.

Parameters

`force_cache` (*bool*) – By default no cached data is used for the current season. If True, will force the use of cached data anyway.

Return type

`pd.DataFrame`

read_matchsheet(*match_id=None*)

Retrieve match sheets for the selected leagues and seasons.

Parameters

`match_id` (*int or list of int, optional*) – Retrieve the match sheet for a specific game.

Raises

`ValueError` – If no games with the given IDs were found for the selected seasons and leagues.

Return type

`pd.DataFrame`.

read_lineup(*match_id=None*)

Retrieve lineups for the selected leagues and seasons.

Parameters

`match_id` (*int or list of int, optional*) – Retrieve the lineup for a specific game.

Raises

`ValueError` – If no games with the given IDs were found for the selected seasons and leagues.

Return type

`pd.DataFrame`.

classmethod available_leagues()

Return a list of league IDs available for this source.

Return type*List[str]***get**(*url*, *filepath=None*, *max_age=None*, *no_cache=False*, *var=None*)Load data from *url*.By default, the source of *url* is downloaded and saved to *filepath*. If *filepath* exists, the *url* is not visited and the cached data is returned.**Parameters**

- **url** (*str*) – URL to download.
- **filepath** (*Path*, *optional*) – Path to save downloaded file. If *None*, downloaded data is not cached.
- **max_age** (*int for age in days, or timedelta object*) – The max. age of locally cached file before re-download.
- **no_cache** (*bool*) – If *True*, will not use cached data. Overrides the class property.
- **var** (*str*, *optional*) – Return a javascript variable instead of the page source.

Raises**TypeError** – If *max_age* is not an integer or *timedelta* object.**Returns**

File-like object of downloaded data.

Return type*io.BufferedIOBase***property leagues: List[str]**

Return a list of selected leagues.

1.3.3 FBref

class soccerdata.FBref(*leagues=None*, *seasons=None*, *proxy=None*, *no_cache=False*, *no_store=False*, *data_dir=PosixPath('/home/docs/soccerdata/data/FBref')*)Provides *pd.DataFrame*s from data at <http://fbref.com>.Data will be downloaded as necessary and cached locally in *~/soccerdata/data/FBref*.**Parameters**

- **leagues** (*string or iterable, optional*) – IDs of leagues to include. For efficiently reading data from the Top-5 European leagues, use “Big 5 European Leagues Combined”.
- **seasons** (*string, int or list, optional*) – Seasons to include. Supports multiple formats. Examples: ‘16-17’; 2016; ‘2016-17’; [14, 15, 16]
- **proxy** (*'tor' or dict or list(dict) or callable, optional*) –

Use a proxy to hide your IP address. Valid options are:

- “tor”: Uses the Tor network. Tor should be running in the background on port 9050.
- *dict*: A dictionary with the proxy to use. The *dict* should be a mapping of supported protocols to proxy addresses. For example:

```
{
  'http': 'http://10.10.1.10:3128',
  'https': 'http://10.10.1.10:1080',
}
```

- `list(dict)`: A list of proxies to choose from. A different proxy will be selected from this list after failed requests, allowing rotating proxies.
- `callable`: A function that returns a valid proxy. This function will be called after failed requests, allowing rotating proxies.

- `no_cache` (*bool*) – If True, will not use cached data.
- `no_store` (*bool*) – If True, will not store downloaded data.
- `data_dir` (*Path*) – Path to directory where data will be cached.

read_team_season_stats(*stat_type='standard', opponent_stats=False*)

Retrieve teams from the datasource for the selected leagues.

The following stat types are available:

- 'standard'
- 'keeper'
- 'keeper_adv'
- 'shooting'
- 'passing'
- 'passing_types'
- 'goal_shot_creation'
- 'defense'
- 'possession'
- 'playing_time'
- 'misc'

Parameters

- `stat_type` (*str*) – Type of stats to retrieve.
- `opponent_stats` (*bool*) – If True, will retrieve opponent stats.

Raises

TypeError – If `stat_type` is not valid.

Return type

`pd.DataFrame`

read_player_season_stats(*stat_type='standard'*)

Retrieve players from the datasource for the selected leagues.

The following stat types are available:

- 'standard'
- 'shooting'

- 'passing'
- 'passing_types'
- 'goal_shot_creation'
- 'defense'
- 'possession'
- 'playing_time'
- 'misc'
- 'keeper'
- 'keeper_adv'

Parameters

stat_type (*str*) – Type of stats to retrieve.

