```python
import urllib
from urllib.request import urlopen
import pandas as pd
import numpy as np

def make_soup(url):
    req = urllib.request.Request(url,
    headers={'User-Agent': 'Mozilla/5.0'})
    webpage = urlopen(req)
    main_doc = webpage.read()
    return main_doc

#prospect names
soup= make_soup("https://www.rookiescale.com/2022-consensus-board/")
namesDF=pd.read_html(soup)[0]

import re
re.sub(r'(?<!\w)([a-z])\.', r'\1', "a.j.")
```

```
'aj'
```

```python
namesDF.head(20)
```

	Rank	Prospect	Draft Age	Pre-Draft Team	Class
0	2	Chet Holmgren	20.1	Gonzaga	Fr.
1	3	Paolo Banchero	19.6	Duke	Fr.
2	19	Jaden Hardy	20.0	G League Ignite	2002
3	9	Jalen Duren	18.6	Memphis	Fr.
4	44	Caleb Houstan	19.5	Michigan	Fr.
5	6	A.J. Griffin	18.8	Duke	Fr.
6	43	Yannick Nzosa	18.6	Unicaja Málaga	2003
7	27	Patrick Baldwin Jr.	19.6	Milwaukee	Fr.
8	1	Jabari Smith Jr.	19.1	Auburn	Fr.
9	4	Jaden Ivey	20.4	Purdue	So.
10	37	Peyton Watson	19.8	UCLA	Fr.
11	20	Nikola Jović	19.0	KK Mega Basket	2003
12	8	Benn Mathurin	20.0	Arizona	So.

13	13	TyTy Washington Jr.	20.6	Kentucky	Fr.
14	29	Jean Montero	19.0	Overtime Elite	2003
15	17	Kennedy Chandler	19.8	Tennessee	Fr.
16	97	Nolan Hickman	19.1	Gonzaga	Fr.
17	26	Ousmane Dieng	19.1	New Zealand Breakers	2003
18	34	JD Davison	19.7	Alabama	Fr.
19	91	John Butler Jr.	19.6	Florida State	Fr.

