Milestone 4: Brandon Mather DSC540-T302

```python
In [18]:  import requests
          import pandas as pd
          import json
```

```python
In [132…  #connecting to API
          url = "https://nfl-team-stats.p.rapidapi.com/v1/nfl-stats/teams/receiving-stats/offens

          headers = {
                  "X-RapidAPI-Key": "5f74606fe1msh15446d3536f515ap118208jsn1cbab3825b4e",
                  "X-RapidAPI-Host": "nfl-team-stats.p.rapidapi.com"
          }

          response = requests.request("GET", url, headers=headers)
```

```python
In [133…  json = response.json()
```

```python
In [134…  #1 turning API data into dataframe
          df = pd.DataFrame(json['_embedded'])
```

```python
In [135…  df
```

Out[135]:

	teamReceivingStatsList
0	{'name': 'Falcons', 'receives': 459, 'touchdow...
1	{'name': 'Saints', 'receives': 418, 'touchdown...
2	{'name': 'Rams', 'receives': 397, 'touchdowns'...
3	{'name': 'Chargers', 'receives': 394, 'touchdo...
4	{'name': 'Eagles', 'receives': 391, 'touchdown...
5	{'name': 'Cowboys', 'receives': 388, 'touchdow...
6	{'name': 'Panthers', 'receives': 382, 'touchdo...
7	{'name': 'Buccaneers', 'receives': 382, 'touch...
8	{'name': 'Chiefs', 'receives': 378, 'touchdown...
9	{'name': 'Patriots', 'receives': 378, 'touchdo...
10	{'name': 'Giants', 'receives': 376, 'touchdown...
11	{'name': 'Bears', 'receives': 371, 'touchdowns...
12	{'name': 'Dolphins', 'receives': 371, 'touchdo...
13	{'name': 'Raiders', 'receives': 367, 'touchdow...
14	{'name': 'Jaguars', 'receives': 364, 'touchdow...
15	{'name': 'Bengals', 'receives': 356, 'touchdow...
16	{'name': 'Packers', 'receives': 356, 'touchdow...
17	{'name': 'Texans', 'receives': 355, 'touchdown...
18	{'name': 'Cardinals', 'receives': 355, 'touchd...
19	{'name': 'Lions', 'receives': 344, 'touchdowns...
20	{'name': 'Seahawks', 'receives': 341, 'touchdo...
21	{'name': '49ers', 'receives': 331, 'touchdowns...
22	{'name': 'Jets', 'receives': 323, 'touchdowns'...
23	{'name': 'Vikings', 'receives': 319, 'touchdow...
24	{'name': 'Browns', 'receives': 318, 'touchdown...
25	{'name': 'Steelers', 'receives': 315, 'touchdo...
26	{'name': 'Broncos', 'receives': 312, 'touchdow...
27	{'name': 'Colts', 'receives': 307, 'touchdowns...
28	{'name': 'Bills', 'receives': 299, 'touchdowns...
29	{'name': 'Redskins', 'receives': 298, 'touchdo...
30	{'name': 'Titans', 'receives': 297, 'touchdown...
31	{'name': 'Ravens', 'receives': 289, 'touchdown...

```
In [149…   #2 Seperating columns
           recieving_df = df["teamReceivingStatsList"].apply(pd.Series)
```

```
In [167…   #3 # Renaming Columns to show they are recieving stats
           recieving_df = recieving_df.rename(columns = {'receives': 'Receptions', 'touchdowns':
```

```
In [168…   recieving_df
```

Out[168]:

	name	Receptions	Recieving TDs	Recieving yards	_links
0	Falcons	459	29	5049	{'receiving-stats': {'href': 'http://nflteamst...
1	Saints	418	36	4431	{'receiving-stats': {'href': 'http://nflteamst...
2	Rams	397	22	4669	{'receiving-stats': {'href': 'http://nflteamst...
3	Chargers	394	24	4648	{'receiving-stats': {'href': 'http://nflteamst...
4	Eagles	391	27	4063	{'receiving-stats': {'href': 'http://nflteamst...
5	Cowboys	388	30	4902	{'receiving-stats': {'href': 'http://nflteamst...
6	Panthers	382	17	4134	{'receiving-stats': {'href': 'http://nflteamst...
7	Buccaneers	382	33	5127	{'receiving-stats': {'href': 'http://nflteamst...
8	Chiefs	378	30	4690	{'receiving-stats': {'href': 'http://nflteamst...
9	Patriots	378	25	4153	{'receiving-stats': {'href': 'http://nflteamst...
10	Giants	376	30	4070	{'receiving-stats': {'href': 'http://nflteamst...
11	Bears	371	20	3573	{'receiving-stats': {'href': 'http://nflteamst...
12	Dolphins	371	22	4117	{'receiving-stats': {'href': 'http://nflteamst...
13	Raiders	367	22	4110	{'receiving-stats': {'href': 'http://nflteamst...
14	Jaguars	364	24	4023	{'receiving-stats': {'href': 'http://nflteamst...
15	Bengals	356	18	3994	{'receiving-stats': {'href': 'http://nflteamst...
16	Packers	356	26	4017	{'receiving-stats': {'href': 'http://nflteamst...
17	Texans	355	27	4083	{'receiving-stats': {'href': 'http://nflteamst...
18	Cardinals	355	20	3797	{'receiving-stats': {'href': 'http://nflteamst...
19	Lions	344	28	4187	{'receiving-stats': {'href': 'http://nflteamst...
20	Seahawks	341	31	4110	{'receiving-stats': {'href': 'http://nflteamst...
21	49ers	331	28	4029	{'receiving-stats': {'href': 'http://nflteamst...
22	Jets	323	19	3443	{'receiving-stats': {'href': 'http://nflteamst...
23	Vikings	319	26	3729	{'receiving-stats': {'href': 'http://nflteamst...
24	Browns	318	22	3847	{'receiving-stats': {'href': 'http://nflteamst...
25	Steelers	315	18	3214	{'receiving-stats': {'href': 'http://nflteamst...
26	Broncos	312	16	3401	{'receiving-stats': {'href': 'http://nflteamst...
27	Colts	307	22	3314	{'receiving-stats': {'href': 'http://nflteamst...
28	Bills	299	21	3476	{'receiving-stats': {'href': 'http://nflteamst...
29	Redskins	298	18	3205	{'receiving-stats': {'href': 'http://nflteamst...
30	Titans	297	29	3956	{'receiving-stats': {'href': 'http://nflteamst...
31	Ravens	289	37	3350	{'receiving-stats': {'href': 'http://nflteamst...

```
In [127...  #second API data into dataframe
            url2 = "https://nfl-team-stats.p.rapidapi.com/v1/nfl-stats/teams/rushing-stats/defens

            headers2 = {
                    "X-RapidAPI-Key": "5f74606fe1msh15446d3536f515ap118208jsn1cbab3825b4e",
                    "X-RapidAPI-Host": "nfl-team-stats.p.rapidapi.com"
            }

            response2 = requests.request("GET", url2, headers=headers2)
```

```
In [128...  json2 = response2.json()
```

```
In [129...  df2 = pd.DataFrame(json2['_embedded'])
```

```
In [130...  df2
```

Out[130]:

	teamRushingStatsList
0	{'name': 'Ravens', 'yards': 1494, 'touchdowns'…
1	{'name': '49ers', 'yards': 1802, 'touchdowns':…
2	{'name': 'Seahawks', 'yards': 1883, 'touchdown…
3	{'name': 'Vikings', 'yards': 1728, 'touchdowns…
4	{'name': 'Colts', 'yards': 1567, 'touchdowns':…
5	{'name': 'Bills', 'yards': 1649, 'touchdowns':…
6	{'name': 'Eagles', 'yards': 1442, 'touchdowns'…
7	{'name': 'Cowboys', 'yards': 1656, 'touchdowns…
8	{'name': 'Patriots', 'yards': 1528, 'touchdown…
9	{'name': 'Titans', 'yards': 1672, 'touchdowns'…
10	{'name': 'Raiders', 'yards': 1570, 'touchdowns…
11	{'name': 'Texans', 'yards': 1937, 'touchdowns'…
12	{'name': 'Packers', 'yards': 1921, 'touchdowns…
13	{'name': 'Broncos', 'yards': 1783, 'touchdowns…
14	{'name': 'Buccaneers', 'yards': 1181, 'touchdo…
15	{'name': 'Lions', 'yards': 1855, 'touchdowns':…
16	{'name': 'Saints', 'yards': 1461, 'touchdowns'…
17	{'name': 'Rams', 'yards': 1809, 'touchdowns': …
18	{'name': 'Cardinals', 'yards': 1922, 'touchdow…
19	{'name': 'Bears', 'yards': 1632, 'touchdowns':…
20	{'name': 'Steelers', 'yards': 1753, 'touchdown…
21	{'name': 'Browns', 'yards': 2315, 'touchdowns'…
22	{'name': 'Jaguars', 'yards': 2229, 'touchdowns…
23	{'name': 'Panthers', 'yards': 2296, 'touchdown…
24	{'name': 'Bengals', 'yards': 2382, 'touchdowns…
25	{'name': 'Jets', 'yards': 1391, 'touchdowns': …
26	{'name': 'Chiefs', 'yards': 2051, 'touchdowns'…
27	{'name': 'Chargers', 'yards': 1805, 'touchdown…
28	{'name': 'Falcons', 'yards': 1775, 'touchdowns…
29	{'name': 'Giants', 'yards': 1812, 'touchdowns'…
30	{'name': 'Redskins', 'yards': 2339, 'touchdown…
31	{'name': 'Dolphins', 'yards': 2166, 'touchdown…

In [154…
```python
#4 Seperating Columns
rushing_df = df2["teamRushingStatsList"].apply(pd.Series)
```

In [164…
```python
#5 Renaming Columns to show they are rushing stats
rushing_df = rushing_df.rename(columns = {'yards': 'Rushing yards', 'touchdowns': 'Rus
```

In [165…
```python
rushing_df
```

In [154…
```python
#4 Seperating Columns
rushing_df = df2["teamRushingStatsList"].apply(pd.Series)
```

Out[165]:

	name	Rushing yards	Rushing TDs	_links
0	Ravens	1494	12	{'rushing-stats': {'href': 'http://nflteamstat...
1	49ers	1802	11	{'rushing-stats': {'href': 'http://nflteamstat...
2	Seahawks	1883	22	{'rushing-stats': {'href': 'http://nflteamstat...
3	Vikings	1728	8	{'rushing-stats': {'href': 'http://nflteamstat...
4	Colts	1567	8	{'rushing-stats': {'href': 'http://nflteamstat...
5	Bills	1649	12	{'rushing-stats': {'href': 'http://nflteamstat...
6	Eagles	1442	13	{'rushing-stats': {'href': 'http://nflteamstat...
7	Cowboys	1656	14	{'rushing-stats': {'href': 'http://nflteamstat...
8	Patriots	1528	7	{'rushing-stats': {'href': 'http://nflteamstat...
9	Titans	1672	14	{'rushing-stats': {'href': 'http://nflteamstat...
10	Raiders	1570	15	{'rushing-stats': {'href': 'http://nflteamstat...
11	Texans	1937	12	{'rushing-stats': {'href': 'http://nflteamstat...
12	Packers	1921	15	{'rushing-stats': {'href': 'http://nflteamstat...
13	Broncos	1783	9	{'rushing-stats': {'href': 'http://nflteamstat...
14	Buccaneers	1181	11	{'rushing-stats': {'href': 'http://nflteamstat...
15	Lions	1855	13	{'rushing-stats': {'href': 'http://nflteamstat...
16	Saints	1461	12	{'rushing-stats': {'href': 'http://nflteamstat...
17	Rams	1809	15	{'rushing-stats': {'href': 'http://nflteamstat...
18	Cardinals	1922	9	{'rushing-stats': {'href': 'http://nflteamstat...
19	Bears	1632	16	{'rushing-stats': {'href': 'http://nflteamstat...
20	Steelers	1753	7	{'rushing-stats': {'href': 'http://nflteamstat...
21	Browns	2315	19	{'rushing-stats': {'href': 'http://nflteamstat...
22	Jaguars	2229	23	{'rushing-stats': {'href': 'http://nflteamstat...
23	Panthers	2296	31	{'rushing-stats': {'href': 'http://nflteamstat...
24	Bengals	2382	17	{'rushing-stats': {'href': 'http://nflteamstat...
25	Jets	1391	12	{'rushing-stats': {'href': 'http://nflteamstat...
26	Chiefs	2051	14	{'rushing-stats': {'href': 'http://nflteamstat...
27	Chargers	1805	15	{'rushing-stats': {'href': 'http://nflteamstat...
28	Falcons	1775	13	{'rushing-stats': {'href': 'http://nflteamstat...
29	Giants	1812	19	{'rushing-stats': {'href': 'http://nflteamstat...
30	Redskins	2339	14	{'rushing-stats': {'href': 'http://nflteamstat...
31	Dolphins	2166	15	{'rushing-stats': {'href': 'http://nflteamstat...

In [137…
```python
# third API dat into dataframe
url3 = "https://nfl-team-stats.p.rapidapi.com/v1/nfl-stats/teams/win-stats/2019"

headers3 = {
        "X-RapidAPI-Key": "5f74606fe1msh15446d3536f515ap118208jsn1cbab3825b4e",
        "X-RapidAPI-Host": "nfl-team-stats.p.rapidapi.com"
}

response3 = requests.request("GET", url3, headers=headers3)
```

In [138…
```python
json3 = response3.json()
```

In [139…
```python
df3 = pd.DataFrame(json3['_embedded'])
```

In [140…
```python
df3
```

In [137…
```python
# third API dat into dataframe
url3 = "https://nfl-team-stats.p.rapidapi.com/v1/nfl-stats/teams/win-stats/2019"
```

Out[140]:

	teamWinStatsList
0	{'name': 'Cincinnati Bengals', 'wins': 2, 'los...
1	{'name': 'Detroit Lions', 'wins': 3, 'losses':...
2	{'name': 'Washington Commanders', 'wins': 3, '...
3	{'name': 'New York Giants', 'wins': 4, 'losses...
4	{'name': 'Arizona Cardinals', 'wins': 5, 'loss...
5	{'name': 'Carolina Panthers', 'wins': 5, 'loss...
6	{'name': 'Los Angeles Chargers', 'wins': 5, 'l...
7	{'name': 'Miami Dolphins', 'wins': 5, 'losses'...
8	{'name': 'Cleveland Browns', 'wins': 6, 'losse...
9	{'name': 'Jacksonville Jaguars', 'wins': 6, 'l...
10	{'name': 'Atlanta Falcons', 'wins': 7, 'losses...
11	{'name': 'Denver Broncos', 'wins': 7, 'losses'...
12	{'name': 'Indianapolis Colts', 'wins': 7, 'los...
13	{'name': 'Las Vegas Raiders', 'wins': 7, 'loss...
14	{'name': 'New York Jets', 'wins': 7, 'losses':...
15	{'name': 'Tampa Bay Buccaneers', 'wins': 7, 'l...
16	{'name': 'Chicago Bears', 'wins': 8, 'losses':...
17	{'name': 'Dallas Cowboys', 'wins': 8, 'losses'...
18	{'name': 'Pittsburgh Steelers', 'wins': 8, 'lo...
19	{'name': 'Los Angeles Rams', 'wins': 9, 'losse...
20	{'name': 'Philadelphia Eagles xz', 'wins': 9, ...
21	{'name': 'Tennessee Titans x', 'wins': 9, 'los...
22	{'name': 'Buffalo Bills x', 'wins': 10, 'losse...
23	{'name': 'Houston Texans xz', 'wins': 10, 'los...
24	{'name': 'Minnesota Vikings x', 'wins': 10, 'l...
25	{'name': 'Seattle Seahawks', 'wins': 11, 'loss...
26	{'name': 'Kansas City Chiefs xz', 'wins': 12, ...
27	{'name': 'New England Patriots xz', 'wins': 12...
28	{'name': 'Green Bay Packers xz', 'wins': 13, '...
29	{'name': 'New Orleans Saints xz', 'wins': 13, ...
30	{'name': 'San Francisco 49ers x*', 'wins': 13,...
31	{'name': 'Baltimore Ravens xz*', 'wins': 14, '...

