

Install the web scraper for pro football reference, which provides NFL statistics

```
In [1]: pip install pro-football-reference-web-scraper
```

```
Collecting pro-football-reference-web-scraper
  Using cached pro_football_reference_web_scraper-0.2.1-py3-none-any.whl
Collecting pandas>=1.5.3
  Downloading pandas-2.2.1-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_
x86_64.whl (13.0 MB)
----- 13.0/13.0 MB 39.7 MB/s eta 0:
00:0000:0100:01
Collecting haversine>=2.4.0
  Downloading haversine-2.8.1-py2.py3-none-any.whl (7.7 kB)
Requirement already satisfied: beautifulsoup4>=4.9.0 in /opt/conda/lib/pyth
on3.10/site-packages (from pro-football-reference-web-scraper) (4.11.1)
Collecting requests>=2.28.2
  Using cached requests-2.31.0-py3-none-any.whl (62 kB)
Requirement already satisfied: soupsieve>1.2 in /opt/conda/lib/python3.10/s
ite-packages (from beautifulsoup4>=4.9.0->pro-football-reference-web-scrape
r) (2.3.2.post1)
Requirement already satisfied: numpy<2,>=1.22.4 in /opt/conda/lib/python3.1
0/site-packages (from pandas>=1.5.3->pro-football-reference-web-scraper)
(1.23.5)
Requirement already satisfied: tzdata>=2022.7 in /opt/conda/lib/python3.10/
site-packages (from pandas>=1.5.3->pro-football-reference-web-scraper) (202
2.7)
Requirement already satisfied: python-dateutil>=2.8.2 in /opt/conda/lib/pyt
hon3.10/site-packages (from pandas>=1.5.3->pro-football-reference-web-scrap
er) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in /opt/conda/lib/python3.10/si
te-packages (from pandas>=1.5.3->pro-football-reference-web-scraper) (2022.
7)
Requirement already satisfied: urllib3<3,>=1.21.1 in /opt/conda/lib/python
3.10/site-packages (from requests>=2.28.2->pro-football-reference-web-scrap
er) (1.26.13)
Requirement already satisfied: idna<4,>=2.5 in /opt/conda/lib/python3.10/si
te-packages (from requests>=2.28.2->pro-football-reference-web-scraper) (3.
4)
Requirement already satisfied: charset-normalizer<4,>=2 in /opt/conda/lib/p
ython3.10/site-packages (from requests>=2.28.2->pro-football-reference-web-
scraper) (2.1.1)
Requirement already satisfied: certifi>=2017.4.17 in /opt/conda/lib/python
3.10/site-packages (from requests>=2.28.2->pro-football-reference-web-scrap
er) (2022.12.7)
Requirement already satisfied: six>=1.5 in /opt/conda/lib/python3.10/site-p
ackages (from python-dateutil>=2.8.2->pandas>=1.5.3->pro-football-reference
-web-scraper) (1.16.0)
Installing collected packages: requests, haversine, pandas, pro-football-re
ference-web-scraper
  Attempting uninstall: requests
    Found existing installation: requests 2.28.1
    Uninstalling requests-2.28.1:
      Successfully uninstalled requests-2.28.1
  Attempting uninstall: pandas
    Found existing installation: pandas 1.5.2
    Uninstalling pandas-1.5.2:
      Successfully uninstalled pandas-1.5.2
Successfully installed haversine-2.8.1 pandas-2.2.1 pro-football-reference-
web-scraper-0.2.1 requests-2.31.0
Note: you may need to restart the kernel to use updated packages.
```

Import pandas for dataframe purposes

```
In [2]: import pandas as pd
```

```
/opt/conda/lib/python3.10/site-packages/pandas/core/computation/expressions.py:21: UserWarning: Pandas requires version '2.8.4' or newer of 'numexpr' (version '2.8.3' currently installed).
  from pandas.core.computation.check import NUMEXPR_INSTALLED
/opt/conda/lib/python3.10/site-packages/pandas/core/arrays/masked.py:60: UserWarning: Pandas requires version '1.3.6' or newer of 'bottleneck' (version '1.3.5' currently installed).
  from pandas.core import (
```

use pandas and web scraper to show the game log of quarterbacks in 2023

```
In [3]: from pro_football_reference_web_scraper import player_game_log as p
```

```
QB = p.get_player_game_log(player = 'Lamar Jackson', position = 'QB', season = 2023)
QB
```