Raises

TypeError – If `stat_type` is not valid.

Return type

pd.DataFrame

read_schedule(*force_cache=False*)

Retrieve the game schedule for the selected leagues and seasons.

Parameters

force_cache (*bool*) – By default no cached data is used for the current season. If True, will force the use of cached data anyway.

Return type

pd.DataFrame

read_lineup(*match_id=None, force_cache=False*)

Retrieve lineups for the selected leagues and seasons.

Parameters

- **match_id** (*int or list of int, optional*) – Retrieve the lineup for a specific game.
- **force_cache** (*bool*) – By default no cached data is used to scrape the list of available games for the current season. If True, will force the use of cached data anyway.

Raises

ValueError – If no games with the given IDs were found for the selected seasons and leagues.

Return type

pd.DataFrame.

read_player_match_stats(*stat_type='summary', match_id=None, force_cache=False*)

Retrieve the match stats for the selected leagues and seasons.

The following stat types are available:

- 'summary'
- 'keepers'
- 'passing'

- 'passing_types'
- 'defense'
- 'possession'
- 'misc'

Parameters

- **stat_type** (*str*) – Type of stats to retrieve.
- **match_id** (*int or list of int, optional*) – Retrieve the event stream for a specific game.
- **force_cache** (*bool*) – By default no cached data is used to scrape the list of available games for the current season. If True, will force the use of cached data anyway.

Raises

- **ValueError** – If no games with the given IDs were found for the selected seasons and leagues.
- **TypeError** – If `stat_type` is not valid.

Return type

pd.DataFrame

read_shot_events (*match_id=None, force_cache=False*)

Retrieve shooting data for the selected seasons or selected matches.

The data returned includes who took the shot, when, with which body part and from how far away. Additionally, the player creating the chance and also the creation before this are included in the data.

Parameters

- **match_id** (*int or list of int, optional*) – Retrieve the lineup for a specific game.
- **force_cache** (*bool*) – By default no cached data is used to scrape the list of available games for the current season. If True, will force the use of cached data anyway.

Raises

ValueError – If no games with the given IDs were found for the selected seasons and leagues.

Return type

pd.DataFrame.

classmethod available_leagues()

Return a list of league IDs available for this source.

Return type

List[str]

1.3.4 FiveThirtyEight

```
class soccerdata.FiveThirtyEight(leagues=None, seasons=None, proxy=None, no_cache=False,
                                  no_store=False,
                                  data_dir=PosixPath('/home/docs/soccerdata/data/FiveThirtyEight'))
```

Provides pd.DataFrames from fivethirtyeight's "Club Soccer Predictions" project.

Data will be downloaded as necessary and cached locally in ~/soccerdata/data/FiveThirtyEight.

Original project and background info: <https://projects.fivethirtyeight.com/soccer-predictions/> and <https://fivethirtyeight.com/features/how-our-club-soccer-projections-work/>

Parameters

- **leagues** (*string or iterable, optional*) – IDs of Leagues to include.
- **seasons** (*string, int or list, optional*) – Seasons to include. Supports multiple formats. Examples: '16-17'; 2016; '2016-17'; [14, 15, 16]
- **proxy** (*'tor' or dict or list(dict) or callable, optional*) –

Use a proxy to hide your IP address. Valid options are:

- "tor": Uses the Tor network. Tor should be running in the background on port 9050.
- dict: A dictionary with the proxy to use. The dict should be a mapping of supported protocols to proxy addresses. For example:

```
{
    'http': 'http://10.10.1.10:3128',
    'https': 'http://10.10.1.10:1080',
}
```

- list(dict): A list of proxies to choose from. A different proxy will be selected from this list after failed requests, allowing rotating proxies.
- callable: A function that returns a valid proxy. This function will be called after failed requests, allowing rotating proxies.

- **no_cache** (*bool*) – If True, will not use cached data.
- **no_store** (*bool*) – If True, will not store downloaded data.
- **data_dir** (*Path*) – Path to directory where data will be cached.

read_games()

Retrieve all games for the selected leagues.

Return type

pd.DataFrame

read_forecasts()

Retrieve the forecasted results for the selected leagues.

Return type

pd.DataFrame

read_clinches()

Retrieve clinches for the selected leagues.