	Position	Height	Weight	Agency
0	Forward	7'0"	195	WME
1	Forward	6'10"	250	CAA
2	Combo Guard	6'4"	205	Klutch
3	Big	6'11"	250	Wasserman
4	Wing	6'8"	205	Glushon
5	Wing	6'6"	222	Klutch
6	Big	6'11 3/4"	215	CAA
7	Wing	6'9"	220	Priority
8	Forward	6'10"	220	Par-Lay
9	Combo Guard	6'4"	195	CAA
10	Wing	6'8"	200	Excel
11	Wing	6'10"	209	Excel
12	Wing	6'6 1/4"	210	Innovate
13	Combo Guard	6'3"	197	Rep1
14	Lead Guard	6'2 1/4"	172	Klutch
15	Lead Guard	6'0"	171	Rep1
16	Lead Guard	6'3 1/4 "	185	NaN
17	Wing	6'9 3/4"	200	Excel
18	Combo Guard	6'3"	195	LIFT
19	Forward	7'1"	190	Roc Nation

```python
prospects = namesDF['Prospect'].tolist()
#add hypen to each player (names include hypen in URL)
prospects_list = list(map(lambda x: x.replace(' ', '-'), prospects))
#convert names to lowercase
prospects_list = list(map(lambda x: x.lower(), prospects_list))

prospects_list2=[]
for i in range(len(prospects_list)):
    name=(re.sub(r'(?<!\w)([a-z])\.', r'\1', prospects_list[i]))
    prospects_list2.append(name)

prospects_list2
```

```
['chet-holmgren',
 'paolo-banchero',
 'jaden-hardy',
 'jalen-duren',
 'caleb-houstan',
 'aj-griffin',
 'yannick-nzosa',
 'patrick-baldwin-jr.',
 'jabari-smith-jr.',
 'jaden-ivey',
 'peyton-watson',
 'nikola-jović',
 'benn-mathurin',
 'tyty-washington-jr.',
 'jean-montero',
 'kennedy-chandler',
 'nolan-hickman',
 'ousmane-dieng',
 'jd-davison',
 'john-butler-jr.',
 'dyson-daniels',
 'allen-flanigan',
 'johnny-juzang',
 'marcus-bagley',
 'julian-champagnie',
 'gabe-brown',
 'mark-williams',
 'matthew-mayer',
 'jabari-walker',
 'keegan-murray',
 'max-abmas',
 'caleb-love',
 'ochai-agbaji',
 'collin-gillespie',
 'tristan-vukčević',
 'ariel-hukporti',
 'michael-foster-jr.',
 'kendall-brown',
 'matthew-cleveland',
 'malcolm-cazalon',
 'ibou-badji',
 'max-christie-jr.',
 'walker-kessler',
 'taevion-kinsey',
 'jamaree-bouyea',
 'drew-timme',
 'josiah-jordan-james',
 'khalifa-diop',
 'trayce-jackson-davis',
 'vince-williams-jr.',
```

```
'matteo-spagnolo',
'dalen-terry',
'malaki-branham',
'jalen-wilson',
'ron-harper-jr.',
'bryce-mcgowens',
'ej-liddell',
'scotty-pippen-jr.',
'kofi-cockburn',
'taran-armstrong',
'dominick-barlow',
'hugo-besson',
'isaiah-mobley',
'jahvon-quinerly',
'gabriele-procida',
'marcus-sasser',
'david-roddy',
'shaedon-sharpe',
'dereon-seabron',
'marjon-beauchamp',
'hyunjung-lee',
'justin-lewis',
'terquavion-smith',
'jaylin-williams',
'jalen-williams',
'tevin-brown',
'iverson-molinar',
'keon-ellis',
'orlando-robinson-jr.',
'jordan-hall',
'christian-braun',
'ryan-rollins',
'blake-wesley',
'johnny-davis',
'jake-laravia',
'pete-nance',
'trevion-williams',
'josh-minott',
'andrew-nembhard',
'tari-eason',
'trevor-keels',
'julian-strawther',
'ismaël-kamagate',
'moussa-diabaté',
'wendell-moore-jr.',
'alondes-williams',
'christian-koloko',
'jeremy-sochan',
'harrison-ingram',
'tyler-burton']
```

```python
df_list2=[]
#get college stats for players in NBA draft, each have own URL
for prospect in prospects_list2:
    #print(player)
    if prospect.endswith('-jr.') == True:
        prospect=prospect.replace('-jr.', 'jr')
    for i in range(8):
        try:
            soup=
make_soup("https://www.sports-reference.com/cbb/players/"+prospect+"-"
+str(i)+".html")
            temp_df=pd.read_html(soup)[0]
            temp_df["name"] = prospect #add player name to dataframe
            print(prospect+" MADE IT")
            df_list2.append(temp_df)
        except Exception as e:
                #print(prospect+" MISSING")
                pass
```

```
chet-holmgren MADE IT
paolo-banchero MADE IT
jalen-duren MADE IT
caleb-houstan MADE IT
aj-griffin MADE IT
patrick-baldwinjr MADE IT
jaden-ivey MADE IT
peyton-watson MADE IT
tyty-washingtonjr MADE IT
kennedy-chandler MADE IT
nolan-hickman MADE IT
jd-davison MADE IT
allen-flanigan MADE IT
johnny-juzang MADE IT
marcus-bagley MADE IT
julian-champagnie MADE IT
gabe-brown MADE IT
gabe-brown MADE IT
mark-williams MADE IT
mark-williams MADE IT
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mark-williams MADE IT
mark-williams MADE IT
mark-williams MADE IT
matthew-mayer MADE IT
jabari-walker MADE IT
keegan-murray MADE IT
max-abmas MADE IT
caleb-love MADE IT
ochai-agbaji MADE IT
```

```
collin-gillespie MADE IT
kendall-brown MADE IT
matthew-cleveland MADE IT
walker-kessler MADE IT
taevion-kinsey MADE IT
jamaree-bouyea MADE IT
drew-timme MADE IT
josiah-jordan-james MADE IT
trayce-jackson-davis MADE IT
dalen-terry MADE IT
malaki-branham MADE IT
jalen-wilson MADE IT
ron-harperjr MADE IT
bryce-mcgowens MADE IT
ej-liddell MADE IT
scotty-pippenjr MADE IT
kofi-cockburn MADE IT
taran-armstrong MADE IT
isaiah-mobley MADE IT
jahvon-quinerly MADE IT
marcus-sasser MADE IT
david-roddy MADE IT
dereon-seabron MADE IT
hyunjung-lee MADE IT
justin-lewis MADE IT
terquavion-smith MADE IT
jaylin-williams MADE IT
jaylin-williams MADE IT
jalen-williams MADE IT
tevin-brown MADE IT
iverson-molinar MADE IT
keon-ellis MADE IT
jordan-hall MADE IT
christian-braun MADE IT
ryan-rollins MADE IT
blake-wesley MADE IT
johnny-davis MADE IT
jake-laravia MADE IT
pete-nance MADE IT
trevion-williams MADE IT
josh-minott MADE IT
andrew-nembhard MADE IT
tari-eason MADE IT
trevor-keels MADE IT
julian-strawther MADE IT
wendell-moorejr MADE IT
alondes-williams MADE IT
christian-koloko MADE IT
jeremy-sochan MADE IT
```

```
harrison-ingram MADE IT
tyler-burton MADE IT
```

```
prospects_df = pd.concat(df_list2)
```

```
prospects_df.head()
```

```
    Season   School Conf   G  GS    MP   FG   FGA    FG%   2P  ...
AST  STL  \
0 2021-22  Gonzaga  WCC  32  31  26.9  5.3   8.8  0.607  4.0  ...
1.9  0.8
1  Career  Gonzaga  NaN  32  31  26.9  5.3   8.8  0.607  4.0  ...
1.9  0.8
0 2021-22     Duke  ACC  39  39  33.0  6.3  13.2  0.478  5.2  ...
3.2  1.1
1  Career     Duke  NaN  39  39  33.0  6.3  13.2  0.478  5.2  ...
3.2  1.1
0 2021-22  Memphis  AAC  29  29  25.3  4.9   8.1  0.597  4.9  ...
1.3  0.8

   BLK  TOV   PF   PTS Unnamed: 27   SOS            name Unnamed: 19
0  3.7  1.9  2.7  14.1         NaN   4.5   chet-holmgren         NaN
1  3.7  1.9  2.7  14.1         NaN   4.5   chet-holmgren         NaN
0  0.9  2.4  1.9  17.2         NaN  7.26  paolo-banchero         NaN
1  0.9  2.4  1.9  17.2         NaN  7.26  paolo-banchero         NaN
0  2.1  2.2  2.7  12.0         NaN  7.86     jalen-duren         NaN

[5 rows x 31 columns]
```

```
len(prospects_df.name.unique())
```

```
74
```

```
len(prospects_df)
```

```
291
```

```
prospects_df=prospects_df.reset_index(drop=True)
```

```
prospects_df.head()
```

```
    Season   School Conf   G  GS    MP   FG   FGA    FG%   2P  ...
AST  STL  \
0 2021-22  Gonzaga  WCC  32  31  26.9  5.3   8.8  0.607  4.0  ...
1.9  0.8
1  Career  Gonzaga  NaN  32  31  26.9  5.3   8.8  0.607  4.0  ...
1.9  0.8
2 2021-22     Duke  ACC  39  39  33.0  6.3  13.2  0.478  5.2  ...
3.2  1.1
3  Career     Duke  NaN  39  39  33.0  6.3  13.2  0.478  5.2  ...
3.2  1.1
4 2021-22  Memphis  AAC  29  29  25.3  4.9   8.1  0.597  4.9  ...
```

```
   1.3  0.8

   BLK  TOV   PF    PTS Unnamed: 27   SOS          name Unnamed: 19
0  3.7  1.9  2.7  14.1         NaN   4.5   chet-holmgren         NaN
1  3.7  1.9  2.7  14.1         NaN   4.5   chet-holmgren         NaN
2  0.9  2.4  1.9  17.2         NaN  7.26  paolo-banchero         NaN
3  0.9  2.4  1.9  17.2         NaN  7.26  paolo-banchero         NaN
4  2.1  2.2  2.7  12.0         NaN  7.86     jalen-duren         NaN

[5 rows x 31 columns]
```

```
keep_IDX=prospects_df[prospects_df['Season'] == "2021-22"].index+1
```

```
prospects_df=prospects_df.iloc[keep_IDX]
```

```
prospects_df.columns
```

```
Index(['Season', 'School', 'Conf', 'G', 'GS', 'MP', 'FG', 'FGA', 'FG
%', '2P',
       '2PA', '2P%', '3P', '3PA', '3P%', 'FT', 'FTA', 'FT%', 'ORB',
'DRB',
       'TRB', 'AST', 'STL', 'BLK', 'TOV', 'PF', 'PTS', 'Unnamed: 27',
'SOS',
       'name', 'Unnamed: 19'],
      dtype='object')
```

```
prospects_df.drop(["Season","Conf","Unnamed: 27","Unnamed:
19"],inplace=True,axis=1)
```

```
prospects_df.head()
```

```
     School   G  GS    MP   FG   FGA    FG%   2P  2PA   2P%  ...  DRB
TRB  \
1   Gonzaga  32  31  26.9  5.3   8.8  0.607  4.0  5.5  0.737  ...  8.1
9.9
3      Duke  39  39  33.0  6.3  13.2  0.478  5.2  9.8  0.525  ...  6.1
7.8
5   Memphis  29  29  25.3  4.9   8.1  0.597  4.9  8.1   0.6  ...  5.2
8.1
7  Michigan  34  34  32.0  3.2   8.4  0.384  1.4  3.4  0.426  ...  3.2
4.0
9      Duke  39  25  24.0  3.7   7.6  0.493  1.9  3.5  0.547  ...  3.2
3.9

   AST  STL  BLK  TOV   PF   PTS    SOS            name
1  1.9  0.8  3.7  1.9  2.7  14.1    4.5   chet-holmgren
3  3.2  1.1  0.9  2.4  1.9  17.2   7.26  paolo-banchero
5  1.3  0.8  2.1  2.2  2.7  12.0   7.86     jalen-duren
7  1.4  0.7  0.2  1.5  1.7  10.1  11.02   caleb-houstan
9  1.0  0.5  0.6  0.6  1.1  10.4   7.26      aj-griffin
```

```
[5 rows x 27 columns]

prospects_df.drop("School",inplace=True,axis=1)

soup= make_soup("https://www.sports-reference.com/cbb/players/jabari-
smith-2.html")
jabari=pd.read_html(soup)[0]

jabari.head()

    Season  School Conf   G  GS    MP   FG   FGA    FG%   2P  ...  DRB
TRB  \
0  2021-22  Auburn  SEC  34  34  28.8  5.4  12.6  0.429  3.1  ...  6.5
7.4
1   Career  Auburn  NaN  34  34  28.8  5.4  12.6  0.429  3.1  ...  6.5
7.4

   AST  STL  BLK  TOV   PF   PTS  Unnamed: 27   SOS
0  2.0  1.1  1.0  1.9  2.1  16.9          NaN  8.17
1  2.0  1.1  1.0  1.9  2.1  16.9          NaN  8.17

[2 rows x 29 columns]

jabari.columns

Index(['Season', 'School', 'Conf', 'G', 'GS', 'MP', 'FG', 'FGA', 'FG
%', '2P',
       '2PA', '2P%', '3P', '3PA', '3P%', 'FT', 'FTA', 'FT%', 'ORB',
'DRB',
       'TRB', 'AST', 'STL', 'BLK', 'TOV', 'PF', 'PTS', 'Unnamed: 27',
'SOS'],
      dtype='object')

jabari = jabari[jabari['Season'] == "Career"]

jabari.drop(["Season","Conf","Unnamed:
27","School"],inplace=True,axis=1)

jabari["name"] = "jabari-smith"

jabari.values

array([[34, 34, 28.8, 5.4, 12.6, 0.429, 3.1, 7.0, 0.435, 2.3, 5.5,
0.42,
        3.9, 4.8, 0.799, 0.9, 6.5, 7.4, 2.0, 1.1, 1.0, 1.9, 2.1, 16.9,
        8.17, 'jabari-smith']], dtype=object)

prospects_df.loc[len(prospects_df)] = [34, 34, 28.8, 5.4, 12.6, 0.429,
3.1, 7.0, 0.435, 2.3, 5.5, 0.42,
        3.9, 4.8, 0.799, 0.9, 6.5, 7.4, 2.0, 1.1, 1.0, 1.9, 2.1, 16.9,
        8.17, 'jabari-smith']
```

```python
soup=
make_soup("https://www.sports-reference.com/cbb/players/jonathan-
davis-3.html")
johnny=pd.read_html(soup)[0]

johnny = johnny[johnny['Season'] == "Career"]

johnny.drop(["Season","Conf","Unnamed:
27","School"],inplace=True,axis=1)
johnny["name"] = "johnny-davis"
johnny.values

array([[62, 31, 29.2, 4.8, 11.1, 0.431, 4.0, 8.5, 0.462, 0.8, 2.5,
0.325,
        3.0, 3.9, 0.779, 1.2, 5.0, 6.2, 1.6, 1.1, 0.7, 1.7, 2.1, 13.4,
        10.54, 'johnny-davis']], dtype=object)

prospects_df.loc[len(prospects_df)] = [62, 31, 29.2, 4.8, 11.1, 0.431,
4.0, 8.5, 0.462, 0.8, 2.5, 0.325,
        3.0, 3.9, 0.779, 1.2, 5.0, 6.2, 1.6, 1.1, 0.7, 1.7, 2.1, 13.4,
        10.54, 'johnny-davis']

prospects_df.tail()
```

```
       G  GS    MP   FG   FGA    FG%   2P  2PA    2P%   3P  ...  DRB
TRB  AST  \
284   30   1  25.1  3.3   7.0  0.474  2.5  4.3  0.585  0.8  ...  4.4
6.4  1.8
286   32  30  31.1  3.7   9.6  0.388  2.6  6.0  0.432  1.1  ...  4.9
6.7  3.0
290   90  61  26.2  3.7   8.2  0.454  2.6  5.0  0.519  1.1  ...  5.1
6.4  0.6
73    34  34  28.8  5.4  12.6  0.429  3.1  7.0  0.435  2.3  ...  6.5
7.4  2.0
74    62  31  29.2  4.8  11.1  0.431  4.0  8.5  0.462  0.8  ...  5.0
6.2  1.6

      STL  BLK  TOV   PF   PTS    SOS              name
284   1.3  0.7  1.6  2.3   9.2   8.76     jeremy-sochan
286   0.9  0.3  2.3  1.7  10.5   8.59  harrison-ingram
290   0.9  0.5  1.3  1.9  11.2   4.08      tyler-burton
73    1.1  1.0  1.9  2.1  16.9   8.17      jabari-smith
74    1.1  0.7  1.7  2.1  13.4  10.54      johnny-davis

[5 rows x 26 columns]
```

```python
prospects_df.to_csv("prospects.csv",index=False)

years = [2010, 2011, 2012, 2013 ,2014 ,2015 ,2016 ,2017, 2018, 2019,
2020, 2021]
df_list=[]
```

```python
#get draft data from 2010-2021
for year in years:
    #print(team)
    try:
        soup= 
make_soup("https://www.basketball-reference.com/draft/NBA_"+str(year)
+".html/")
        df_list.append(pd.read_html(soup)[0])
    except Exception as e:
            pass

#store data in df
df = pd.concat(df_list)

df.head()
```

```
  Unnamed: 0_level_0 Unnamed: 1_level_0 Unnamed: 2_level_0 
Round 1  \
                    Rk                 Pk                 Tm        
Player
0                    1                  1                WAS       
John Wall
1                    2                  2                PHI       Evan 
Turner
2                    3                  3                NJN    Derrick 
Favors
3                    4                  4                MIN     Wesley 
Johnson
4                    5                  5                SAC   DeMarcus 
Cousins

          Unnamed: 5_level_0 Totals                          ... 
Shooting  \
          College              Yrs    G    MP    PTS   TRB  ... 
3P%
0       Kentucky               10   613  21833  11702  2612  ... 
.323
1    Ohio State                10   705  18938   6824  3278  ... 
.294
2  Georgia Tech                12   790  19202   8354  5608  ... 
.198
3      Syracuse                 9   609  13472   4235  1924  ... 
.337
4      Kentucky                11   654  19509  12802  6664  ... 
.331

       Per Game                      Advanced
   FT%       MP   PTS   TRB  AST        WS  WS/48   BPM  VORP
0  .779     35.6  19.1   4.3  9.1      44.1   .097   2.4  24.0
1  .782     26.9   9.7   4.6  3.5      20.2   .051  -1.9   0.5
2  .663     24.3  10.6   7.1  1.1      60.2   .150   0.9  14.0
```

```
3   .741       22.1   7.0    3.2  1.1      10.7  .038  -1.6   1.2
4   .737       29.8  19.6   10.2  3.0      46.8  .115   2.4  21.6

[5 rows x 22 columns]

colnames=["Rk",  "Pk", "Tm", "Player",  "College"  ,"Yrs",      "G"   ,"MP"
,      "PTS",        "TRB",        "AST",        "FG%",
        "3P%",        "FT%" ,"MP" ,"PTS",       "TRB",        "AST",        "WS",
        "WS_48",      "BPM",        "VORP"]
#change column names
df.columns = colnames

df.head()

   Rk Pk    Tm            Player          College Yrs    G      MP      PTS
TRB  \
0   1  1   WAS         john wall         Kentucky   10  613   21833   11702
2612
1   2  2   PHI       evan turner       Ohio State   10  705   18938    6824
3278
2   3  3   NJN    derrick favors    Georgia Tech   12  790   19202    8354
5608
3   4  4   MIN     wesley johnson        Syracuse    9  609   13472    4235
1924
4   5  5   SAC  demarcus cousins         Kentucky   11  652   19481   12784
6655

       ...    3P%    FT%    MP    PTS   TRB  AST     WS  WS_48   BPM  VORP
0   ...   .323   .779  35.6   19.1   4.3  9.1   44.1   .097   2.4  24.0
1   ...   .294   .782  26.9    9.7   4.6  3.5   20.2   .051  -1.9   0.5
2   ...   .198   .663  24.3   10.6   7.1  1.1   60.3   .151   0.9  14.0
3   ...   .337   .741  22.1    7.0   3.2  1.1   10.7   .038  -1.6   1.2
4   ...   .330   .737  29.9   19.6  10.2  3.0   46.6   .115   2.4  21.6

[5 rows x 22 columns]

#create a list from Player column
players = df['Player'].tolist()

#add hypen to each player (names include hypen in URL)
player_list = list(map(lambda x: x.replace(' ', '-'), players))

#convert names to lowercase
player_list = list(map(lambda x: x.lower(), player_list))

df_list2=[]
#get college stats for players in NBA draft, each have own URL
for player in player_list:
    #print(player)
    try:
        soup=
```

```python
make_soup("https://www.sports-reference.com/cbb/players/"+player+"-
1.html")
        temp_df=pd.read_html(soup)[0]
        temp_df["name"] = player #add player name to dataframe
        df_list2.append(temp_df)
    except Exception as e:
            pass

college = pd.concat(df_list2)

#remove hypen from name
college['name'] = college['name'].str.replace('-', ' ')

#convert names in draft df to lower case so we can join it with
college dataframe
df['Player'] = df['Player'].str.lower()

#inner join draft dataframe with college dataframe on the college and
player name
#add _college suffix to college variables to avoid duplicate variable
names
df =  df.merge(college, left_on=["Player","College"],
right_on=["name","School"], how='inner',suffixes=('','_college'))

#get rid of NBA stats
df.drop(['Tm',
 'Player',
 'College',
 'Yrs',
 'G',
 'MP',
 'PTS',
 'TRB',
 'AST',
 'FG%',
 '3P%',
 'FT%',
 'MP',
 'PTS',
 'TRB',
 'AST',
 'WS',
 'WS_48',
 'BPM',
 'VORP'],inplace=True,axis=1)

#keep only career college stats
#remove individual seasons
df_clean = df[df['Season'] == "Career"]

df_clean.columns
college.columns
```

```python
#drop unwanted cols
df_clean.drop(["Conf",'Unnamed: 27','Unnamed:
25'],inplace=True,axis=1)

df_clean.drop("Season",inplace=True,axis=1)
df_clean.isna().sum()

#convert cols to numeric
df_clean[['Rk', 'Pk', 'G_college', 'GS', 'MP_college', 'FG', 'FGA',
        'FG%_college', '2P', '2PA', '2P%', '3P', '3PA', '3P%_college',
'FT',
        'FTA', 'FT%_college', 'ORB', 'DRB', 'TRB_college',
'AST_college', 'STL',
        'BLK', 'TOV', 'PF', 'PTS_college', 'SOS']] = df_clean[['Rk',
'Pk', 'G_college', 'GS', 'MP_college', 'FG', 'FGA',
        'FG%_college', '2P', '2PA', '2P%', '3P', '3PA', '3P%_college',
'FT',
        'FTA', 'FT%_college', 'ORB', 'DRB', 'TRB_college',
'AST_college', 'STL',
        'BLK', 'TOV', 'PF', 'PTS_college', 'SOS']].apply(pd.to_numeric)

#create lottery varible
#if player is a top 14 pick then they are in the lottery
df_clean['lottery'] = np.where(df_clean['Pk']<=14, True, False)

#variable description
"""Age -- Player's age on February 1 of the season
G -- Games
MP -- Minutes Played
FG -- Field Goals
FGA -- Field Goal Attempts
3P -- 3-Point Field Goals
3PA -- 3-Point Field Goal Attempts
FT -- Free Throws
FTA -- Free Throw Attempts
ORB -- Offensive Rebounds
TRB -- Total Rebounds
AST -- Assists
STL -- Steals
BLK -- Blocks
TOV -- Turnovers
PF -- Personal Fouls
PTS -- Points
Shooting
FG% -- Field Goal Percentage
3P% -- 3-Point Field Goal Percentage
FT% -- Free Throw Percentage
Per Game
MP -- Minutes Played Per Game
PTS -- Points Per Game
TRB -- Total Rebounds Per Game
```

```python
AST -- Assists Per Game
lottery -- top 14 pick in draft"""

#save data as csv
df_clean.to_csv("NBAdraft.csv",index=False)

#ADVANCED STATS DATA GATHERING

df_list3=[]
#get ADVANCED college stats for players in NBA draft, each have own
URL
for player in player_list:
    #print(player)
    try:
        soup=
make_soup("https://www.sports-reference.com/cbb/players/"+player+"-
1.html")
        temp_df=pd.read_html(soup)
        for i in range(len(temp_df)):
            if('WS' in list(temp_df[i].columns)) == True:
                temp_df2 = temp_df[i]
                #print(player+" MADE IT")
        temp_df2["name"] = player #add player name to dataframe
        df_list3.append(temp_df2)
    except Exception as e:
            #print(player+ " NOT FOUND")
            pass

4
john-wall MADE IT
4
evan-turner MADE IT
4
derrick-favors MADE IT
10
wesley-johnson MADE IT
wesley-johnson MADE IT
4
demarcus-cousins MADE IT
4
ekpe-udoh MADE IT
4
greg-monroe MADE IT
4
al-farouq-aminu MADE IT
4
gordon-hayward MADE IT
4
paul-george MADE IT
4
cole-aldrich MADE IT
```