Out [3]:

	date	week	team	game_location	opp	result	team_pts	opp_pts	cmp	att	pass_yc
0	2023-09-10	1	BAL		HOU	W	25	9	17	22	16
1	2023-09-17	2	BAL	@	CIN	W	27	24	24	33	23
2	2023-09-24	3	BAL		IND	L	19	22	22	31	20
3	2023-10-01	4	BAL	@	CLE	W	28	3	15	19	18
4	2023-10-08	5	BAL	@	PIT	L	10	17	22	38	23
5	2023-10-15	6	BAL	@	TEN	W	24	16	21	30	22
6	2023-10-22	7	BAL		DET	W	38	6	21	27	35
7	2023-10-29	8	BAL	@	ARI	W	31	24	18	27	15
8	2023-11-05	9	BAL		SEA	W	37	3	21	26	18
9	2023-11-12	10	BAL		CLE	L	31	33	13	23	22
10	2023-11-16	11	BAL		CIN	W	34	20	16	26	26
11	2023-11-26	12	BAL	@	LAC	W	20	10	18	32	17
12	2023-12-10	14	BAL		LAR	W	37	31	24	43	31
13	2023-12-17	15	BAL	@	JAX	W	23	7	14	24	11
14	2023-12-25	16	BAL	@	SFO	W	33	19	23	35	25
15	2023-12-31	17	BAL		MIA	W	56	19	18	21	31

Determine the QB's averages in important basic statistics over the season and the past 5 games using `.tail`

```
In [4]: averages = {
    QBPass := QB['pass_yds'].mean(),
    QBRuns := QB['rush_att'].mean(),
    QBRush := QB['rush_yds'].mean(),
    QBPassTD := QB['pass_td'].mean()
}
QBlast5 = QB.tail(5)
last5Avg = {
    QB5Pass := QBlast5['pass_yds'].mean(),
```

```

    QB5Runs := QBlast5['rush_att'].mean(),
    QB5Rush := QBlast5['rush_yds'].mean(),
    QB5PassTD := QBlast5['pass_td'].mean()
}
ceiling = {
    MaxQBPass := QB['pass_yds'].max(),
    MaxQBRuns := QB['rush_att'].max(),
    MaxQBRush := QB['rush_yds'].max(),
    MaxQBPassTD := QB['pass_td'].max()
}
floor = {
    MinQBPass := QB['pass_yds'].min(),
    MinQBRuns := QB['rush_att'].min(),
    MinQBRush := QB['rush_yds'].min(),
    MinQBPassTD := QB['pass_td'].min()
}
TwoHunPlus = QB['pass_yds'] >= 200
OnePlus = QB['pass_td'] >= 1
TwentyPlus = QB['cmp'] >= 20
TenRushPlus = QB['rush_yds'] >= 10
TwoHunPlus5 = QBlast5['pass_yds'] >= 200
OnePlus5 = QBlast5['pass_td'] >= 1
TwentyPlus5 = QBlast5['cmp'] >= 20
TenRushPlus5 = QBlast5['rush_yds'] >= 10
print("Quarterback Hit Rate:")
print()
print()
print("200+ Passing Yards Every Game?: ", all(TwoHunPlus))
print()
print("Last 5?: ", all(TwoHunPlus5))
print()
print("1+ Passing TD Every Game?: ",all(OnePlus))
print()
print("Last 5?: ", all(OnePlus5))
print()
print("20+ completions Every Game?: ", all(TwentyPlus))
print()
print("Last 5?: ", all(TwentyPlus5))
print()
print("10+ Rush Yards Every Game?: ",all(TenRushPlus))
print()
print("Last 5?: ", all(TenRushPlus5))
print()
print()
print("Quarterback Averages: ")
print()
print('Avg. Pass Yards (Season): ', QBPass)
print()
print('Max (Season): ', MaxQBPass,)
print()
print('Min (Season): ',MinQBPass)
print()
print('Last 5: ', QB5Pass)
print()
print('Avg. Rush Attempts (Season): ', QBRuns)
print()

```

```
print('Max (Season): ', MaxQBRuns,)  
print()  
print('Min (Season): ',MinQBRuns)  
print()  
print('Last 5: ', QB5Runs)  
print()  
print('Avg. Rush Yards (Season): ', QBRush)  
print()  
print('Max (Season): ', MaxQBRush,)  
print()  
print('Min (Season): ',MinQBRush)  
print()  
print('Last 5: ', QB5Rush)  
print()  
print('Avg. Pass TDs (Season): ', QBPassTD)  
print()  
print('Max (Season): ', MaxQBPassTD,)  
print()  
print('Min (Season): ',MinQBPassTD)  
print()  
print('Last 5: ', QB5PassTD)
```