In [156…
```python
#6 Seperating Columns
teamwins_df = df3["teamWinStatsList"].apply(pd.Series)
```

In [157…
```python
teamwins_df
```

Out[157]:

	name	wins	losses	winRatePercentage	_links
0	Cincinnati Bengals	2	14	0.125	{'win-stats': {'href': 'http://nflteamstatsapi...
1	Detroit Lions	3	12	0.219	{'win-stats': {'href': 'http://nflteamstatsapi...
2	Washington Commanders	3	13	0.188	{'win-stats': {'href': 'http://nflteamstatsapi...
3	New York Giants	4	12	0.250	{'win-stats': {'href': 'http://nflteamstatsapi...
4	Arizona Cardinals	5	10	0.344	{'win-stats': {'href': 'http://nflteamstatsapi...
5	Carolina Panthers	5	11	0.313	{'win-stats': {'href': 'http://nflteamstatsapi...
6	Los Angeles Chargers	5	11	0.313	{'win-stats': {'href': 'http://nflteamstatsapi...
7	Miami Dolphins	5	11	0.313	{'win-stats': {'href': 'http://nflteamstatsapi...
8	Cleveland Browns	6	10	0.375	{'win-stats': {'href': 'http://nflteamstatsapi...
9	Jacksonville Jaguars	6	10	0.375	{'win-stats': {'href': 'http://nflteamstatsapi...
10	Atlanta Falcons	7	9	0.438	{'win-stats': {'href': 'http://nflteamstatsapi...
11	Denver Broncos	7	9	0.438	{'win-stats': {'href': 'http://nflteamstatsapi...
12	Indianapolis Colts	7	9	0.438	{'win-stats': {'href': 'http://nflteamstatsapi...
13	Las Vegas Raiders	7	9	0.438	{'win-stats': {'href': 'http://nflteamstatsapi...
14	New York Jets	7	9	0.438	{'win-stats': {'href': 'http://nflteamstatsapi...
15	Tampa Bay Buccaneers	7	9	0.438	{'win-stats': {'href': 'http://nflteamstatsapi...
16	Chicago Bears	8	8	0.500	{'win-stats': {'href': 'http://nflteamstatsapi...
17	Dallas Cowboys	8	8	0.500	{'win-stats': {'href': 'http://nflteamstatsapi...
18	Pittsburgh Steelers	8	8	0.500	{'win-stats': {'href': 'http://nflteamstatsapi...
19	Los Angeles Rams	9	7	0.563	{'win-stats': {'href': 'http://nflteamstatsapi...
20	Philadelphia Eagles xz	9	7	0.563	{'win-stats': {'href': 'http://nflteamstatsapi...

	name	wins	losses	winRatePercentage	_links
21	Tennessee Titans x	9	7	0.563	{'win-stats': {'href': 'http://nflteamstatsapi...
22	Buffalo Bills x	10	6	0.625	{'win-stats': {'href': 'http://nflteamstatsapi...
23	Houston Texans xz	10	6	0.625	{'win-stats': {'href': 'http://nflteamstatsapi...
24	Minnesota Vikings x	10	6	0.625	{'win-stats': {'href': 'http://nflteamstatsapi...
25	Seattle Seahawks	11	5	0.688	{'win-stats': {'href': 'http://nflteamstatsapi...
26	Kansas City Chiefs xz	12	4	0.750	{'win-stats': {'href': 'http://nflteamstatsapi...
27	New England Patriots xz	12	4	0.750	{'win-stats': {'href': 'http://nflteamstatsapi...
28	Green Bay Packers xz	13	3	0.813	{'win-stats': {'href': 'http://nflteamstatsapi...
29	New Orleans Saints xz	13	3	0.813	{'win-stats': {'href': 'http://nflteamstatsapi...
30	San Francisco 49ers x*	13	3	0.813	{'win-stats': {'href': 'http://nflteamstatsapi...
31	Baltimore Ravens xz*	14	2	0.875	{'win-stats': {'href': 'http://nflteamstatsapi...