4
xavier-henry MADE IT
4
ed-davis MADE IT
4
patrick-patterson MADE IT
4
larry-sanders MADE IT
4
luke-babbitt MADE IT
kevin-séraphin NOT FOUND
4
eric-bledsoe MADE IT
4
avery-bradley MADE IT
10
james-anderson MADE IT
james-anderson MADE IT
4
craig-brackins MADE IT
4
elliot-williams MADE IT
4
trevor-booker MADE IT
4
damion-james MADE IT
4
dominique-jones MADE IT
4
quincy-pondexter MADE IT
4
jordan-crawford MADE IT
greivis-vásquez NOT FOUND
4
daniel-orton MADE IT
4
lazar-hayward MADE IT
round-2 NOT FOUND
player NOT FOUND
tibor-pleiß NOT FOUND
4
dexter-pittman MADE IT
4
hassan-whiteside MADE IT
4
armon-johnson MADE IT
nemanja-bjelica NOT FOUND
4
terrico-white MADE IT
4

darington-hobson MADE IT
4
andy-rautins MADE IT
4
landry-fields MADE IT
4
lance-stephenson MADE IT
4
jarvis-varnado MADE IT
da'sean-butler NOT FOUND
4
devin-ebanks MADE IT
4
jerome-jordan MADE IT
paulão-prestes NOT FOUND
4
gani-lawal MADE IT
4
tiny-gallon MADE IT
latavious-williams NOT FOUND
ryan-richards NOT FOUND
4
solomon-alabi MADE IT
4
magnum-rolle MADE IT
4
luke-harangody MADE IT
pape-sy NOT FOUND
4
willie-warren MADE IT
4
jeremy-evans MADE IT
hamady-n'diaye NOT FOUND
4
ryan-reid MADE IT
4
derrick-caracter MADE IT
4
stanley-robinson MADE IT
4
dwayne-collins MADE IT
5
kyrie-irving MADE IT
4
derrick-williams MADE IT
enes-freedom NOT FOUND
10
tristan-thompson MADE IT
tristan-thompson MADE IT
jonas-valančiūnas NOT FOUND

jan-veselý NOT FOUND
bismack-biyombo NOT FOUND
10
brandon-knight MADE IT
brandon-knight MADE IT
10
kemba-walker MADE IT
kemba-walker MADE IT
10
jimmer-fredette MADE IT
jimmer-fredette MADE IT
10
klay-thompson MADE IT
klay-thompson MADE IT
10
alec-burks MADE IT
alec-burks MADE IT
10
markieff-morris MADE IT
markieff-morris MADE IT
10
marcus-morris MADE IT
marcus-morris MADE IT
10
kawhi-leonard MADE IT
kawhi-leonard MADE IT
nikola-vučević NOT FOUND
10
iman-shumpert MADE IT
iman-shumpert MADE IT
10
chris-singleton MADE IT
chris-singleton MADE IT
10
tobias-harris MADE IT
tobias-harris MADE IT
donatas-motiejūnas NOT FOUND
10
nolan-smith MADE IT
nolan-smith MADE IT
10
kenneth-faried MADE IT
kenneth-faried MADE IT
nikola-mirotić NOT FOUND
10
reggie-jackson MADE IT
reggie-jackson MADE IT
10
marshon-brooks MADE IT
marshon-brooks MADE IT

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10
jordan-hamilton MADE IT
jordan-hamilton MADE IT
10
jajuan-johnson MADE IT
jajuan-johnson MADE IT
10
norris-cole MADE IT
norris-cole MADE IT
10
cory-joseph MADE IT
cory-joseph MADE IT
10
jimmy-butler MADE IT
jimmy-butler MADE IT
round-2 NOT FOUND
player NOT FOUND
bojan-bogdanović NOT FOUND
10
justin-harper MADE IT
justin-harper MADE IT
10
kyle-singler MADE IT
kyle-singler MADE IT
10
shelvin-mack MADE IT
shelvin-mack MADE IT
10
tyler-honeycutt MADE IT
tyler-honeycutt MADE IT
10
jordan-williams MADE IT
jordan-williams MADE IT
10
trey-thompkins MADE IT
trey-thompkins MADE IT
10
chandler-parsons MADE IT
chandler-parsons MADE IT
jeremy-tyler NOT FOUND
10
jon-leuer MADE IT
jon-leuer MADE IT
10
darius-morris MADE IT
darius-morris MADE IT
dāvis-bertāns NOT FOUND
10
malcolm-lee MADE IT
malcolm-lee MADE IT
```

```
10
charles-jenkins MADE IT
charles-jenkins MADE IT
10
josh-harrellson MADE IT
josh-harrellson MADE IT
10
andrew-goudelock MADE IT
andrew-goudelock MADE IT
10
travis-leslie MADE IT
travis-leslie MADE IT
10
keith-benson MADE IT
keith-benson MADE IT
10
josh-selby MADE IT
josh-selby MADE IT
10
lavoy-allen MADE IT
lavoy-allen MADE IT
10
jon-diebler MADE IT
jon-diebler MADE IT
10
vernon-macklin MADE IT
vernon-macklin MADE IT
10
deandre-liggins MADE IT
deandre-liggins MADE IT
milan-mačvan NOT FOUND
e'twaun-moore NOT FOUND
chukwudiebere-maduabum NOT FOUND
tanguy-ngombo NOT FOUND
4
ater-majok MADE IT
ádám-hanga NOT FOUND
10
isaiah-thomas MADE IT
isaiah-thomas MADE IT
4
anthony-davis MADE IT
10
michael-kidd-gilchrist MADE IT
michael-kidd-gilchrist MADE IT
10
bradley-beal MADE IT
bradley-beal MADE IT
10
dion-waiters MADE IT
```

```
dion-waiters MADE IT
thomas-robinson NOT FOUND
10
damian-lillard MADE IT
damian-lillard MADE IT
10
harrison-barnes MADE IT
harrison-barnes MADE IT
10
terrence-ross MADE IT
terrence-ross MADE IT
10
andre-drummond MADE IT
andre-drummond MADE IT
10
austin-rivers MADE IT
austin-rivers MADE IT
10
meyers-leonard MADE IT
meyers-leonard MADE IT
10
jeremy-lamb MADE IT
jeremy-lamb MADE IT
10
kendall-marshall MADE IT
kendall-marshall MADE IT
10
john-henson MADE IT
john-henson MADE IT
10
maurice-harkless MADE IT
maurice-harkless MADE IT
10
royce-white MADE IT
royce-white MADE IT
10
tyler-zeller MADE IT
tyler-zeller MADE IT
10
terrence-jones MADE IT
terrence-jones MADE IT
10
andrew-nicholson MADE IT
andrew-nicholson MADE IT
evan-fournier NOT FOUND
10
jared-sullinger MADE IT
jared-sullinger MADE IT
10
fab-melo MADE IT
```

```
fab-melo MADE IT
10
john-jenkins MADE IT
john-jenkins MADE IT
4
jared-cunningham MADE IT
10
tony-wroten MADE IT
tony-wroten MADE IT
10
miles-plumlee MADE IT
miles-plumlee MADE IT
10
arnett-moultrie MADE IT
arnett-moultrie MADE IT
10
perry-jones MADE IT
perry-jones MADE IT
10
marquis-teague MADE IT
marquis-teague MADE IT
10
festus-ezeli MADE IT
festus-ezeli MADE IT
round-2 NOT FOUND
player NOT FOUND
3
tomáš-satoranský NOT FOUND
bernard-james NOT FOUND
10
jae-crowder MADE IT
jae-crowder MADE IT
10
draymond-green MADE IT
draymond-green MADE IT
10
orlando-johnson MADE IT
orlando-johnson MADE IT
10
quincy-acy MADE IT
quincy-acy MADE IT
10
quincy-miller MADE IT
quincy-miller MADE IT
10
khris-middleton MADE IT
khris-middleton MADE IT
10
will-barton MADE IT
will-barton MADE IT
```

```
10
tyshawn-taylor MADE IT
tyshawn-taylor MADE IT
10
doron-lamb MADE IT
doron-lamb MADE IT
4
mike-scott MADE IT
10
kim-english MADE IT
kim-english MADE IT
4
justin-hamilton MADE IT
10
darius-miller MADE IT
darius-miller MADE IT
10
kevin-murphy MADE IT
kevin-murphy MADE IT
kostas-papanikolaou NOT FOUND
kyle-o'quinn NOT FOUND
izzet-türkyılmaz NOT FOUND
10
kris-joseph MADE IT
kris-joseph MADE IT
ognjen-kuzmić NOT FOUND
furkan-aldemir NOT FOUND
tornike-shengelia NOT FOUND
10
darius-johnson-odom MADE IT
darius-johnson-odom MADE IT
tomislav-zubčić NOT FOUND
ilkan-karaman NOT FOUND
10
robbie-hummel MADE IT
robbie-hummel MADE IT
10
marcus-denmon MADE IT
marcus-denmon MADE IT
10
robert-sacre MADE IT
robert-sacre MADE IT
10
anthony-bennett MADE IT
anthony-bennett MADE IT
10
victor-oladipo MADE IT
victor-oladipo MADE IT
otto-porter-jr. NOT FOUND
10
```

```
cody-zeller MADE IT
cody-zeller MADE IT
10
alex-len MADE IT
alex-len MADE IT
10
nerlens-noel MADE IT
nerlens-noel MADE IT
10
ben-mclemore MADE IT
ben-mclemore MADE IT
10
kentavious-caldwell-pope MADE IT
kentavious-caldwell-pope MADE IT
10
trey-burke MADE IT
trey-burke MADE IT
10
cj-mccollum MADE IT
cj-mccollum MADE IT
10
michael-carter-williams MADE IT
michael-carter-williams MADE IT
10
steven-adams MADE IT
steven-adams MADE IT
10
kelly-olynyk MADE IT
kelly-olynyk MADE IT
10
shabazz-muhammad MADE IT
shabazz-muhammad MADE IT
giannis-antetokounmpo NOT FOUND
lucas-nogueira NOT FOUND
dennis-schröder NOT FOUND
10
shane-larkin MADE IT
shane-larkin MADE IT
sergey-karasev NOT FOUND
10
tony-snell MADE IT
tony-snell MADE IT
10
gorgui-dieng MADE IT
gorgui-dieng MADE IT
10
mason-plumlee MADE IT
mason-plumlee MADE IT
10
solomon-hill MADE IT
```

```
solomon-hill MADE IT
tim-hardaway-jr. NOT FOUND
4
reggie-bullock MADE IT
10
andre-roberson MADE IT
andre-roberson MADE IT
rudy-gobert NOT FOUND
livio-jean-charles NOT FOUND
10
archie-goodwin MADE IT
archie-goodwin MADE IT
nemanja-nedović NOT FOUND
round-2 NOT FOUND
player NOT FOUND
10
allen-crabbe MADE IT
allen-crabbe MADE IT
álex-abrines NOT FOUND
10
carrick-felix MADE IT
carrick-felix MADE IT
10
isaiah-canaan MADE IT
isaiah-canaan MADE IT
glen-rice-jr. NOT FOUND
3
4
tony-mitchell MADE IT
10
nate-wolters MADE IT
nate-wolters MADE IT
10
jeff-withey MADE IT
jeff-withey MADE IT
10
grant-jerrett MADE IT
grant-jerrett MADE IT
10
jamaal-franklin MADE IT
jamaal-franklin MADE IT
10
pierre-jackson MADE IT
pierre-jackson MADE IT
ricky-ledo NOT FOUND
10
mike-muscala MADE IT
mike-muscala MADE IT
marko-todorović NOT FOUND
10
```