Quarterback Hit Rate:

200+ Passing Yards Every Game?: False

Last 5?: False

1+ Passing TD Every Game?: False

Last 5?: True

20+ completions Every Game?: False

Last 5?: False

10+ Rush Yards Every Game?: True

Last 5?: True

Quarterback Averages:

Avg. Pass Yards (Season): 229.875

Max (Season): 357

Min (Season): 157

Last 5: 247.4

Avg. Rush Attempts (Season): 9.25

Max (Season): 14

Min (Season): 5

Last 5: 9.4

Avg. Rush Yards (Season): 51.3125

Max (Season): 101

Min (Season): 17

Last 5: 57.2

Avg. Pass TDs (Season): 1.5

Max (Season): 5

Min (Season): 0

Last 5: 2.4

```
In [5]: RB = p.get_player_game_log(player = "De'Von Achane", position = 'RB', season  
RB
```

Out [5]:

	date	week	team	game_location	opp	result	team_pts	opp_pts	rush_att	rush_yd
0	2023-09-17	2	MIA	@	NWE	W	24	17	1	
1	2023-09-24	3	MIA		DEN	W	70	20	18	20
2	2023-10-01	4	MIA	@	BUF	L	20	48	8	10
3	2023-10-08	5	MIA		NYG	W	31	16	11	15
4	2023-11-19	11	MIA		LVR	W	20	13	1	
5	2023-12-03	13	MIA	@	WAS	W	45	15	17	7
6	2023-12-11	14	MIA		TEN	L	27	28	7	4
7	2023-12-17	15	MIA		NYJ	W	30	0	9	3
8	2023-12-24	16	MIA		DAL	W	22	20	7	2
9	2023-12-31	17	MIA	@	BAL	L	19	56	14	10
10	2024-01-07	18	MIA		BUF	L	14	21	10	5

In [6]:

```

averages = {
  Tgts := RB['tgt'].mean(),
  RBRuns := RB['rush_att'].mean(),
  RBRush := RB['rush_yds'].mean(),
  RushTD := RB['rush_td'].mean()
}
Rblast5 = RB.tail(5)
last5Avg = {
  Tgts5 := Rblast5['tgt'].mean(),
  RBRuns5 := Rblast5['rush_att'].mean(),
  RBRush5 := Rblast5['rush_yds'].mean(),
  RushTD5 := Rblast5['rush_td'].mean()
}
ceiling = {
  MaxTgts := RB['tgt'].max(),
  MaxRBRuns := RB['rush_att'].max(),
  MaxRBRush := RB['rush_yds'].max(),
  MaxRushTD := RB['rush_td'].max()
}
floor = {
  MinTgts := RB['tgt'].min(),
  MinRBRuns := RB['rush_att'].min(),
  MinRBRush := RB['rush_yds'].min(),
  MinRushTD := RB['rush_td'].min()
}

```



```
ThirtyPlus = RB['rush_yds'] >= 30
FiftyPlus = RB['rush_yds'] >= 50
TenPlus = RB['rush_att'] >= 10
ThirtyPlus5 = RBlast5['rush_yds'] >= 30
FiftyPlus5 = RBlast5['rush_yds'] >= 50
TenPlus5 = RBlast5['rush_yds'] >= 10
TDLand = RB['rush_td'] >= 1
TDLand5 = RBlast5['rush_td'] >= 1
print("Running Back Hit Rate:")
print()
print()
print("30+ Rush Yards Every Game?: ", all(ThirtyPlus))
print()
print("Last 5?: ", all(ThirtyPlus5))
print()
print("50+ Rush Yards Every Game?: ", all(FiftyPlus))
print()
print("Last 5?: ", all(FiftyPlus5))
print()
print("10+ Attempts Every Game?: ",all(TenPlus))
print()
print("Last 5?: ", all(TenPlus5))
print()
print("1+ Rush TD Every Game?: ",all(TDLand))
print()
print("Last 5?: ", all(TDLand5))
print()
print()
print("Running Back Averages: ")
print()
print('Avg. Targets (Season): ', Tgts)
print()
print('Max (Season): ', MaxTgts,)
print()
print('Min (Season): ',MinTgts)
print()
print('Last 5: ', Tgts5)
print()
print('Avg. Rush Attempts (Season): ', RBRuns)
print()
print('Max (Season): ', MaxRBRuns,)
print()
print('Min (Season): ',MinRBRuns)
print()
print('Last 5: ', RBRuns5)
print()
print('Avg. Rush Yards (Season): ', RBRush)
print()
print('Max (Season): ', MaxRBRush,)
print()
print('Min (Season): ',MinRBRush)
print()
print('Last 5: ', RBRush5)
print()
print('Avg. Rush TDs (Season): ', RushTD)
print()
```

```
print('Max (Season): ', MaxRushTD,)  
print()  
print('Min (Season): ', MinRushTD)  
print()  
print('Last 5: ', RushTD5)
```