Return type

pd.DataFrame

classmethod available_leagues()

Return a list of league IDs available for this source.

Return type

List[str]

1.3.5 MatchHistory

class soccerdata.**MatchHistory**(*leagues=None, seasons=None, proxy=None, no_cache=False, no_store=False, data_dir=PosixPath('/home/docs/soccerdata/data/MatchHistory')*)

Provides pd.DataFrames from CSV files available at <http://www.football-data.co.uk/data.php>.

Data will be downloaded as necessary and cached locally in `~/soccerdata/data/MatchHistory`.

Parameters

- **leagues** (*string or iterable*) – IDs of leagues to include.
- **seasons** (*string, int or list*) – Seasons to include. Supports multiple formats. Examples: '16-17'; 2016; '2016-17'; [14, 15, 16]
- **proxy** (*'tor' or dict or list(dict) or callable, optional*) –

Use a proxy to hide your IP address. Valid options are:

- "tor": Uses the Tor network. Tor should be running in the background on port 9050.
- dict: A dictionary with the proxy to use. The dict should be a mapping of supported protocols to proxy addresses. For example:

```
{
    'http': 'http://10.10.1.10:3128',
    'https': 'http://10.10.1.10:1080',
}
```

- list(dict): A list of proxies to choose from. A different proxy will be selected from this list after failed requests, allowing rotating proxies.
 - callable: A function that returns a valid proxy. This function will be called after failed requests, allowing rotating proxies.
- **no_cache** (*bool*) – If True, will not use cached data.
 - **no_store** (*bool*) – If True, will not store downloaded data.
 - **data_dir** (*Path, optional*) – Path to directory where data will be cached.

property seasons: List[str]

Return a list of selected seasons.

read_games()

Retrieve game history for the selected leagues and seasons.

Column names are explained here: <http://www.football-data.co.uk/notes.txt>

Return type

pd.DataFrame

classmethod `available_leagues()`

Return a list of league IDs available for this source.

Return type

`List[str]`

get(*url*, *filepath=None*, *max_age=None*, *no_cache=False*, *var=None*)

Load data from *url*.

By default, the source of *url* is downloaded and saved to *filepath*. If *filepath* exists, the *url* is not visited and the cached data is returned.

Parameters

- **url** (*str*) – URL to download.
- **filepath** (*Path*, *optional*) – Path to save downloaded file. If `None`, downloaded data is not cached.
- **max_age** (*int for age in days, or timedelta object*) – The max. age of locally cached file before re-download.
- **no_cache** (*bool*) – If `True`, will not use cached data. Overrides the class property.
- **var** (*str, optional*) – Return a javascript variable instead of the page source.

Raises

TypeError – If *max_age* is not an integer or `timedelta` object.

Returns

File-like object of downloaded data.

Return type

`io.BufferedIOBase`

property `leagues: List[str]`

Return a list of selected leagues.

1.3.6 SoFIFA

```
class soccerdata.SoFIFA(leagues=None, seasons=None, proxy=None, no_cache=False, no_store=False,
                        data_dir=PosixPath('/home/docs/soccerdata/data/SoFIFA'))
```

Provides `pd.DataFrames` from data at <http://sofifa.com>.

Data will be downloaded as necessary and cached locally in `~/soccerdata/data/SoFIFA`.

Parameters

- **leagues** (*string or iterable, optional*) – IDs of leagues to include.
- **seasons** (*string, int or list, optional*) – Seasons to include. Supports multiple formats. Examples: `'16-17'`; `2016`; `'2016-17'`; `[14, 15, 16]`
- **proxy** (*'tor' or dict or list(dict) or callable, optional*) –

Use a proxy to hide your IP address. Valid options are:

- `"tor"`: Uses the Tor network. Tor should be running in the background on port 9050.
- `dict`: A dictionary with the proxy to use. The dict should be a mapping of supported protocols to proxy addresses. For example:


```
{
  'http': 'http://10.10.1.10:3128',
  'https': 'http://10.10.1.10:1080',
}
```

- `list(dict)`: A list of proxies to choose from. A different proxy will be selected from this list after failed requests, allowing rotating proxies.
- `callable`: A function that returns a valid proxy. This function will be called after failed requests, allowing rotating proxies.

- `no_cache` (*bool*) – If True, will not use cached data.
- `no_store` (*bool*) – If True, will not store downloaded data.
- `data_dir` (*Path*) – Path to directory where data will be cached.

`read_ratings()`

Retrieve ratings from the datasource for the selected leagues.

Return type

`pd.DataFrame`

`classmethod available_leagues()`

Return a list of league IDs available for this source.

Return type

`List[str]`

1.3.7 WhoScored

```
class soccerdata.WhoScored(leagues=None, seasons=None, proxy=None, no_cache=False, no_store=False,
                             data_dir=PosixPath('/home/docs/soccerdata/data/WhoScored'),
                             path_to_browser=None, headless=False)
```

Provides `pd.DataFrame`s from data available at <http://whoscored.com>.

Data will be downloaded as necessary and cached locally in `~/soccerdata/data/WhoScored`.

Parameters

- `leagues` (*string or iterable, optional*) – IDs of Leagues to include.
- `seasons` (*string, int or list, optional*) – Seasons to include. Supports multiple formats. Examples: '16-17'; 2016; '2016-17'; [14, 15, 16]
- `proxy` (*'tor' or dict or list(dict) or callable, optional*) –

Use a proxy to hide your IP address. Valid options are:

- `"tor"`: Uses the Tor network. Tor should be running in the background on port 9050.
- `dict`: A dictionary with the proxy to use. The dict should be a mapping of supported protocols to proxy addresses. For example:

```
{
  'http': 'http://10.10.1.10:3128',
  'https': 'http://10.10.1.10:1080',
}
```

- `list(dict)`: A list of proxies to choose from. A different proxy will be selected from this list after failed requests, allowing rotating proxies.
- `callable`: A function that returns a valid proxy. This function will be called after failed requests, allowing rotating proxies.

- **`no_cache`** (*bool*) – If True, will not use cached data.
- **`no_store`** (*bool*) – If True, will not store downloaded data.
- **`data_dir`** (*Path*) – Path to directory where data will be cached.
- **`path_to_browser`** (*Path, optional*) – Path to the Chrome executable.
- **`headless`** (*bool, default: True*) – If True, will run Chrome in headless mode. Setting this to False might help to avoid getting blocked.

`read_schedule`(*force_cache=False*)

Retrieve the game schedule for the selected leagues and seasons.

Parameters

`force_cache` (*bool*) – By default no cached data is used for the current season. If True, will force the use of cached data anyway.

Return type

`pd.DataFrame`

`read_missing_players`(*match_id=None, force_cache=False*)

Retrieve a list of injured and suspended players ahead of each game.

Parameters

- **`match_id`** (*int or list of int, optional*) – Retrieve the missing players for a specific game.
- **`force_cache`** (*bool*) – By default no cached data is used to scrape the list of available games for the current season. If True, will force the use of cached data anyway.

Raises

`ValueError` – If the given `match_id` could not be found in the selected seasons.

Return type

`pd.DataFrame`

`read_events`(*match_id=None, force_cache=False, live=False, output_fmt='events'*)

Retrieve the the event data for each game in the selected leagues and seasons.

Parameters

- **`match_id`** (*int or list of int, optional*) – Retrieve the event stream for a specific game.
- **`force_cache`** (*bool*) – By default no cached data is used to scrape the list of available games for the current season. If True, will force the use of cached data anyway.
- **`live`** (*bool*) – If True, will not return a cached copy of the event data. This is usefull to scrape live data.
- **`output_fmt`** (*str, default: 'events'*) –

The output format of the returned data. Possible values are:

- `'events'` (default): Returns a dataframe with all events.
- `'raw'`: Returns the original unformatted WhoScored JSON.

- 'spadl': Returns a dataframe with the SPADL representation of the original events. See <https://socceraction.readthedocs.io/en/latest/documentation/SPADL.html#spadl>
- 'atomic-spadl': Returns a dataframe with the Atomic-SPADL representation of the original events. See <https://socceraction.readthedocs.io/en/latest/documentation/SPADL.html#atomic-spadl>
- 'loader': Returns a `socceraction.data.opta.OptaLoader` instance, which can be used to retrieve the actual data. See <https://socceraction.readthedocs.io/en/latest/modules/generated/socceraction.data.opta.OptaLoader.html#socceraction.data.opta.OptaLoader> # noqa: E501
- None: Doesn't return any data. This is useful to just cache the data without storing the events in memory.

Raises

- **ValueError** – If the given `match_id` could not be found in the selected seasons.
- **ImportError** – If the requested output format is 'spadl', 'atomic-spadl' or 'loader' but the `socceraction` package is not installed.

Return type

See the description of the `output_fmt` parameter.

classmethod available_leagues()

Return a list of league IDs available for this source.

Return type

List[str]

1.4 Contributor Guide

This document lays out guidelines and advice for contributing to this project. If you're thinking of contributing, please start by reading this document and getting a feel for how contributing to this project works. If you have any questions, feel free to reach out to [Pieter Robberechts](#), the primary maintainer.

The guide is split into sections based on the type of contribution you're thinking of making.

1.4.1 Bug Reports

Bug reports are hugely important! Before you raise one, though, please check through the [GitHub issues](#), **both open and closed**, to confirm that the bug hasn't been reported before.

When filing an issue, make sure to answer these questions:

- Which Python version are you using?
- Which version of `soccerdata` are you using?
- What did you do?
- What did you expect to see?
- What did you see instead?

The best way to get your bug fixed is to provide a test case, and/or steps to reproduce the issue.

1.4.2 Feature Requests

If you believe there is a feature missing, feel free to raise a feature request on the [Issue Tracker](#).

1.4.3 Documentation Contributions

Documentation improvements are always welcome! The documentation files live in the `docs/` directory of the code-base. They're written in `reStructuredText`, and use `Sphinx` to generate the full suite of documentation.

You do not have to setup a development environment to make small changes to the docs. Instead, you can [edit files directly on GitHub](#) and suggest changes.

When contributing documentation, please do your best to follow the style of the documentation files. This means a soft-limit of 79 characters wide in your text files and a semi-formal, yet friendly and approachable, prose style.

When presenting Python code, use single-quoted strings (`'hello'` instead of `"hello"`).

1.4.4 Code Contributions

If you intend to contribute code, do not feel the need to sit on your contribution until it is perfectly polished and complete. It helps everyone involved for you to seek feedback as early as you possibly can. Submitting an early, unfinished version of your contribution for feedback can save you from putting a lot of work into a contribution that is not suitable for the project.

Setting up your development environment

You need Python 3.7.1+ and the following tools:

- `Poetry`
- `Nox`
- `nox-poetry`

Install the package with development requirements:

```
$ poetry install
```

You can now run an interactive Python session.

```
$ poetry run python
```

Steps for submitting Code

When contributing code, you'll want to follow this checklist:

1. Fork the repository on GitHub.
2. Run the tests to confirm they all pass on your system. If they don't, you'll need to investigate why they fail. If you're unable to diagnose this yourself, raise it as a bug report.
3. Write tests that demonstrate your bug or feature. Ensure that they fail.
4. Make your change.
5. Run the entire test suite again, confirming that all tests pass *including the ones you just added*.

6. Make sure your code follows the code style discussed below.
7. Send a GitHub Pull Request to the main repository's `master` branch. GitHub Pull Requests are the expected method of code collaboration on this project.

Testing the project

Run the full test suite:

```
$ nox
```

List the available Nox sessions:

```
$ nox --list-sessions
```

You can also run a specific Nox session. For example, invoke the unit test suite like this:

```
$ nox --session=tests
```

Unit tests are located in the `tests` directory, and are written using the `pytest` testing framework.

Code style

The soccerdata codebase uses the [PEP 8](#) code style. In addition, we have a few guidelines:

- Line-length can exceed 79 characters, to 100, when convenient.
- Line-length can exceed 100 characters, when doing otherwise would be *terribly* inconvenient.
- Always use single-quoted strings (e.g. `'#soccer'`), unless a single-quote occurs within the string.

To ensure all code conforms to this format. You can format the code using the pre-commit hooks.

```
$ nox --session=pre-commit
```

Docstrings are to follow the [numpydoc guidelines](#).

Submitting changes

Open a [pull request](#) to submit changes to this project.

Your pull request needs to meet the following guidelines for acceptance:

- The Nox test suite must pass without errors and warnings.
- Include unit tests.
- If your changes add functionality, update the documentation accordingly.

Feel free to submit early, though. We can always iterate on this.

To run linting and code formatting checks before committing your change, you can install pre-commit as a Git hook by running the following command:

```
$ nox --session=pre-commit -- install
```

It is recommended to open an issue before starting work on anything.

1.5 Apache License

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