```
erick-green MADE IT
erick-green MADE IT
raul-neto NOT FOUND
4
ryan-kelly MADE IT
10
erik-murphy MADE IT
erik-murphy MADE IT
james-ennis-iii NOT FOUND
10
romero-osby MADE IT
romero-osby MADE IT
10
lorenzo-brown MADE IT
lorenzo-brown MADE IT
10
colton-iverson MADE IT
colton-iverson MADE IT
10
arsalan-kazemi MADE IT
arsalan-kazemi MADE IT
joffrey-lauvergne NOT FOUND
10
peyton-siva MADE IT
peyton-siva MADE IT
10
alex-oriakhi MADE IT
alex-oriakhi MADE IT
10
deshaun-thomas MADE IT
deshaun-thomas MADE IT
bojan-dubljević NOT FOUND
jānis-timma NOT FOUND
10
andrew-wiggins MADE IT
andrew-wiggins MADE IT
10
jabari-parker MADE IT
jabari-parker MADE IT
10
joel-embiid MADE IT
joel-embiid MADE IT
10
aaron-gordon MADE IT
aaron-gordon MADE IT
dante-exum NOT FOUND
10
marcus-smart MADE IT
marcus-smart MADE IT
10
```

```
julius-randle MADE IT
julius-randle MADE IT
10
nik-stauskas MADE IT
nik-stauskas MADE IT
10
noah-vonleh MADE IT
noah-vonleh MADE IT
10
elfrid-payton MADE IT
elfrid-payton MADE IT
10
doug-mcdermott MADE IT
doug-mcdermott MADE IT
dario-šarić NOT FOUND
10
zach-lavine MADE IT
zach-lavine MADE IT
t.j.-warren NOT FOUND
10
adreian-payne MADE IT
adreian-payne MADE IT
jusuf-nurkić NOT FOUND
10
james-young MADE IT
james-young MADE IT
10
tyler-ennis MADE IT
tyler-ennis MADE IT
10
gary-harris MADE IT
gary-harris MADE IT
bruno-caboclo NOT FOUND
10
mitch-mcgary MADE IT
mitch-mcgary MADE IT
10
jordan-adams MADE IT
jordan-adams MADE IT
10
rodney-hood MADE IT
rodney-hood MADE IT
10
shabazz-napier MADE IT
shabazz-napier MADE IT
clint-capela NOT FOUND
p.j.-hairston NOT FOUND
bogdan-bogdanović NOT FOUND
c.j.-wilcox NOT FOUND
10
```

```
josh-huestis MADE IT
josh-huestis MADE IT
kyle-anderson NOT FOUND
round-2 NOT FOUND
player NOT FOUND
damien-inglis NOT FOUND
k.j.-mcdaniels NOT FOUND
10
joe-harris MADE IT
joe-harris MADE IT
10
cleanthony-early MADE IT
cleanthony-early MADE IT
10
jarnell-stokes MADE IT
jarnell-stokes MADE IT
johnny-o'bryant NOT FOUND
10
deandre-daniels MADE IT
deandre-daniels MADE IT
10
spencer-dinwiddie MADE IT
spencer-dinwiddie MADE IT
10
jerami-grant MADE IT
jerami-grant MADE IT
glenn-robinson-iii NOT FOUND
nikola-jokić NOT FOUND
10
nick-johnson MADE IT
nick-johnson MADE IT
edy-tavares NOT FOUND
10
markel-brown MADE IT
markel-brown MADE IT
10
dwight-powell MADE IT
dwight-powell MADE IT
10
jordan-clarkson MADE IT
jordan-clarkson MADE IT
10
russ-smith MADE IT
russ-smith MADE IT
10
lamar-patterson MADE IT
lamar-patterson MADE IT
10
cameron-bairstow MADE IT
cameron-bairstow MADE IT
```

```
10
alec-brown MADE IT
alec-brown MADE IT
thanasis-antetokounmpo NOT FOUND
vasilije-micić NOT FOUND
alessandro-gentile NOT FOUND
nemanja-dangubić NOT FOUND
10
semaj-christon MADE IT
semaj-christon MADE IT
devyn-marble NOT FOUND
louis-labeyrie NOT FOUND
10
jordan-mcrae MADE IT
jordan-mcrae MADE IT
10
xavier-thames MADE IT
xavier-thames MADE IT
10
cory-jefferson MADE IT
cory-jefferson MADE IT
10
karl-anthony-towns MADE IT
karl-anthony-towns MADE IT
d'angelo-russell NOT FOUND
10
jahlil-okafor MADE IT
jahlil-okafor MADE IT
kristaps-porziņģis NOT FOUND
mario-hezonja NOT FOUND
10
willie-cauley-stein MADE IT
willie-cauley-stein MADE IT
emmanuel-mudiay NOT FOUND
10
stanley-johnson MADE IT
stanley-johnson MADE IT
10
frank-kaminsky MADE IT
frank-kaminsky MADE IT
10
justise-winslow MADE IT
justise-winslow MADE IT
10
myles-turner MADE IT
myles-turner MADE IT
10
trey-lyles MADE IT
trey-lyles MADE IT
10
```

```
devin-booker MADE IT
devin-booker MADE IT
10
cameron-payne MADE IT
cameron-payne MADE IT
kelly-oubre-jr. NOT FOUND
10
terry-rozier MADE IT
terry-rozier MADE IT
10
rashad-vaughn MADE IT
rashad-vaughn MADE IT
10
sam-dekker MADE IT
sam-dekker MADE IT
10
jerian-grant MADE IT
jerian-grant MADE IT
10
delon-wright MADE IT
delon-wright MADE IT
10
justin-anderson MADE IT
justin-anderson MADE IT
10
bobby-portis MADE IT
bobby-portis MADE IT
10
rondae-hollis-jefferson MADE IT
rondae-hollis-jefferson MADE IT
10
tyus-jones MADE IT
tyus-jones MADE IT
10
jarell-martin MADE IT
jarell-martin MADE IT
nikola-milutinov NOT FOUND
larry-nance-jr. NOT FOUND
r.j.-hunter NOT FOUND
10
chris-mccullough MADE IT
chris-mccullough MADE IT
10
kevon-looney MADE IT
kevon-looney MADE IT
round-2 NOT FOUND
player NOT FOUND
cedi-osman NOT FOUND
10
montrezl-harrell MADE IT
```

montrezl-harrell MADE IT
10
jordan-mickey MADE IT
jordan-mickey MADE IT
4
anthony-brown MADE IT
willy-hernangómez NOT FOUND
10
rakeem-christmas MADE IT
rakeem-christmas MADE IT
10
richaun-holmes MADE IT
richaun-holmes MADE IT
10
darrun-hilliard MADE IT
darrun-hilliard MADE IT
juan-pablo-vaulet NOT FOUND
4
josh-richardson MADE IT
10
pat-connaughton MADE IT
pat-connaughton MADE IT
10
olivier-hanlan MADE IT
olivier-hanlan MADE IT
4
joe-young MADE IT
10
andrew-harrison MADE IT
andrew-harrison MADE IT
4
marcus-thornton MADE IT
10
norman-powell MADE IT
norman-powell MADE IT
artūras-gudaitis NOT FOUND
10
dakari-johnson MADE IT
dakari-johnson MADE IT
4
aaron-white MADE IT
marcus-eriksson NOT FOUND
10
tyler-harvey MADE IT
tyler-harvey MADE IT
satnam-singh NOT FOUND
sir'dominic-pointer NOT FOUND
dani-díez NOT FOUND
10
cady-lalanne MADE IT

```
cady-lalanne MADE IT
10
branden-dawson MADE IT
branden-dawson MADE IT
nikola-radičević NOT FOUND
j.p.-tokoto NOT FOUND
dimitrios-agravanis NOT FOUND
luka-mitrović NOT FOUND
10
ben-simmons MADE IT
ben-simmons MADE IT
10
brandon-ingram MADE IT
brandon-ingram MADE IT
10
jaylen-brown MADE IT
jaylen-brown MADE IT
dragan-bender NOT FOUND
10
kris-dunn MADE IT
kris-dunn MADE IT
10
buddy-hield MADE IT
buddy-hield MADE IT
10
jamal-murray MADE IT
jamal-murray MADE IT
10
marquese-chriss MADE IT
marquese-chriss MADE IT
10
jakob-poeltl MADE IT
jakob-poeltl MADE IT
thon-maker NOT FOUND
10
domantas-sabonis MADE IT
domantas-sabonis MADE IT
10
taurean-prince MADE IT
taurean-prince MADE IT
georgios-papagiannis NOT FOUND
10
denzel-valentine MADE IT
denzel-valentine MADE IT
juancho-hernangómez NOT FOUND
guerschon-yabusele NOT FOUND
10
wade-baldwin MADE IT
wade-baldwin MADE IT
10
```

```
henry-ellenson MADE IT
henry-ellenson MADE IT
10
malik-beasley MADE IT
malik-beasley MADE IT
10
caris-levert MADE IT
caris-levert MADE IT
deandre'-bembry NOT FOUND
10
malachi-richardson MADE IT
malachi-richardson MADE IT
ante-žižić NOT FOUND
timothé-luwawu-cabarrot NOT FOUND
10
brice-johnson MADE IT
brice-johnson MADE IT
furkan-korkmaz NOT FOUND
10
pascal-siakam MADE IT
pascal-siakam MADE IT
skal-labissière NOT FOUND
10
dejounte-murray MADE IT
dejounte-murray MADE IT
10
damian-jones MADE IT
damian-jones MADE IT
round-2 NOT FOUND
player NOT FOUND
10
deyonta-davis MADE IT
deyonta-davis MADE IT
ivica-zubac NOT FOUND
10
cheick-diallo MADE IT
cheick-diallo MADE IT
10
tyler-ulis MADE IT
tyler-ulis MADE IT
rade-zagorac NOT FOUND
10
malcolm-brogdon MADE IT
malcolm-brogdon MADE IT
10
chinanu-onuaku MADE IT
chinanu-onuaku MADE IT
10
patrick-mccaw MADE IT
patrick-mccaw MADE IT
```

david-michineau NOT FOUND
10
diamond-stone MADE IT
diamond-stone MADE IT
stephen-zimmerman NOT FOUND
10
isaiah-whitehead MADE IT
isaiah-whitehead MADE IT
zhou-qi NOT FOUND
isaïa-cordinier NOT FOUND
4
demetrius-jackson MADE IT
a.j.-hammons NOT FOUND
10
jake-layman MADE IT
jake-layman MADE IT
paul-zipser NOT FOUND
10
michael-gbinije MADE IT
michael-gbinije MADE IT
10
georges-niang MADE IT
georges-niang MADE IT
10
ben-bentil MADE IT
ben-bentil MADE IT
10
joel-bolomboy MADE IT
joel-bolomboy MADE IT
petr-cornelie NOT FOUND
kay-felder NOT FOUND
10
marcus-paige MADE IT
marcus-paige MADE IT
10
daniel-hamilton MADE IT
daniel-hamilton MADE IT
wang-zhelin NOT FOUND
10
abdel-nader MADE IT
abdel-nader MADE IT
10
isaiah-cousins MADE IT
isaiah-cousins MADE IT
10
tyrone-wallace MADE IT
tyrone-wallace MADE IT
10
markelle-fultz MADE IT
markelle-fultz MADE IT

```
10
lonzo-ball MADE IT
lonzo-ball MADE IT
10
jayson-tatum MADE IT
jayson-tatum MADE IT
4
josh-jackson MADE IT
de'aaron-fox NOT FOUND
10
jonathan-isaac MADE IT
jonathan-isaac MADE IT
10
lauri-markkanen MADE IT
lauri-markkanen MADE IT
frank-ntilikina NOT FOUND
dennis-smith-jr. NOT FOUND
10
zach-collins MADE IT
zach-collins MADE IT
10
malik-monk MADE IT
malik-monk MADE IT
10
luke-kennard MADE IT
luke-kennard MADE IT
10
donovan-mitchell MADE IT
donovan-mitchell MADE IT
bam-adebayo NOT FOUND
4
justin-jackson MADE IT
10
justin-patton MADE IT
justin-patton MADE IT
d.j.-wilson NOT FOUND
t.j.-leaf NOT FOUND
10
john-collins MADE IT
john-collins MADE IT
10
harry-giles MADE IT
harry-giles MADE IT
terrance-ferguson NOT FOUND
10
jarrett-allen MADE IT
jarrett-allen MADE IT
10
og-anunoby MADE IT
og-anunoby MADE IT
```

```
10
tyler-lydon MADE IT
tyler-lydon MADE IT
anžejs-pasečņiks NOT FOUND
10
caleb-swanigan MADE IT
caleb-swanigan MADE IT
10
kyle-kuzma MADE IT
kyle-kuzma MADE IT
10
tony-bradley MADE IT
tony-bradley MADE IT
10
derrick-white MADE IT
derrick-white MADE IT
10
josh-hart MADE IT
josh-hart MADE IT
round-2 NOT FOUND
player NOT FOUND
4
frank-jackson MADE IT
10
davon-reed MADE IT
davon-reed MADE IT
wes-iwundu NOT FOUND
frank-mason-iii NOT FOUND
10
ivan-rabb MADE IT
ivan-rabb MADE IT
10
jonah-bolden MADE IT
jonah-bolden MADE IT
10
semi-ojeleye MADE IT
semi-ojeleye MADE IT
10
jordan-bell MADE IT
jordan-bell MADE IT
10
jawun-evans MADE IT
jawun-evans MADE IT
10
dwayne-bacon MADE IT
dwayne-bacon MADE IT
10
tyler-dorsey MADE IT
tyler-dorsey MADE IT
10
```

```
thomas-bryant MADE IT
thomas-bryant MADE IT
isaiah-hartenstein NOT FOUND
10
damyean-dotson MADE IT
damyean-dotson MADE IT
10
dillon-brooks MADE IT
dillon-brooks MADE IT
4
sterling-brown MADE IT
10
ike-anigbogu MADE IT
ike-anigbogu MADE IT
10
sindarius-thornwell MADE IT
sindarius-thornwell MADE IT
vlatko-čančar NOT FOUND
mathias-lessort NOT FOUND
10
monte-morris MADE IT
monte-morris MADE IT
10
edmond-sumner MADE IT
edmond-sumner MADE IT
10
kadeem-allen MADE IT
kadeem-allen MADE IT
10
alec-peters MADE IT
alec-peters MADE IT
10
nigel-williams-goss MADE IT
nigel-williams-goss MADE IT
10
jabari-bird MADE IT
jabari-bird MADE IT
sasha-vezenkov NOT FOUND
ognjen-jaramaz NOT FOUND
10
jaron-blossomgame MADE IT
jaron-blossomgame MADE IT
alpha-kaba NOT FOUND
10
deandre-ayton MADE IT
deandre-ayton MADE IT
marvin-bagley-iii NOT FOUND
luka-dončić NOT FOUND
jaren-jackson-jr. NOT FOUND
10
```

```
trae-young MADE IT
trae-young MADE IT
mo-bamba NOT FOUND
wendell-carter-jr. NOT FOUND
10
collin-sexton MADE IT
collin-sexton MADE IT
10
kevin-knox MADE IT
kevin-knox MADE IT
10
mikal-bridges MADE IT
mikal-bridges MADE IT
10
shai-gilgeous-alexander MADE IT
shai-gilgeous-alexander MADE IT
10
miles-bridges MADE IT
miles-bridges MADE IT
4
jerome-robinson MADE IT
michael-porter-jr. NOT FOUND
troy-brown-jr. NOT FOUND
10
zhaire-smith MADE IT
zhaire-smith MADE IT
10
donte-divincenzo MADE IT
donte-divincenzo MADE IT
lonnie-walker-iv NOT FOUND
10
kevin-huerter MADE IT
kevin-huerter MADE IT
10
josh-okogie MADE IT
josh-okogie MADE IT
10
grayson-allen MADE IT
grayson-allen MADE IT
10
chandler-hutchison MADE IT
chandler-hutchison MADE IT
10
aaron-holiday MADE IT
aaron-holiday MADE IT
anfernee-simons NOT FOUND
10
moritz-wagner MADE IT
moritz-wagner MADE IT
10
```

```
landry-shamet MADE IT
landry-shamet MADE IT
4
robert-williams MADE IT
10
jacob-evans MADE IT
jacob-evans MADE IT
džanan-musa NOT FOUND
10
omari-spellman MADE IT
omari-spellman MADE IT
round-2 NOT FOUND
player NOT FOUND
elie-okobo NOT FOUND
10
jevon-carter MADE IT
jevon-carter MADE IT
10
jalen-brunson MADE IT
jalen-brunson MADE IT
devonte'-graham NOT FOUND
10
melvin-frazier MADE IT
melvin-frazier MADE IT
mitchell-robinson NOT FOUND
gary-trent-jr. NOT FOUND
10
khyri-thomas MADE IT
khyri-thomas MADE IT
isaac-bonga NOT FOUND
rodions-kurucs NOT FOUND
10
jarred-vanderbilt MADE IT
jarred-vanderbilt MADE IT
4
bruce-brown MADE IT
4
justin-jackson MADE IT
issuf-sanon NOT FOUND
10
hamidou-diallo MADE IT
hamidou-diallo MADE IT
de'anthony-melton NOT FOUND
svi-mykhailiuk NOT FOUND
10
keita-bates-diop MADE IT
keita-bates-diop MADE IT
10
chimezie-metu MADE IT
chimezie-metu MADE IT
```

```
10
alize-johnson MADE IT
alize-johnson MADE IT
10
tony-carr MADE IT
tony-carr MADE IT
4
vince-edwards MADE IT
10
devon-hall MADE IT
devon-hall MADE IT
shake-milton NOT FOUND
arnoldas-kulboka NOT FOUND
ray-spalding NOT FOUND
10
kevin-hervey MADE IT
kevin-hervey MADE IT
10
thomas-welsh MADE IT
thomas-welsh MADE IT
10
george-king MADE IT
george-king MADE IT
10
kostas-antetokounmpo MADE IT
kostas-antetokounmpo MADE IT
10
zion-williamson MADE IT
zion-williamson MADE IT
ja-morant NOT FOUND
10
rj-barrett MADE IT
rj-barrett MADE IT
de'andre-hunter NOT FOUND
5
darius-garland MADE IT
10
jarrett-culver MADE IT
jarrett-culver MADE IT
10
coby-white MADE IT
coby-white MADE IT
10
jaxson-hayes MADE IT
jaxson-hayes MADE IT
10
rui-hachimura MADE IT
rui-hachimura MADE IT
10
cam-reddish MADE IT
```

```
cam-reddish MADE IT
10
cameron-johnson MADE IT
cameron-johnson MADE IT
p.j.-washington NOT FOUND
10
tyler-herro MADE IT
tyler-herro MADE IT
10
romeo-langford MADE IT
romeo-langford MADE IT
sekou-doumbouya NOT FOUND
10
chuma-okeke MADE IT
chuma-okeke MADE IT
10
nickeil-alexander-walker MADE IT
nickeil-alexander-walker MADE IT
goga-bitadze NOT FOUND
luka-šamanić NOT FOUND
10
matisse-thybulle MADE IT
matisse-thybulle MADE IT
10
brandon-clarke MADE IT
brandon-clarke MADE IT
10
grant-williams MADE IT
grant-williams MADE IT
darius-bazley NOT FOUND
10
ty-jerome MADE IT
ty-jerome MADE IT
10
nassir-little MADE IT
nassir-little MADE IT
10
dylan-windler MADE IT
dylan-windler MADE IT
10
mfiondu-kabengele MADE IT
mfiondu-kabengele MADE IT
10
jordan-poole MADE IT
jordan-poole MADE IT
10
keldon-johnson MADE IT
keldon-johnson MADE IT
kevin-porter-jr. NOT FOUND
round-2 NOT FOUND
```

```
player NOT FOUND
nic-claxton NOT FOUND
kz-okpala NOT FOUND
10
carsen-edwards MADE IT
carsen-edwards MADE IT
10
bruno-fernando MADE IT
bruno-fernando MADE IT
didi-louzada NOT FOUND
10
cody-martin MADE IT
cody-martin MADE IT
deividas-sirvydis NOT FOUND
10
daniel-gafford MADE IT
daniel-gafford MADE IT
alen-smailagić NOT FOUND
4
justin-james MADE IT
10
eric-paschall MADE IT
eric-paschall MADE IT
10
admiral-schofield MADE IT
admiral-schofield MADE IT
10
jaylen-nowell MADE IT
jaylen-nowell MADE IT
5
bol-bol MADE IT
10
isaiah-roby MADE IT
isaiah-roby MADE IT
10
talen-horton-tucker MADE IT
talen-horton-tucker MADE IT
10
ignas-brazdeikis MADE IT
ignas-brazdeikis MADE IT
10
terance-mann MADE IT
terance-mann MADE IT
10
quinndary-weatherspoon MADE IT
quinndary-weatherspoon MADE IT
10
jarrell-brantley MADE IT
jarrell-brantley MADE IT
10
```

```
tremont-waters MADE IT
tremont-waters MADE IT
10
jalen-mcdaniels MADE IT
jalen-mcdaniels MADE IT
10
justin-wright-foreman MADE IT
justin-wright-foreman MADE IT
10
marial-shayok MADE IT
marial-shayok MADE IT
10
kyle-guy MADE IT
kyle-guy MADE IT
10
jaylen-hands MADE IT
jaylen-hands MADE IT
10
jordan-bone MADE IT
jordan-bone MADE IT
10
miye-oni MADE IT
miye-oni MADE IT
dewan-hernandez NOT FOUND
vanja-marinković NOT FOUND
4
anthony-edwards MADE IT
5
james-wiseman MADE IT
lamelo-ball NOT FOUND
3
10
isaac-okoro MADE IT
isaac-okoro MADE IT
10
onyeka-okongwu MADE IT
onyeka-okongwu MADE IT
killian-hayes NOT FOUND
obi-toppin NOT FOUND
deni-avdija NOT FOUND
10
jalen-smith MADE IT
jalen-smith MADE IT
10
devin-vassell MADE IT
devin-vassell MADE IT
10
tyrese-haliburton MADE IT
tyrese-haliburton MADE IT
kira-lewis-jr. NOT FOUND
```

```
10
aaron-nesmith MADE IT
aaron-nesmith MADE IT
10
cole-anthony MADE IT
cole-anthony MADE IT
4
isaiah-stewart MADE IT
aleksej-pokusevski NOT FOUND
josh-green NOT FOUND
10
saddiq-bey MADE IT
saddiq-bey MADE IT
10
precious-achiuwa MADE IT
precious-achiuwa MADE IT
10
tyrese-maxey MADE IT
tyrese-maxey MADE IT
10
zeke-nnaji MADE IT
zeke-nnaji MADE IT
leandro-bolmaro NOT FOUND
r.j.-hampton NOT FOUND
10
immanuel-quickley MADE IT
immanuel-quickley MADE IT
10
payton-pritchard MADE IT
payton-pritchard MADE IT
10
udoka-azubuike MADE IT
udoka-azubuike MADE IT
10
jaden-mcdaniels MADE IT
jaden-mcdaniels MADE IT
10
malachi-flynn MADE IT
malachi-flynn MADE IT
10
desmond-bane MADE IT
desmond-bane MADE IT
round-2 NOT FOUND
player NOT FOUND
10
tyrell-terry MADE IT
tyrell-terry MADE IT
vernon-carey-jr. NOT FOUND
10
daniel-oturu MADE IT
```

```
daniel-oturu MADE IT
théo-maledon NOT FOUND
xavier-tillman-sr. NOT FOUND
10
tyler-bey MADE IT
tyler-bey MADE IT
vit-krejci NOT FOUND
10
saben-lee MADE IT
saben-lee MADE IT
10
elijah-hughes MADE IT
elijah-hughes MADE IT
robert-woodard-ii NOT FOUND
10
tre-jones MADE IT
tre-jones MADE IT
nick-richards NOT FOUND
jahmi'us-ramsey NOT FOUND
marko-simonovic NOT FOUND
10
jordan-nwora MADE IT
jordan-nwora MADE IT
10
cj-elleby MADE IT
cj-elleby MADE IT
yam-madar NOT FOUND
10
nico-mannion MADE IT
nico-mannion MADE IT
10
isaiah-joe MADE IT
isaiah-joe MADE IT
10
skylar-mays MADE IT
skylar-mays MADE IT
10
justinian-jessup MADE IT
justinian-jessup MADE IT
kenyon-martin-jr. NOT FOUND
10
cassius-winston MADE IT
cassius-winston MADE IT
10
cassius-stanley MADE IT
cassius-stanley MADE IT
jay-scrubb NOT FOUND
10
grant-riller MADE IT
grant-riller MADE IT
```

```
0
4
paul-reed MADE IT
10
jalen-harris MADE IT
jalen-harris MADE IT
10
sam-merrill MADE IT
sam-merrill MADE IT
10
cade-cunningham MADE IT
cade-cunningham MADE IT
jalen-green NOT FOUND
10
evan-mobley MADE IT
evan-mobley MADE IT
10
scottie-barnes MADE IT
scottie-barnes MADE IT
10
jalen-suggs MADE IT
jalen-suggs MADE IT
josh-giddey NOT FOUND
jonathan-kuminga NOT FOUND
10
franz-wagner MADE IT
franz-wagner MADE IT
10
davion-mitchell MADE IT
davion-mitchell MADE IT
10
ziaire-williams MADE IT
ziaire-williams MADE IT
10
james-bouknight MADE IT
james-bouknight MADE IT
10
joshua-primo MADE IT
joshua-primo MADE IT
10
chris-duarte MADE IT
chris-duarte MADE IT
10
moses-moody MADE IT
moses-moody MADE IT
10
corey-kispert MADE IT
corey-kispert MADE IT
alperen-şengün NOT FOUND
trey-murphy-iii NOT FOUND
```

```
10
tre-mann MADE IT
tre-mann MADE IT
10
kai-jones MADE IT
kai-jones MADE IT
10
jalen-johnson MADE IT
jalen-johnson MADE IT
10
keon-johnson MADE IT
keon-johnson MADE IT
4
isaiah-jackson MADE IT
usman-garuba NOT FOUND
10
josh-christopher MADE IT
josh-christopher MADE IT
10
quentin-grimes MADE IT
quentin-grimes MADE IT
bones-hyland NOT FOUND
cam-thomas NOT FOUND
10
jaden-springer MADE IT
jaden-springer MADE IT
day'ron-sharpe NOT FOUND
10
santi-aldama MADE IT
santi-aldama MADE IT
round-2 NOT FOUND
player NOT FOUND
isaiah-todd NOT FOUND
10
jeremiah-robinson-earl MADE IT
jeremiah-robinson-earl MADE IT
10
jason-preston MADE IT
jason-preston MADE IT
rokas-jokubaitis NOT FOUND
4
herbert-jones MADE IT
10
miles-mcbride MADE IT
miles-mcbride MADE IT
10
jt-thor MADE IT
jt-thor MADE IT
10
ayo-dosunmu MADE IT
```

```
ayo-dosunmu MADE IT
10
neemias-queta MADE IT
neemias-queta MADE IT
10
jared-butler MADE IT
jared-butler MADE IT
10
joe-wieskamp MADE IT
joe-wieskamp MADE IT
10
isaiah-livers MADE IT
isaiah-livers MADE IT
greg-brown-iii NOT FOUND
10
kessler-edwards MADE IT
kessler-edwards MADE IT
juhann-begarin NOT FOUND
10
dalano-banton MADE IT
dalano-banton MADE IT
4
david-johnson MADE IT
10
sharife-cooper MADE IT
sharife-cooper MADE IT
10
marcus-zegarowski MADE IT
marcus-zegarowski MADE IT
filip-petrušev NOT FOUND
brandon-boston-jr. NOT FOUND
10
luka-garza MADE IT
luka-garza MADE IT
10
charles-bassey MADE IT
charles-bassey MADE IT
10
sandro-mamukelashvili MADE IT
sandro-mamukelashvili MADE IT
10
aaron-wiggins MADE IT
aaron-wiggins MADE IT
10
scottie-lewis MADE IT
scottie-lewis MADE IT
balša-koprivica NOT FOUND
10
jericho-sims MADE IT
jericho-sims MADE IT
```

```
10
raiquan-gray MADE IT
raiquan-gray MADE IT
georgios-kalaitzakis NOT FOUND
```

```python
#store in dataframe
collegeADV = pd.concat(df_list3)

collegeADV.head()
```

```
    Season      School      Conf      G      GS      MP      TS%    eFG%
3PAr  \
0  2009-10    Kentucky       SEC   37.0   37.0  1288.0   0.562   0.503
0.260
1   Career    Kentucky       NaN   37.0   37.0  1288.0   0.562   0.503
0.260
0  2007-08  Ohio State   Big Ten   37.0   30.0  1004.0   0.557   0.519
0.297
1  2008-09  Ohio State   Big Ten   33.0   33.0  1202.0   0.584   0.517
0.065
2  2009-10  Ohio State   Big Ten   31.0   31.0  1108.0   0.581   0.540
0.120

      FTr  ...  DWS   WS  WS/40          name  PER  Unnamed: 20
Unnamed: 25  \
0  0.530  ...  2.6  6.3  0.196     john-wall  NaN          NaN
NaN
1  0.530  ...  2.6  6.3  0.196     john-wall  NaN          NaN
NaN
0  0.444  ...  2.2  3.8  0.152   evan-turner  NaN          NaN
NaN
1  0.578  ...  1.7  5.4  0.181   evan-turner  NaN          NaN
NaN
2  0.400  ...  2.8  6.8  0.247   evan-turner  NaN          NaN
NaN

   OBPM  DBPM  BPM
0   NaN   NaN  NaN
1   NaN   NaN  NaN
0   NaN   NaN  NaN
1   NaN   NaN  NaN
2   NaN   NaN  NaN