Running Back Hit Rate:

30+ Rush Yards Every Game?: False

Last 5?: False

50+ Rush Yards Every Game?: False

Last 5?: False

10+ Attempts Every Game?: False

Last 5?: True

1+ Rush TD Every Game?: False

Last 5?: False

Running Back Averages:

Avg. Targets (Season): 3.3636363636363638

Max (Season): 9

Min (Season): 1

Last 5: 4.2

Avg. Rush Attempts (Season): 9.363636363636363

Max (Season): 18

Min (Season): 1

Last 5: 9.4

Avg. Rush Yards (Season): 72.72727272727273

Max (Season): 203

Min (Season): 1

Last 5: 53.2

Avg. Rush TDs (Season): 0.7272727272727273

Max (Season): 2

Min (Season): 0

Last 5: 0.2

```
In [7]: from pro_football_reference_web_scraper import player_game_log as p
```

```
WR = p.get_player_game_log(player = 'Adam Thielen', position = 'WR', season
WR
```

Out [7]:

	date	week	team	game_location	opp	result	team_pts	opp_pts	tgt	rec	rec_yds
0	2023-09-10	1	CAR	@	ATL	L	10	24	2	2	12
1	2023-09-18	2	CAR		NOR	L	17	20	9	7	54
2	2023-09-24	3	CAR	@	SEA	L	27	37	14	11	145
3	2023-10-01	4	CAR		MIN	L	13	21	8	7	76
4	2023-10-08	5	CAR	@	DET	L	24	42	13	11	107
5	2023-10-15	6	CAR	@	MIA	L	21	42	13	11	115
6	2023-10-29	8	CAR		HOU	W	15	13	11	8	72
7	2023-11-05	9	CAR		IND	L	13	27	6	5	29
8	2023-11-09	10	CAR	@	CHI	L	13	16	10	6	42
9	2023-11-19	11	CAR		DAL	L	10	33	11	8	74
10	2023-11-26	12	CAR	@	TEN	L	10	17	3	1	2
11	2023-12-03	13	CAR	@	TAM	L	18	21	6	3	25
12	2023-12-10	14	CAR	@	NOR	L	6	28	7	5	74
13	2023-12-17	15	CAR		ATL	W	9	7	7	4	43
14	2023-12-24	16	CAR		GNB	L	30	33	8	6	94
15	2023-12-31	17	CAR	@	JAX	L	0	26	6	6	38
16	2024-01-07	18	CAR		TAM	L	0	9	3	2	12

```
In [8]: averages = {
    Tgts := WR['tgt'].mean(),
    WRRec := WR['rec'].mean(),
    WRYds := WR['rec_yds'].mean(),
    WRTD := WR['rec_td'].mean()
}
WRlast5 = WR.tail(5)
```

```

last5Avg = {
  Tgts5 := WRlast5['tgt'].mean(),
  WRRec5 := WRlast5['rec'].mean(),
  WRYds5 := WRlast5['rec_yds'].mean(),
  WRTD5 := WRlast5['rec_td'].mean()
}
ceiling = {
  MaxTgts := WR['tgt'].max(),
  MaxWRRec := WR['rec'].max(),
  MaxWRYds := WR['rec_yds'].max(),
  MaxWRTD := WR['rec_td'].max()
}
floor = {
  MinTgts := WR['tgt'].max(),
  MinWRRec := WR['rec'].max(),
  MinWRYds := WR['rec_yds'].max(),
  MinWRTD := WR['rec_td'].max()
}
FourtyPlus = WR['rec_yds'] >= 40
FivePlus = WR['rec'] >= 5
FourtyPlus5 = WRlast5['rec_yds'] >= 40
FivePlus5 = WRlast5['rec'] >= 5
FiftyPlus = WR['rec_yds'] >= 50
FiftyPlus5 = WRlast5['rec_yds'] >= 50
SixtyPlus = WR['rec_yds'] >= 60
SixtyPlus5 = WRlast5['rec_yds'] >= 60
SeventyPlus = WR['rec_yds'] >= 70
SeventyPlus5 = WRlast5['rec_yds'] >= 70

FourtyPlusPer = []
if True in FourtyPlus:
  FourtyPlusPer.append(sum(FourtyPlus))
print("Wide Receiver Hit Rate:")
print()
print()
print("40+ Yards Every Game?: ", all(FourtyPlus))
print()
print("Hit %: ", FourtyPlusPer)
print()
print("Last 5?: ", all(FourtyPlus5))
print()
print("50+ Yards Every Game?: ", all(FiftyPlus))
print()
print("Last 5?: ", all(FiftyPlus5))
print()
print("60+ Yards Every Game?: ", all(SixtyPlus))
print()
print("Last 5?: ", all(SixtyPlus5))
print()
print("70+ Yards Every Game?: ", all(SeventyPlus))
print()
print("Last 5?: ", all(SeventyPlus5))
print()
print("5+ Receptions Every Game?: ",all(FivePlus))
print()
print("Last 5?: ", all(FivePlus5))

