[IEOR 142] Scraper for NBA MVP Model

December 20, 2019

```python
[4]: import numpy as np
     import pandas as pd
     import matplotlib.pyplot as plt
     import requests
     from bs4 import BeautifulSoup
     import time
     import re
```

```python
[5]: from collections import defaultdict
```

```python
[6]: #scrape player profiles
     def work_player_profile(param, season):
         url = "https://www.basketball-reference.com" + param
         res = requests.get(url)
         soup = BeautifulSoup(res.text)

         data_dict = {}

         per_game = soup.find(attrs={'id': 'all_per_game'})
         for row in per_game.findAll("tr"):
             if 'id' in row.attrs and row.attrs['id'] == "per_game." + season:
                 data_dict['fga'] = float(row.find('td', attrs={'data-stat':
     ↪'fga_per_g'}).text)
                 data_dict['fg3a'] = float(row.find('td', attrs={'data-stat':
     ↪'fg3a_per_g'}).text)
                 data_dict['fta'] = float(row.find('td', attrs={'data-stat':
     ↪'fta_per_g'}).text)
                 break

         advanced_table = soup.find(attrs={'id': 'all_advanced'})
         for child in advanced_table.children:
             if "table_outer_container" in child:
                 other_soup = BeautifulSoup(child)
                 rows = other_soup.findAll("tr")
         for row in rows:
             if 'id' in row.attrs and row.attrs['id'] == "advanced." + season:
                 data_dict.update(
```

```python
                    {
                        'per': float(row.find('td', attrs={'data-stat': 'per'}).
 text),
                        'ts_pct': float(row.find('td', attrs={'data-stat':
 'ts_pct'}).text),
                        'usg_pct': float(row.find('td', attrs={'data-stat':
 'usg_pct'}).text),
                        'bpm': float(row.find('td', attrs={'data-stat': 'bpm'}).
 text),
                        'vorp': float(row.find('td', attrs={'data-stat': 'vorp'}).
 text),
                        'season': str(int(season)-1) + "-" + season[-2:],
                    }
                )
            return data_dict
```

[7]:
```python
#scrape voting stats
def get_stats_of_voting(url):
    res = requests.get(url)
    soup = BeautifulSoup(res.text)
    item = soup.find(attrs={'class': 'stats_table'})
    rows = item.findAll("tr")

    season = url.split(".html")[0][-4:]

    print(f"Current season: {season}")

    players_stats = defaultdict(list)

    for index, row in enumerate(rows):

        print(f"\tCurrent index: {index} of {len(rows)}")
        header_cells = row.findAll("th")
        for header_cell in header_cells:
            if 'data-stat' in header_cell.attrs and header_cell['data-stat'] ==
 'ranker' and 'csk' in header_cell.attrs:
                rank = int(header_cell.getText())
        td_cells = row.findAll("td")
        if not td_cells:
            continue
        for cell in td_cells:
            if 'data-stat' not in cell.attrs:
                continue
#             if cell['data-stat'] == 'age':
#                 continue
            if cell['data-stat'] == 'team_id':
```

```python
                    base = "https://www.basketball-reference.com"
                    try:
                        link = cell.find("a")['href']
                    except Exception:
                        players_stats['win_pct'].append(0.5)  # average
                        continue
                    url = base + link
                    time.sleep(1)
                    soup = BeautifulSoup(requests.get(url).text)
                    for item in soup.findAll("p"):
                        if "Record" in item.text:
                            record = re.findall("\d+\-\d+", item.text)[0]
                            splitted = record.split("-")
                            players_stats['win_pct'].append(float(splitted[0]) /
  (float(splitted[1]) + float(splitted[0])))
                            break
                    continue
                if cell['data-stat'] == 'player':
                    time.sleep(1)
                    advanced_dict = work_player_profile(cell.find("a")['href'],
  season)

                    for key in advanced_dict:
                        players_stats[key].append(advanced_dict[key])
                    players_stats[cell['data-stat']].append(cell.getText())
                else:
                    text = cell.getText() or "0"
                    players_stats[cell['data-stat']].append(float(text))
    return players_stats
```

```python
[10]: #setting csv parameters
      seasons = range(1981, 2020)

      new_data = defaultdict(list)

      for season in seasons:
          full_url = f"https://www.basketball-reference.com/awards/
   awards_{str(season)}.html"
          cur_season_dict = get_stats_of_voting(full_url)
          for key in cur_season_dict:
              new_data[key].extend(cur_season_dict[key])

      data_frame = pd.DataFrame(new_data)
```

```
Current season: 1981
        Current index: 0 of 33
        Current index: 1 of 33
        Current index: 2 of 33
```

```
Current index: 3 of 33
Current index: 4 of 33
Current index: 5 of 33
Current index: 6 of 33
Current index: 7 of 33
Current index: 8 of 33
Current index: 9 of 33
Current index: 10 of 33
Current index: 11 of 33
Current index: 12 of 33
Current index: 13 of 33
Current index: 14 of 33
Current index: 15 of 33
Current index: 16 of 33
Current index: 17 of 33
Current index: 18 of 33
Current index: 19 of 33
Current index: 20 of 33
Current index: 21 of 33
Current index: 22 of 33
Current index: 23 of 33
Current index: 24 of 33
Current index: 25 of 33
Current index: 26 of 33
Current index: 27 of 33
Current index: 28 of 33
Current index: 29 of 33
Current index: 30 of 33
Current index: 31 of 33
Current index: 32 of 33
Current season: 1982
Current index: 0 of 27
Current index: 1 of 27
Current index: 2 of 27
Current index: 3 of 27
Current index: 4 of 27
Current index: 5 of 27
Current index: 6 of 27
Current index: 7 of 27
Current index: 8 of 27
Current index: 9 of 27
Current index: 10 of 27
Current index: 11 of 27
Current index: 12 of 27
Current index: 13 of 27
Current index: 14 of 27
Current index: 15 of 27
Current index: 16 of 27
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        Current index: 17 of 27
        Current index: 18 of 27
        Current index: 19 of 27
        Current index: 20 of 27
        Current index: 21 of 27
        Current index: 22 of 27
        Current index: 23 of 27
        Current index: 24 of 27
        Current index: 25 of 27
        Current index: 26 of 27
Current season: 1983
        Current index: 0 of 25
        Current index: 1 of 25
        Current index: 2 of 25
        Current index: 3 of 25
        Current index: 4 of 25
        Current index: 5 of 25
        Current index: 6 of 25
        Current index: 7 of 25
        Current index: 8 of 25
        Current index: 9 of 25
        Current index: 10 of 25
        Current index: 11 of 25
        Current index: 12 of 25
        Current index: 13 of 25
        Current index: 14 of 25
        Current index: 15 of 25
        Current index: 16 of 25
        Current index: 17 of 25
        Current index: 18 of 25
        Current index: 19 of 25
        Current index: 20 of 25
        Current index: 21 of 25
        Current index: 22 of 25
        Current index: 23 of 25
        Current index: 24 of 25
Current season: 1984
        Current index: 0 of 17
        Current index: 1 of 17
        Current index: 2 of 17
        Current index: 3 of 17
        Current index: 4 of 17
        Current index: 5 of 17
        Current index: 6 of 17
        Current index: 7 of 17
        Current index: 8 of 17
        Current index: 9 of 17
        Current index: 10 of 17
```

```
        Current index: 11 of 17
        Current index: 12 of 17
        Current index: 13 of 17
        Current index: 14 of 17
        Current index: 15 of 17
        Current index: 16 of 17
Current season: 1985
        Current index: 0 of 25
        Current index: 1 of 25
        Current index: 2 of 25
        Current index: 3 of 25
        Current index: 4 of 25
        Current index: 5 of 25
        Current index: 6 of 25
        Current index: 7 of 25
        Current index: 8 of 25
        Current index: 9 of 25
        Current index: 10 of 25
        Current index: 11 of 25
        Current index: 12 of 25
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        Current index: 14 of 25
        Current index: 15 of 25
        Current index: 16 of 25
        Current index: 17 of 25
        Current index: 18 of 25
        Current index: 19 of 25
        Current index: 20 of 25
        Current index: 21 of 25
        Current index: 22 of 25
        Current index: 23 of 25
        Current index: 24 of 25
Current season: 1986
        Current index: 0 of 20
        Current index: 1 of 20
        Current index: 2 of 20
        Current index: 3 of 20
        Current index: 4 of 20
        Current index: 5 of 20
        Current index: 6 of 20
        Current index: 7 of 20
        Current index: 8 of 20
        Current index: 9 of 20
        Current index: 10 of 20
        Current index: 11 of 20
        Current index: 12 of 20
        Current index: 13 of 20
        Current index: 14 of 20
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        Current index: 15 of 20
        Current index: 16 of 20
        Current index: 17 of 20
        Current index: 18 of 20
        Current index: 19 of 20
Current season: 1987
        Current index: 0 of 19
        Current index: 1 of 19
        Current index: 2 of 19
        Current index: 3 of 19
        Current index: 4 of 19
        Current index: 5 of 19
        Current index: 6 of 19
        Current index: 7 of 19
        Current index: 8 of 19
        Current index: 9 of 19
        Current index: 10 of 19
        Current index: 11 of 19
        Current index: 12 of 19
        Current index: 13 of 19
        Current index: 14 of 19
        Current index: 15 of 19
        Current index: 16 of 19
        Current index: 17 of 19
        Current index: 18 of 19
Current season: 1988
        Current index: 0 of 19
        Current index: 1 of 19
        Current index: 2 of 19
        Current index: 3 of 19
        Current index: 4 of 19
        Current index: 5 of 19
        Current index: 6 of 19
        Current index: 7 of 19
        Current index: 8 of 19
        Current index: 9 of 19
        Current index: 10 of 19
        Current index: 11 of 19
        Current index: 12 of 19
        Current index: 13 of 19
        Current index: 14 of 19
        Current index: 15 of 19
        Current index: 16 of 19
        Current index: 17 of 19
        Current index: 18 of 19
Current season: 1989
        Current index: 0 of 21
        Current index: 1 of 21
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        Current index: 2 of 21
        Current index: 3 of 21
        Current index: 4 of 21
        Current index: 5 of 21
        Current index: 6 of 21
        Current index: 7 of 21
        Current index: 8 of 21
        Current index: 9 of 21
        Current index: 10 of 21
        Current index: 11 of 21
        Current index: 12 of 21
        Current index: 13 of 21
        Current index: 14 of 21
        Current index: 15 of 21
        Current index: 16 of 21
        Current index: 17 of 21
        Current index: 18 of 21
        Current index: 19 of 21
        Current index: 20 of 21
Current season: 1990
        Current index: 0 of 16
        Current index: 1 of 16
        Current index: 2 of 16
        Current index: 3 of 16
        Current index: 4 of 16
        Current index: 5 of 16
        Current index: 6 of 16
        Current index: 7 of 16
        Current index: 8 of 16
        Current index: 9 of 16
        Current index: 10 of 16
        Current index: 11 of 16
        Current index: 12 of 16
        Current index: 13 of 16
        Current index: 14 of 16
        Current index: 15 of 16
Current season: 1991
        Current index: 0 of 22
        Current index: 1 of 22
        Current index: 2 of 22
        Current index: 3 of 22
        Current index: 4 of 22
        Current index: 5 of 22
        Current index: 6 of 22
        Current index: 7 of 22
        Current index: 8 of 22
        Current index: 9 of 22
        Current index: 10 of 22
```

```
        Current index: 11 of 22
        Current index: 12 of 22
        Current index: 13 of 22
        Current index: 14 of 22
        Current index: 15 of 22
        Current index: 16 of 22
        Current index: 17 of 22
        Current index: 18 of 22
        Current index: 19 of 22
        Current index: 20 of 22
        Current index: 21 of 22
Current season: 1992
        Current index: 0 of 19
        Current index: 1 of 19
        Current index: 2 of 19
        Current index: 3 of 19
        Current index: 4 of 19
        Current index: 5 of 19
        Current index: 6 of 19
        Current index: 7 of 19
        Current index: 8 of 19
        Current index: 9 of 19
        Current index: 10 of 19
        Current index: 11 of 19
        Current index: 12 of 19
        Current index: 13 of 19
        Current index: 14 of 19
        Current index: 15 of 19
        Current index: 16 of 19
        Current index: 17 of 19
        Current index: 18 of 19
Current season: 1993
        Current index: 0 of 16
        Current index: 1 of 16
        Current index: 2 of 16
        Current index: 3 of 16
        Current index: 4 of 16
        Current index: 5 of 16
        Current index: 6 of 16
        Current index: 7 of 16
        Current index: 8 of 16
        Current index: 9 of 16
        Current index: 10 of 16
        Current index: 11 of 16
        Current index: 12 of 16
        Current index: 13 of 16
        Current index: 14 of 16
        Current index: 15 of 16
```

```
Current season: 1994
        Current index: 0 of 19
        Current index: 1 of 19
        Current index: 2 of 19
        Current index: 3 of 19
        Current index: 4 of 19
        Current index: 5 of 19
        Current index: 6 of 19
        Current index: 7 of 19
        Current index: 8 of 19
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        Current index: 10 of 19
        Current index: 11 of 19
        Current index: 12 of 19
        Current index: 13 of 19
        Current index: 14 of 19
        Current index: 15 of 19
        Current index: 16 of 19
        Current index: 17 of 19
        Current index: 18 of 19
Current season: 1995
        Current index: 0 of 17
        Current index: 1 of 17
        Current index: 2 of 17
        Current index: 3 of 17
        Current index: 4 of 17
        Current index: 5 of 17
        Current index: 6 of 17
        Current index: 7 of 17
        Current index: 8 of 17
        Current index: 9 of 17
        Current index: 10 of 17
        Current index: 11 of 17
        Current index: 12 of 17
        Current index: 13 of 17
        Current index: 14 of 17
        Current index: 15 of 17
        Current index: 16 of 17
Current season: 1996
        Current index: 0 of 19
        Current index: 1 of 19
        Current index: 2 of 19
        Current index: 3 of 19
        Current index: 4 of 19
        Current index: 5 of 19
        Current index: 6 of 19
        Current index: 7 of 19
        Current index: 8 of 19
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        Current index: 9 of 19
        Current index: 10 of 19
        Current index: 11 of 19
        Current index: 12 of 19
        Current index: 13 of 19
        Current index: 14 of 19
        Current index: 15 of 19
        Current index: 16 of 19
        Current index: 17 of 19
        Current index: 18 of 19
Current season: 1997
        Current index: 0 of 22
        Current index: 1 of 22
        Current index: 2 of 22
        Current index: 3 of 22
        Current index: 4 of 22
        Current index: 5 of 22
        Current index: 6 of 22
        Current index: 7 of 22
        Current index: 8 of 22
        Current index: 9 of 22
        Current index: 10 of 22
        Current index: 11 of 22
        Current index: 12 of 22
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        Current index: 14 of 22
        Current index: 15 of 22
        Current index: 16 of 22
        Current index: 17 of 22
        Current index: 18 of 22
        Current index: 19 of 22
        Current index: 20 of 22
        Current index: 21 of 22
Current season: 1998
        Current index: 0 of 21
        Current index: 1 of 21
        Current index: 2 of 21
        Current index: 3 of 21
        Current index: 4 of 21
        Current index: 5 of 21
        Current index: 6 of 21
        Current index: 7 of 21
        Current index: 8 of 21
        Current index: 9 of 21
        Current index: 10 of 21
        Current index: 11 of 21
        Current index: 12 of 21
        Current index: 13 of 21
```

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        Current index: 14 of 21
        Current index: 15 of 21
        Current index: 16 of 21
        Current index: 17 of 21
        Current index: 18 of 21
        Current index: 19 of 21
        Current index: 20 of 21
Current season: 1999
        Current index: 0 of 23
        Current index: 1 of 23
        Current index: 2 of 23
        Current index: 3 of 23
        Current index: 4 of 23
        Current index: 5 of 23
        Current index: 6 of 23
        Current index: 7 of 23
        Current index: 8 of 23
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        Current index: 14 of 23
        Current index: 15 of 23
        Current index: 16 of 23
        Current index: 17 of 23
        Current index: 18 of 23
        Current index: 19 of 23
        Current index: 20 of 23
        Current index: 21 of 23
        Current index: 22 of 23
Current season: 2000
        Current index: 0 of 18
        Current index: 1 of 18
        Current index: 2 of 18
        Current index: 3 of 18
        Current index: 4 of 18
        Current index: 5 of 18
        Current index: 6 of 18
        Current index: 7 of 18
        Current index: 8 of 18
        Current index: 9 of 18
        Current index: 10 of 18
        Current index: 11 of 18
        Current index: 12 of 18
        Current index: 13 of 18
        Current index: 14 of 18
        Current index: 15 of 18
```

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        Current index: 16 of 18
        Current index: 17 of 18
Current season: 2001
        Current index: 0 of 19
        Current index: 1 of 19
        Current index: 2 of 19
        Current index: 3 of 19
        Current index: 4 of 19
        Current index: 5 of 19
        Current index: 6 of 19
        Current index: 7 of 19
        Current index: 8 of 19
        Current index: 9 of 19
        Current index: 10 of 19
        Current index: 11 of 19
        Current index: 12 of 19
        Current index: 13 of 19
        Current index: 14 of 19
        Current index: 15 of 19
        Current index: 16 of 19
        Current index: 17 of 19
        Current index: 18 of 19
Current season: 2002
        Current index: 0 of 20
        Current index: 1 of 20
        Current index: 2 of 20
        Current index: 3 of 20
        Current index: 4 of 20
        Current index: 5 of 20
        Current index: 6 of 20
        Current index: 7 of 20
        Current index: 8 of 20
        Current index: 9 of 20
        Current index: 10 of 20
        Current index: 11 of 20
        Current index: 12 of 20
        Current index: 13 of 20
        Current index: 14 of 20
        Current index: 15 of 20
        Current index: 16 of 20
        Current index: 17 of 20
        Current index: 18 of 20
        Current index: 19 of 20
Current season: 2003
        Current index: 0 of 15
        Current index: 1 of 15
        Current index: 2 of 15
        Current index: 3 of 15
```

```
        Current index: 4 of 15
        Current index: 5 of 15
        Current index: 6 of 15
        Current index: 7 of 15
        Current index: 8 of 15
        Current index: 9 of 15
        Current index: 10 of 15
        Current index: 11 of 15
        Current index: 12 of 15
        Current index: 13 of 15
        Current index: 14 of 15
Current season: 2004
        Current index: 0 of 18
        Current index: 1 of 18
        Current index: 2 of 18
        Current index: 3 of 18
        Current index: 4 of 18
        Current index: 5 of 18
        Current index: 6 of 18
        Current index: 7 of 18
        Current index: 8 of 18
        Current index: 9 of 18
        Current index: 10 of 18
        Current index: 11 of 18
        Current index: 12 of 18
        Current index: 13 of 18
        Current index: 14 of 18
        Current index: 15 of 18
        Current index: 16 of 18
        Current index: 17 of 18
Current season: 2005
        Current index: 0 of 18
        Current index: 1 of 18
        Current index: 2 of 18
        Current index: 3 of 18
        Current index: 4 of 18
        Current index: 5 of 18
        Current index: 6 of 18
        Current index: 7 of 18
        Current index: 8 of 18
        Current index: 9 of 18
        Current index: 10 of 18
        Current index: 11 of 18
        Current index: 12 of 18
        Current index: 13 of 18
        Current index: 14 of 18
        Current index: 15 of 18
        Current index: 16 of 18
```

```
        Current index: 17 of 18
Current season: 2006
        Current index: 0 of 13
        Current index: 1 of 13
        Current index: 2 of 13
        Current index: 3 of 13
        Current index: 4 of 13
        Current index: 5 of 13
        Current index: 6 of 13
        Current index: 7 of 13
        Current index: 8 of 13
        Current index: 9 of 13
        Current index: 10 of 13
        Current index: 11 of 13
        Current index: 12 of 13
Current season: 2007
        Current index: 0 of 19
        Current index: 1 of 19
        Current index: 2 of 19
        Current index: 3 of 19
        Current index: 4 of 19
        Current index: 5 of 19
        Current index: 6 of 19
        Current index: 7 of 19
        Current index: 8 of 19
        Current index: 9 of 19
        Current index: 10 of 19
        Current index: 11 of 19
        Current index: 12 of 19
        Current index: 13 of 19
        Current index: 14 of 19
        Current index: 15 of 19
        Current index: 16 of 19
        Current index: 17 of 19
        Current index: 18 of 19
Current season: 2008
        Current index: 0 of 19
        Current index: 1 of 19
        Current index: 2 of 19
        Current index: 3 of 19
        Current index: 4 of 19
        Current index: 5 of 19
        Current index: 6 of 19
        Current index: 7 of 19
        Current index: 8 of 19
        Current index: 9 of 19
        Current index: 10 of 19
        Current index: 11 of 19
```

```
        Current index: 12 of 19
        Current index: 13 of 19
        Current index: 14 of 19
        Current index: 15 of 19
        Current index: 16 of 19
        Current index: 17 of 19
        Current index: 18 of 19
Current season: 2009
        Current index: 0 of 14
        Current index: 1 of 14
        Current index: 2 of 14
        Current index: 3 of 14
        Current index: 4 of 14
        Current index: 5 of 14
        Current index: 6 of 14
        Current index: 7 of 14
        Current index: 8 of 14
        Current index: 9 of 14
        Current index: 10 of 14
        Current index: 11 of 14
        Current index: 12 of 14
        Current index: 13 of 14
Current season: 2010
        Current index: 0 of 17
        Current index: 1 of 17
        Current index: 2 of 17
        Current index: 3 of 17
        Current index: 4 of 17
        Current index: 5 of 17
        Current index: 6 of 17
        Current index: 7 of 17
        Current index: 8 of 17
        Current index: 9 of 17
        Current index: 10 of 17
        Current index: 11 of 17
        Current index: 12 of 17
        Current index: 13 of 17
        Current index: 14 of 17
        Current index: 15 of 17
        Current index: 16 of 17
Current season: 2011
        Current index: 0 of 15
        Current index: 1 of 15
        Current index: 2 of 15
        Current index: 3 of 15
        Current index: 4 of 15
        Current index: 5 of 15
        Current index: 6 of 15
```

```
        Current index: 7 of 15
        Current index: 8 of 15
        Current index: 9 of 15
        Current index: 10 of 15
        Current index: 11 of 15
        Current index: 12 of 15
        Current index: 13 of 15
        Current index: 14 of 15
Current season: 2012
        Current index: 0 of 17
        Current index: 1 of 17
        Current index: 2 of 17
        Current index: 3 of 17
        Current index: 4 of 17
        Current index: 5 of 17
        Current index: 6 of 17
        Current index: 7 of 17
        Current index: 8 of 17
        Current index: 9 of 17
        Current index: 10 of 17
        Current index: 11 of 17
        Current index: 12 of 17
        Current index: 13 of 17
        Current index: 14 of 17
        Current index: 15 of 17
        Current index: 16 of 17
Current season: 2013
        Current index: 0 of 18
        Current index: 1 of 18
        Current index: 2 of 18
        Current index: 3 of 18
        Current index: 4 of 18
        Current index: 5 of 18
        Current index: 6 of 18
        Current index: 7 of 18
        Current index: 8 of 18
        Current index: 9 of 18
        Current index: 10 of 18
        Current index: 11 of 18
        Current index: 12 of 18
        Current index: 13 of 18
        Current index: 14 of 18
        Current index: 15 of 18
        Current index: 16 of 18
        Current index: 17 of 18
Current season: 2014
        Current index: 0 of 19
        Current index: 1 of 19
```

```
        Current index: 2 of 19
        Current index: 3 of 19
        Current index: 4 of 19
        Current index: 5 of 19
        Current index: 6 of 19
        Current index: 7 of 19
        Current index: 8 of 19
        Current index: 9 of 19
        Current index: 10 of 19
        Current index: 11 of 19
        Current index: 12 of 19
        Current index: 13 of 19
        Current index: 14 of 19
        Current index: 15 of 19
        Current index: 16 of 19
        Current index: 17 of 19
        Current index: 18 of 19
Current season: 2015
        Current index: 0 of 14
        Current index: 1 of 14
        Current index: 2 of 14
        Current index: 3 of 14
        Current index: 4 of 14
        Current index: 5 of 14
        Current index: 6 of 14
        Current index: 7 of 14
        Current index: 8 of 14
        Current index: 9 of 14
        Current index: 10 of 14
        Current index: 11 of 14
        Current index: 12 of 14
        Current index: 13 of 14
Current season: 2016
        Current index: 0 of 12
        Current index: 1 of 12
        Current index: 2 of 12
        Current index: 3 of 12
        Current index: 4 of 12
        Current index: 5 of 12
        Current index: 6 of 12
        Current index: 7 of 12
        Current index: 8 of 12
        Current index: 9 of 12
        Current index: 10 of 12
        Current index: 11 of 12
Current season: 2017
        Current index: 0 of 13
        Current index: 1 of 13
```

```
        Current index: 2 of 13
        Current index: 3 of 13
        Current index: 4 of 13
        Current index: 5 of 13
        Current index: 6 of 13
        Current index: 7 of 13
        Current index: 8 of 13
        Current index: 9 of 13
        Current index: 10 of 13
        Current index: 11 of 13
        Current index: 12 of 13
Current season: 2018
        Current index: 0 of 15
        Current index: 1 of 15
        Current index: 2 of 15
        Current index: 3 of 15
        Current index: 4 of 15
        Current index: 5 of 15
        Current index: 6 of 15
        Current index: 7 of 15
        Current index: 8 of 15
        Current index: 9 of 15
        Current index: 10 of 15
        Current index: 11 of 15
        Current index: 12 of 15
        Current index: 13 of 15
        Current index: 14 of 15
Current season: 2019
        Current index: 0 of 14
        Current index: 1 of 14
        Current index: 2 of 14
        Current index: 3 of 14
        Current index: 4 of 14
        Current index: 5 of 14
        Current index: 6 of 14
        Current index: 7 of 14
        Current index: 8 of 14
        Current index: 9 of 14
        Current index: 10 of 14
        Current index: 11 of 14
        Current index: 12 of 14
        Current index: 13 of 14
```

[11]: `data_frame`

```
[11]:      fga  fg3a  fta   per  ts_pct  usg_pct  bpm  vorp  season  \
      0   18.6   0.2  6.5  25.1   0.572     28.4  8.0   7.2  1980-81
```

1	18.3	0.9	4.0	19.9	0.528	24.3	5.1	5.8	1980-81
2	18.2	0.0	6.9	25.5	0.616	26.3	5.3	5.4	1980-81
3	19.3	0.0	10.1	25.1	0.585	27.6	3.7	4.7	1980-81
4	21.1	0.4	7.6	22.9	0.555	32.3	1.6	2.5	1980-81
5	15.2	0.1	5.0	22.0	0.583	23.3	5.9	5.1	1980-81
6	14.2	0.0	4.8	25.2	0.579	27.1	5.0	4.0	1980-81
7	15.4	0.6	6.3	17.0	0.516	24.6	2.0	2.6	1980-81
8	9.6	0.1	5.2	14.3	0.582	17.5	-1.3	0.5	1980-81
9	18.5	0.2	4.1	18.0	0.556	24.5	0.8	2.2	1980-81
10	15.9	0.5	6.1	25.7	0.582	24.3	9.2	3.9	1980-81
11	20.3	0.1	9.8	24.3	0.622	28.4	4.6	5.7	1980-81
12	13.4	0.5	5.4	17.3	0.553	23.3	-1.1	0.5	1980-81
13	15.4	0.1	5.4	19.9	0.617	23.2	3.3	3.9	1980-81
14	14.5	0.4	2.7	14.9	0.484	24.3	-2.8	-0.5	1980-81
15	16.0	0.1	5.0	18.0	0.512	23.6	1.5	2.6	1980-81
16	18.4	0.5	6.4	20.3	0.580	26.8	2.4	2.8	1980-81
17	14.1	1.3	4.3	17.1	0.511	20.0	4.5	5.2	1980-81
18	15.6	0.0	4.8	14.9	0.531	21.5	0.0	1.5	1980-81
19	13.4	1.1	6.7	18.4	0.578	23.1	2.1	3.0	1980-81
20	15.3	0.2	3.2	15.5	0.511	21.8	-1.2	0.6	1980-81
21	10.0	0.0	6.5	21.7	0.699	18.5	4.9	4.9	1980-81
22	10.7	0.0	4.1	19.7	0.573	21.8	3.4	2.4	1980-81
23	8.1	0.2	1.8	12.2	0.530	13.5	1.5	2.3	1980-81
24	14.1	0.2	3.2	18.4	0.579	25.6	0.9	1.6	1980-81
25	4.2	0.0	1.3	13.5	0.517	10.4	3.2	2.5	1980-81
26	9.3	0.0	4.3	20.1	0.604	20.8	5.0	3.6	1980-81
27	21.8	0.1	4.7	17.5	0.513	26.9	-1.5	0.4	1980-81
28	13.3	0.0	5.9	19.4	0.557	26.1	-0.3	0.9	1980-81
29	11.7	0.1	2.5	15.1	0.522	21.1	1.6	2.2	1980-81
..	...	...	...	...	...	...	...	...	
619	15.7	2.3	7.7	26.1	0.599	28.3	7.6	6.9	2016-17
620	18.4	3.5	6.8	23.2	0.541	30.6	4.1	4.3	2016-17
621	20.3	1.8	8.6	27.5	0.580	32.6	3.7	3.9	2016-17
622	16.5	5.0	6.2	27.6	0.651	27.8	8.0	5.2	2016-17
623	20.9	1.7	8.7	24.0	0.552	34.3	0.9	1.9	2016-17
624	20.1	10.0	10.1	29.8	0.619	36.1	10.9	8.3	2017-18
625	19.3	5.0	6.5	28.6	0.621	31.6	9.6	8.9	2017-18
626	19.5	2.2	8.0	28.9	0.612	30.0	5.2	4.9	2017-18
627	19.4	8.6	7.4	25.2	0.594	30.6	6.7	5.9	2017-18
628	21.1	4.1	7.1	24.7	0.524	34.1	8.2	7.5	2017-18
629	18.7	1.9	8.5	27.3	0.598	31.2	5.8	5.4	2017-18
630	18.0	6.1	5.9	26.0	0.640	30.4	5.6	4.5	2017-18
631	17.7	3.6	7.0	21.0	0.555	29.6	1.8	2.6	2017-18
632	18.0	1.2	5.3	25.0	0.570	29.1	3.3	3.3	2017-18
633	15.6	3.4	7.2	23.7	0.590	24.9	5.0	3.8	2017-18
634	16.9	9.8	5.9	28.2	0.675	31.0	8.6	4.4	2017-18
635	16.8	3.4	7.4	22.9	0.573	33.4	2.6	2.2	2017-18

```
636  17.9   5.8    4.9   23.1   0.577      30.1    4.9    4.5   2017-18
637  17.3   2.8    9.5   30.9   0.644      32.3   10.8    7.6   2018-19
638  24.5  13.2   11.0   30.6   0.616      40.5   11.7    9.9   2018-19
639  21.0   9.8    7.0   23.3   0.583      29.5    5.5    5.3   2018-19
640  15.1   3.4    4.4   26.3   0.589      27.4    9.5    7.3   2018-19
641  19.4  11.7    4.2   24.4   0.641      30.4    6.3    4.9   2018-19
642  19.2   8.0    6.4   23.7   0.588      29.3    5.5    5.4   2018-19
643  18.7   4.1   10.1   26.1   0.593      33.3    4.1    3.3   2018-19
644  17.7   5.0    6.5   24.2   0.631      29.0    4.3    4.3   2018-19
645  18.8   5.0    7.1   25.8   0.606      30.3    5.0    3.6   2018-19
646  20.2   5.6    6.2   21.1   0.501      30.9    6.5    5.6   2018-19
647   8.8   0.0    6.4   24.6   0.682      17.8    7.0    5.9   2018-19
648  19.9   5.9    7.6   25.6   0.588      31.6    8.1    4.9   2018-19
```

	player	…	pts_per_g	trb_per_g	ast_per_g \
0	Julius Erving	…	24.6	8.0	4.4
1	Larry Bird	…	21.2	10.9	5.5
2	Kareem Abdul-Jabbar	…	26.2	10.3	3.4
3	Moses Malone	…	27.8	14.8	1.8
4	George Gervin	…	27.1	5.1	3.2
5	Marques Johnson	…	20.3	6.8	4.6
6	Robert Parish	…	18.9	9.5	1.8
7	Dennis Johnson	…	18.8	4.6	3.7
8	Tiny Archibald	…	13.8	2.2	7.7
9	Jamaal Wilkes	…	22.6	5.4	2.9
10	Magic Johnson	…	21.6	8.6	8.6
11	Adrian Dantley	…	30.7	6.4	4.0
12	Phil Ford	…	17.5	1.9	8.8
13	Bernard King	…	21.9	6.8	3.5
14	Kelvin Ransey	…	15.2	2.4	6.9
15	Jack Sikma	…	18.7	10.4	3.0
16	Otis Birdsong	…	24.6	3.6	3.3
17	Micheal Ray Richardson	…	16.4	6.9	7.9
18	Truck Robinson	…	18.8	9.6	2.5
19	Reggie Theus	…	18.9	3.5	5.2
20	Norm Nixon	…	17.1	2.9	8.8
21	Artis Gilmore	…	17.9	10.1	2.1
22	Bob Lanier	…	14.3	6.2	2.7
23	Michael Cooper	…	9.4	4.1	4.1
24	Walter Davis	…	18.0	2.6	3.9
25	George Johnson	…	5.0	7.3	1.1
26	Bobby Jones	…	13.5	5.4	2.8
27	Mike Mitchell	…	24.5	6.1	1.7
28	James Silas	…	17.7	3.1	3.8
29	Quinn Buckner	…	13.3	3.6	4.7
..	…	…	…	…	…
619	Giannis Antetokounmpo	…	22.9	8.8	5.4

620	John Wall	…	23.1	4.2	10.7
621	Anthony Davis	…	28.0	11.8	2.1
622	Kevin Durant	…	25.1	8.3	4.8
623	DeMar DeRozan	…	27.3	5.2	3.9
624	James Harden	…	30.4	5.4	8.8
625	LeBron James	…	27.5	8.6	9.1
626	Anthony Davis	…	28.1	11.1	2.3
627	Damian Lillard	…	26.9	4.5	6.6
628	Russell Westbrook	…	25.4	10.1	10.3
629	Giannis Antetokounmpo	…	26.9	10.0	4.8
630	Kevin Durant	…	26.4	6.8	5.4
631	DeMar DeRozan	…	23.0	3.9	5.2
632	LaMarcus Aldridge	…	23.1	8.5	2.0
633	Jimmy Butler	…	22.2	5.3	4.9
634	Stephen Curry	…	26.4	5.1	6.1
635	Joel Embiid	…	22.9	11.0	3.2
636	Victor Oladipo	…	23.1	5.2	4.3
637	Giannis Antetokounmpo	…	27.7	12.5	5.9
638	James Harden	…	36.1	6.6	7.5
639	Paul George	…	28.0	8.2	4.1
640	Nikola Jokić	…	20.1	10.8	7.3
641	Stephen Curry	…	27.3	5.3	5.2
642	Damian Lillard	…	25.8	4.6	6.9
643	Joel Embiid	…	27.5	13.6	3.7
644	Kevin Durant	…	26.0	6.4	5.9
645	Kawhi Leonard	…	26.6	7.3	3.3
646	Russell Westbrook	…	22.9	11.1	10.7
647	Rudy Gobert	…	15.9	12.9	2.0
648	LeBron James	…	27.4	8.5	8.3

	stl_per_g	blk_per_g	fg_pct	fg3_pct	ft_pct	ws	ws_per_48
0	2.1	1.8	0.521	0.222	0.787	13.8	0.231
1	2.0	0.8	0.478	0.270	0.863	10.8	0.160
2	0.7	2.9	0.574	0.000	0.766	14.3	0.230
3	1.0	1.9	0.522	0.333	0.757	13.7	0.202
4	1.1	0.7	0.492	0.257	0.826	10.5	0.182
5	1.5	0.5	0.552	0.000	0.706	11.2	0.211
6	1.0	2.6	0.545	0.000	0.710	10.9	0.228
7	1.7	0.8	0.436	0.216	0.820	8.4	0.154
8	0.9	0.2	0.499	0.000	0.816	6.9	0.118
9	1.5	0.4	0.526	0.077	0.758	8.5	0.135
10	3.4	0.7	0.532	0.176	0.760	6.4	0.225
11	1.4	0.2	0.559	0.286	0.806	13.6	0.191
12	1.5	0.1	0.478	0.306	0.831	5.2	0.110
13	0.9	0.4	0.588	0.333	0.703	9.1	0.150
14	1.1	0.1	0.452	0.097	0.749	2.8	0.056
15	1.0	1.1	0.454	0.000	0.823	8.0	0.132

```
16        1.3        0.3    0.544   0.286   0.697   8.2       0.152
17        2.9        0.4    0.469   0.225   0.663   6.9       0.104
18        0.8        0.5    0.505   0.000   0.629   7.6       0.119
19        1.5        0.2    0.495   0.200   0.809   9.2       0.156
20        1.8        0.1    0.476   0.167   0.778   5.5       0.089
21        0.6        2.4    0.670   0.000   0.705   12.3      0.208
22        1.1        1.2    0.525   1.000   0.751   6.8       0.185
23        1.6        1.0    0.491   0.211   0.785   5.0       0.092
24        1.2        0.2    0.539   0.412   0.836   7.1       0.157
25        0.6        3.4    0.473   0.000   0.734   4.5       0.112
26        1.2        0.9    0.539   0.000   0.813   9.2       0.217
27        0.8        0.6    0.476   0.444   0.784   6.0       0.091
28        0.7        0.2    0.477   0.000   0.850   7.0       0.164
29        2.4        0.0    0.493   0.167   0.734   5.4       0.108
..        …          …      …       …       …   …             …
619       1.6        1.9    0.521   0.272   0.770   12.4      0.210
620       2.0        0.6    0.451   0.327   0.801   8.8       0.149
621       1.3        2.2    0.505   0.299   0.802   11.0      0.195
622       1.1        1.6    0.537   0.375   0.875   12.0      0.278
623       1.1        0.2    0.467   0.266   0.842   9.0       0.166
624       1.8        0.7    0.449   0.367   0.858   15.4      0.289
625       1.4        0.9    0.542   0.367   0.731   14.0      0.221
626       1.5        2.6    0.534   0.340   0.828   13.7      0.241
627       1.1        0.4    0.439   0.361   0.916   12.6      0.227
628       1.8        0.3    0.449   0.298   0.737   10.1      0.166
629       1.5        1.4    0.529   0.307   0.760   11.9      0.207
630       0.7        1.8    0.516   0.419   0.889   10.4      0.215
631       1.1        0.3    0.456   0.310   0.825   9.6       0.170
632       0.6        1.2    0.510   0.293   0.837   10.9      0.209
633       2.0        0.4    0.474   0.350   0.854   8.9       0.198
634       1.6        0.2    0.495   0.423   0.921   9.1       0.267
635       0.6        1.8    0.483   0.308   0.769   6.2       0.155
636       2.4        0.8    0.477   0.371   0.799   8.2       0.155
637       1.3        1.5    0.578   0.256   0.729   14.4      0.292
638       2.0        0.7    0.442   0.368   0.879   15.2      0.254
639       2.2        0.4    0.438   0.386   0.839   11.9      0.201
640       1.4        0.7    0.511   0.307   0.821   11.8      0.226
641       1.3        0.4    0.472   0.437   0.916   9.7       0.199
642       1.1        0.4    0.444   0.369   0.912   12.1      0.205
643       0.7        1.9    0.484   0.300   0.804   8.7       0.194
644       0.7        1.1    0.521   0.353   0.885   11.5      0.204
645       1.8        0.4    0.496   0.371   0.854   9.5       0.224
646       1.9        0.5    0.428   0.290   0.656   6.8       0.124
647       0.8        2.3    0.669   0.000   0.636   14.4      0.268
648       1.3        0.6    0.510   0.339   0.665   7.2       0.179

[649 rows x 28 columns]
```

```
[12]:  #make csv
       data_frame.to_csv("mvp_votings_1981-2020.csv")

[ ]:
```