[5 rows x 31 columns]
```

```python
#remove hypen from name
collegeADV['name'] = collegeADV['name'].str.replace('-', ' ')

#convert names in draft df to lower case so we can join it with
college dataframe
df['Player'] = df['Player'].str.lower()
```

```python
#inner join draft dataframe with college dataframe on the college and
player name
#add _college suffix to college variables to avoid duplicate variable
names
df = df.merge(collegeADV, left_on=["Player","College"],
right_on=["name","School"], how='inner',suffixes=('','_college'))

#get rid of NBA stats
df.drop(['Tm',
 'Player',
 'College',
 'Yrs',
 'G',
 'MP',
 'PTS',
 'TRB',
 'AST',
 'FG%',
 '3P%',
 'FT%',
 'MP',
 'PTS',
 'TRB',
 'AST',
 'WS',
 'WS_48',
 'BPM',
 'VORP'],inplace=True,axis=1)

df.head(10)
```

```
   Rk Pk   Season        School        Conf  G_college     GS  MP_college
TS%  \
0   1  1   2009-10      Kentucky        SEC       37.0   37.0      1288.0
0.562
1   1  1    Career      Kentucky        NaN       37.0   37.0      1288.0
0.562
2   2  2   2007-08    Ohio State    Big Ten       37.0   30.0      1004.0
0.557
3   2  2   2008-09    Ohio State    Big Ten       33.0   33.0      1202.0
0.584
4   2  2   2009-10    Ohio State    Big Ten       31.0   31.0      1108.0
0.581
5   2  2    Career    Ohio State        NaN      101.0   94.0      3314.0
0.577
6   3  3   2009-10  Georgia Tech        ACC       36.0   35.0       989.0
0.621
7   3  3    Career  Georgia Tech        NaN       36.0   35.0       989.0
0.621
8   5  5   2009-10      Kentucky        SEC       38.0   37.0       893.0
0.579
```

```
9  5  5   Career         Kentucky         NaN        38.0  37.0          893.0
0.579


     eFG%  ...  DWS  WS_college  WS/40               name  PER  Unnamed:
20  \
0  0.503  ...  2.6         6.3  0.196          john wall  NaN
NaN
1  0.503  ...  2.6         6.3  0.196          john wall  NaN
NaN
2  0.519  ...  2.2         3.8  0.152        evan turner  NaN
NaN
3  0.517  ...  1.7         5.4  0.181        evan turner  NaN
NaN
4  0.540  ...  2.8         6.8  0.247        evan turner  NaN
NaN
5  0.527  ...  6.8        16.1  0.194        evan turner  NaN
NaN
6  0.611  ...  2.5         4.8  0.195      derrick favors  NaN
NaN
7  0.611  ...  2.5         4.8  0.195      derrick favors  NaN
NaN
8  0.560  ...  2.7         6.5  0.290  demarcus cousins  NaN
NaN
9  0.560  ...  2.7         6.5  0.290  demarcus cousins  NaN
NaN

   Unnamed: 25  OBPM  DBPM  BPM_college
0          NaN   NaN   NaN          NaN
1          NaN   NaN   NaN          NaN
2          NaN   NaN   NaN          NaN
3          NaN   NaN   NaN          NaN
4          NaN   NaN   NaN          NaN
5          NaN   NaN   NaN          NaN
6          NaN   NaN   NaN          NaN
7          NaN   NaN   NaN          NaN
8          NaN   NaN   NaN          NaN
9          NaN   NaN   NaN          NaN

[10 rows x 33 columns]
```

#keep only career college stats
#remove individual seasons
df_clean = df[df['Season'] == "Career"]

df_clean.columns

```
Index(['Rk', 'Pk', 'Season', 'School', 'G_college', 'GS',
'MP_college', 'TS%',
       'eFG%', '3PAr', 'FTr', 'PProd', 'ORB%', 'DRB%', 'TRB%', 'AST%',
'STL%',
```

```
        'BLK%', 'TOV%', 'USG%', 'OWS', 'DWS', 'WS_college', 'WS/40',
'name',
        'PER', 'OBPM', 'DBPM', 'BPM_college'],
      dtype='object')
```

```python
len(df_clean)
```

```
417
```

```python
#drop unwanted cols
df_clean.drop(["Conf",'Unnamed: 19','Unnamed: 25','Unnamed:
20'],inplace=True,axis=1)
```

```
/Users/jackpiccione/opt/anaconda3/lib/python3.7/site-packages/pandas/
core/frame.py:4908: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation:
https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#
returning-a-view-versus-a-copy
  errors=errors,
```

```python
df_clean.isna().sum()
```

```
Rk               0
Pk               0
Season           0
School           0
G_college        0
GS               0
MP_college       0
TS%              2
eFG%             2
3PAr             0
FTr              0
PProd            0
ORB%             0
DRB%             0
TRB%             0
AST%             0
STL%             0
BLK%             0
TOV%             0
USG%             0
OWS              0
DWS              0
WS_college       0
WS/40            0
name             0
PER             42
OBPM           414
```

```
DBPM            414
BPM_college     414
dtype: int64

df_clean.drop(['OBPM','DBPM','BPM_college'],inplace=True,axis=1)
```

/Users/jackpiccione/opt/anaconda3/lib/python3.7/site-packages/pandas/
core/frame.py:4908: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation:
https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#
returning-a-view-versus-a-copy
  errors=errors,

```
df_clean.drop("Season",inplace=True,axis=1)
```

/Users/jackpiccione/opt/anaconda3/lib/python3.7/site-packages/pandas/
core/frame.py:4908: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation:
https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#
returning-a-view-versus-a-copy
  errors=errors,

```
df_clean.head()
```

```
    Rk Pk  Season         School  G_college    GS  MP_college    TS%
eFG%  \
1    1  1  Career        Kentucky       37.0  37.0      1288.0  0.562
0.503
5    2  2  Career      Ohio State      101.0  94.0      3314.0  0.577
0.527
7    3  3  Career    Georgia Tech       36.0  35.0       989.0  0.621
0.611
9    5  5  Career        Kentucky       38.0  37.0       893.0  0.579
0.560
14   7  7  Career      Georgetown       65.0  65.0      2122.0  0.585
0.550

      3PAr   ...   STL%  BLK%  TOV%  USG%  OWS  DWS  WS_college  WS/40  \
1    0.260   ...    2.9   1.5  21.4  25.7  3.7  2.6         6.3  0.196
5    0.139   ...    3.0   2.4  21.1  30.8  9.3  6.8        16.1  0.194
7    0.003   ...    1.8   7.9  20.0  21.8  2.3  2.5         4.8  0.195
9    0.016   ...    2.4   7.5  13.6  30.5  3.8  2.7         6.5  0.290
14   0.052   ...    2.2   4.4  19.0  24.7  6.0  4.5        10.5  0.198

            name  PER
1      john wall  NaN
5    evan turner  NaN
```

```
7      derrick favors   NaN
9   demarcus cousins   NaN
14       greg monroe   NaN

[5 rows x 26 columns]

df_clean.columns

Index(['Rk', 'Pk', 'Season', 'School', 'G_college', 'GS',
'MP_college', 'TS%',
       'eFG%', '3PAr', 'FTr', 'PProd', 'ORB%', 'DRB%', 'TRB%', 'AST%',
'STL%',
       'BLK%', 'TOV%', 'USG%', 'OWS', 'DWS', 'WS_college', 'WS/40',
'name',
       'PER'],
      dtype='object')
```

```python
#convert cols to numeric
df_clean[['Rk', 'Pk', 'G_college', 'GS', 'MP_college', 'TS%',
       'eFG%', '3PAr', 'FTr', 'PProd', 'ORB%', 'DRB%', 'TRB%', 'AST%',
'STL%',
       'BLK%', 'TOV%', 'USG%', 'OWS', 'DWS', 'WS_college', 'WS/40',
       'PER']] = df_clean[['Rk', 'Pk', 'G_college', 'GS',
'MP_college', 'TS%',
       'eFG%', '3PAr', 'FTr', 'PProd', 'ORB%', 'DRB%', 'TRB%', 'AST%',
'STL%',
       'BLK%', 'TOV%', 'USG%', 'OWS', 'DWS', 'WS_college', 'WS/40',
       'PER']].apply(pd.to_numeric)
```

```
/Users/jackpiccione/opt/anaconda3/lib/python3.7/site-packages/pandas/
core/frame.py:3636: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation:
https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#
returning-a-view-versus-a-copy
  self[k1] = value[k2]
```

```python
#create lottery varible
#if player is a top 14 pick then they are in the lottery
df_clean['lottery'] = np.where(df_clean['Pk']<=14, True, False)
```

```
/Users/jackpiccione/opt/anaconda3/lib/python3.7/site-packages/
ipykernel_launcher.py:3: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation:
https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#
returning-a-view-versus-a-copy
```

This is separate from the ipykernel package so we can avoid doing imports until

```python
#variable description
"""Age -- Player's age on February 1 of the season
G -- Games
MP -- Minutes Played
FG -- Field Goals
FGA -- Field Goal Attempts
3P -- 3-Point Field Goals
3PA -- 3-Point Field Goal Attempts
FT -- Free Throws
FTA -- Free Throw Attempts
ORB -- Offensive Rebounds
TRB -- Total Rebounds
AST -- Assists
STL -- Steals
BLK -- Blocks
TOV -- Turnovers
PF -- Personal Fouls
PTS -- Points
Shooting
FG% -- Field Goal Percentage
3P% -- 3-Point Field Goal Percentage
FT% -- Free Throw Percentage
Per Game
MP -- Minutes Played Per Game
PTS -- Points Per Game
TRB -- Total Rebounds Per Game
AST -- Assists Per Game
lottery -- top 14 pick in draft"""

len(df_clean)
```

417

```python
#save data as csv
df_clean.to_csv("NBAdraftADV.csv",index=False)
```