```

```
print()
print()
print("Wide Receiver Averages: ")
print()
print('Avg. Targets (Season): ', Tgts)
print()
print('Max (Season): ', MaxTgts,)
print()
print('Min (Season): ', MinTgts)
print()
print('Last 5: ', Tgts5)
print()
print('Avg. Receptions (Season): ', WRRec)
print()
print('Max (Season): ', MaxWRRec,)
print()
print('Min (Season): ', MinWRRec)
print()
print('Last 5: ', WRRec5)
print()
print('Avg. Receiving Yards (Season): ', WRYds)
print()
print('Max (Season): ', MaxWRYds,)
print()
print('Min (Season): ', MinWRYds)
print()
print('Last 5: ', WRYds5)
print()
print('Avg. Receiving TDs (Season): ', WRTD)
print()
print('Max (Season): ', MaxWRTD,)
print()
print('Min (Season): ', MinWRTD)
print()
print('Last 5: ', WRTD5)
```

Wide Receiver Hit Rate:

40+ Yards Every Game?: False

Hit %: []

Last 5?: False

50+ Yards Every Game?: False

Last 5?: False

60+ Yards Every Game?: False

Last 5?: False

70+ Yards Every Game?: False

Last 5?: False

5+ Receptions Every Game?: False

Last 5?: False

Wide Receiver Averages:

Avg. Targets (Season): 8.058823529411764

Max (Season): 14

Min (Season): 14

Last 5: 6.2

Avg. Receptions (Season): 6.0588235294117645

Max (Season): 11

Min (Season): 11

Last 5: 4.6

Avg. Receiving Yards (Season): 59.64705882352941

Max (Season): 145

Min (Season): 145

Last 5: 52.2

Avg. Receiving TDs (Season): 0.23529411764705882

Max (Season): 1

Min (Season): 1

Last 5: 0.0

```
In [74]: import pandas as pd
data_nfl = {
    'Last 5 games - QB (1+ TD)': ['Josh Allen', 'Dak Prescott', 'Pat Mahomes',
    'Last 5 games - QB (20+ Cmp)': ['Dak Prescott', 'Pat Mahomes', '', '', ],
    'Last 5 games - QB (10+ Rush)': ['Josh Allen', 'Jalen Hurts', 'Lamar Jackson',
    'Whole Season - RB (30+ yds)': ['Christian McCaffrey', 'Saquon Barkley',
    'Whole Season - RB (10+ att)': ['Christian McCaffrey', 'Saquon Barkley',
    'Last 5 games - RB (30+ yds)': ['Bijan Robinson', '', '', '', ],
    'Last 5 games - RB (10+ att)': ['Bijan Robinson', 'Alvin Kamara', '', ],
    'Season - WR (40+ yds)': ['Tyreek Hill', '', '', '', ]
}
pd.DataFrame(data_nfl)
```

Out[74]:

	Last 5 games - QB (1+ TD)	Last 5 games - QB (20+ Cmp)	Last 5 games - QB (10+ Rush)	Whole Season - RB (30+ yds)	Whole Season - RB (10+ att)	Last 5 games - RB (30+ yds)	Last 5 games - RB (10+ att)	Season - WR (40+ yds)
0	Josh Allen	Dak Prescott	Josh Allen	Christian McCaffrey	Christian McCaffrey	Bijan Robinson	Bijan Robinson	Tyreek Hill
1	Dak Prescott	Pat Mahomes	Jalen Hurts	Saquon Barkley	Saquon Barkley		Alvin Kamara	
2	Pat Mahomes		Lamar Jackson	Kyren Williams	Kyren Williams			
3								
4								

In []: