nba_shots

June 1, 2021

1 Links

[1]:
```
import sys
!{sys.executable} -m pip install nba_api
```

```
Collecting nba_api
  Using cached nba_api-1.1.9-py3-none-any.whl (242 kB)
Requirement already satisfied: requests in c:\users\danie\anaconda3\lib\site-
packages (from nba_api) (2.24.0)
Requirement already satisfied: urllib3!=1.25.0,!=1.25.1,<1.26,>=1.21.1 in
c:\users\danie\anaconda3\lib\site-packages (from requests->nba_api) (1.25.11)
Requirement already satisfied: idna<3,>=2.5 in
c:\users\danie\anaconda3\lib\site-packages (from requests->nba_api) (2.10)
Requirement already satisfied: chardet<4,>=3.0.2 in
c:\users\danie\anaconda3\lib\site-packages (from requests->nba_api) (3.0.4)
Requirement already satisfied: certifi>=2017.4.17 in
c:\users\danie\anaconda3\lib\site-packages (from requests->nba_api) (2020.6.20)
Installing collected packages: nba-api
Successfully installed nba-api-1.1.9
```

[1]:
```
from nba_api.stats.endpoints import commonallplayers
from nba_api.stats.endpoints import shotchartdetail
import json
import pandas as pd
import time
import requests
```

[2]:
```
def transform_to_df(content):
    results = content['resultSets'][0]
    headers = results['headers']
    rows = results['rowSet']
    df = pd.DataFrame(rows)
    df.columns = headers
    return df
```

[16]:
```
headers = {
    'Host': 'stats.nba.com',
    'Connection': 'keep-alive',
```

```
    'Cache-Control': 'max-age=0',
    'Upgrade-Insecure-Requests': '1',
    'User-Agent': 'Mozilla/5.0 (Macintosh; Intel Mac OS X 10_14_3) AppleWebKit/
↪537.36 (KHTML, like Gecko) Chrome/73.0.3683.86 Safari/537.36',
    'Accept': 'text/html,application/xhtml+xml,application/xml;q=0.9,image/
↪webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3',
    'Accept-Encoding': 'gzip, deflate, br',
    'Accept-Language': 'en-US,en;q=0.9',
}
```

[25]:
```
players_by_season = {}
for i in range(10,21):
    ini=i
    fin=i+1
    season="20"+str(i)+"-"+str(fin)
    response = commonallplayers.CommonAllPlayers(
        season=season,
        league_id="00"
    )

    content = json.loads(response.get_json())
    players = transform_to_df(content)
    players = players[players['ROSTERSTATUS']==1]['PERSON_ID']
    players_by_season[season] = players
```

[3]:
```
'''
response = commonallplayers.CommonAllPlayers(
    season='2018-19',
    league_id="00"
)

content = json.loads(response.get_json())
players = transform_to_df(content)
players = players[players['ROSTERSTATUS']==1]['PERSON_ID']
'''
```

[65]:
```
'''
shots = pd.DataFrame()
for p in players[0:5]:
    response = shotchartdetail.ShotChartDetail(
        team_id=0,
        player_id=p,
        season_nullable='2018-19',
        context_measure_simple= 'FGA',
        league_id="00",
    )
```

```
    time.sleep(0.2)
    try:
        content = json.loads(response.get_json())
        player_shots = transform_to_df(content)
        shots = shots.append(player_shots)
    except:
        print(p)
'''
```

[65]:
```
'\nshots = pd.DataFrame()\nfor p in players[0:5]:\n    response =
shotchartdetail.ShotChartDetail(\n        team_id=0,\n        player_id=p,\n
season_nullable=\'2018-19\',\n        context_measure_simple= \'FGA\',\n
league_id="00",\n    )\n    \n    time.sleep(0.2)\n    try:\n        content =
json.loads(response.get_json())\n        player_shots =
transform_to_df(content)\n        shots = shots.append(player_shots)\n
except:\n        print(p)\n'
```

[43]:
```
def get_shotchart(season,players):
    shots = pd.DataFrame()
    i=0
    for p in players:
        i+=1
        if i%100==0:
            print("Player {0}".format(i))
        response = shotchartdetail.ShotChartDetail(
            team_id=0,
            player_id=p,
            season_nullable=season,
            context_measure_simple= 'FGA',
            league_id="00",
        )

        time.sleep(0.2)
        try:
            content = json.loads(response.get_json())
            player_shots = transform_to_df(content)
            shots = shots.append(player_shots)
        except:
            print(p)
    return shots
```

[44]:
```
season="2010-11"
nba_shotchart_10_11 = get_shotchart(season,players_by_season[season])
```

```
202392
202364
201973
202371
```

```
201141
202350
2457
202375
201987
202358
202355
202343
```

[51]:
```
season="2011-12"
nba_shotchart_11_12 = get_shotchart(season,players_by_season[season])
```

```
201589
202067
```

[52]:
```
season="2012-13"
nba_shotchart_12_13 = get_shotchart(season,players_by_season[season])
```

```
101115
101112
201590
101204
1503
202077
203186
201565
203091
202343
```

[53]:
```
season="2013-14"
nba_shotchart_13_14 = get_shotchart(season,players_by_season[season])
```

```
2568
203105
201568
2217
203511
203457
1885
2731
203186
2202
```

[54]:
```
season="2014-15"
nba_shotchart_14_15 = get_shotchart(season,players_by_season[season])
```

```
203569
203954
203996
```

[64]:
```
season="2015-16"
nba_shotchart_15_16 = get_shotchart(season,players_by_season[season])
```

```
201163
1626155
203954
203957
204066
202347
2748
```

[55]:
```
season="2016-17"
nba_shotchart_16_17 = get_shotchart(season,players_by_season[season])
```

```
2547
203105
201593
202347
1627732
```

[56]:
```
season="2017-18"
nba_shotchart_17_18 = get_shotchart(season,players_by_season[season])
```

```
201582
203552
1628385
1628402
1628518
202688
201951
1628399
1628500
203912
Player 500
```

[67]:
```
season="2018-19"
nba_shotchart_18_19 = get_shotchart(season,players_by_season[season])
```

```
1629129
1626187
1629117
1626780
1628994
1628500
202389
1627749
1629134
1629341
1629008
```

```
204001
203460
1627756
1627785
```

[57]:
```
season="2019-20"
nba_shotchart_19_20 = get_shotchart(season,players_by_season[season])
```

```
1629121
201142
203121
1629007
1629244
1628424
1629034
202691
202322
1629685
Player 500
1629624
```

[58]:
```
season="2020-21"
nba_shotchart_20_21 = get_shotchart(season,players_by_season[season])
```

```
1628380
1630258
1628371
202691
1630492
Player 500
1630209
```

[80]:
```
nba_shotchart_10_11['SEASON'] = "2010-11"
nba_shotchart_11_12['SEASON'] = "2011-12"
nba_shotchart_12_13['SEASON'] = "2012-13"
nba_shotchart_13_14['SEASON'] = "2013-14"
nba_shotchart_14_15['SEASON'] = "2014-15"
nba_shotchart_15_16['SEASON'] = "2015-16"
nba_shotchart_16_17['SEASON'] = "2016-17"
nba_shotchart_17_18['SEASON'] = "2017-18"
nba_shotchart_18_19['SEASON'] = "2018-19"
nba_shotchart_19_20['SEASON'] = "2019-20"
nba_shotchart_20_21['SEASON'] = "2020-21"
```

[81]:
```
nba_shotchart_10_11.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización␣
↪de datos\PRA\nba_shotchart_10_11.csv',sep=';')
nba_shotchart_11_12.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización␣
↪de datos\PRA\nba_shotchart_11_12.csv',sep=';')
```

```
nba_shotchart_12_13.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización␣
↪de datos\PRA\nba_shotchart_12_13.csv',sep=';')
nba_shotchart_13_14.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización␣
↪de datos\PRA\nba_shotchart_13_14.csv',sep=';')
nba_shotchart_14_15.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización␣
↪de datos\PRA\nba_shotchart_14_15.csv',sep=';')
nba_shotchart_15_16.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización␣
↪de datos\PRA\nba_shotchart_15_16.csv',sep=';')
nba_shotchart_16_17.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización␣
↪de datos\PRA\nba_shotchart_16_17.csv',sep=';')
nba_shotchart_17_18.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización␣
↪de datos\PRA\nba_shotchart_17_18.csv',sep=';')
nba_shotchart_18_19.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización␣
↪de datos\PRA\nba_shotchart_18_19.csv',sep=';')
nba_shotchart_19_20.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización␣
↪de datos\PRA\nba_shotchart_19_20.csv',sep=';')
nba_shotchart_20_21.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización␣
↪de datos\PRA\nba_shotchart_20_21.csv',sep=';')
```

[85]:
```
nba_shotchart = pd.
↪concat([nba_shotchart_10_11,nba_shotchart_11_12,nba_shotchart_12_13,nba_shotchart_13_14,nba
                          ␣
↪nba_shotchart_15_16,nba_shotchart_16_17,nba_shotchart_17_18,nba_shotchart_18_19,nba_shotcha
                           nba_shotchart_20_21])
```

[105]:
```
#Se eliminan los tiros de fuera de los límites
nba_shotchart = nba_shotchart[nba_shotchart['LOC_X']<=250]
nba_shotchart = nba_shotchart[nba_shotchart['LOC_X']>=-250]
nba_shotchart = nba_shotchart[nba_shotchart['LOC_Y']<=418]
nba_shotchart = nba_shotchart[nba_shotchart['LOC_Y']>=-52]
#Se invierten los valores de la coordenada X
nba_shotchart['LOC_X'] = -nba_shotchart['LOC_X']
```

[106]:
```
nba_shotchart.to_csv(r'C:\Users\DANIE\Desktop\Data Science\Visualización de␣
↪datos\PRA\nba_shotchart.csv',sep=';')
```

[115]:
```
nba_shotchart
```

[115]:

	GRID_TYPE	GAME_ID	GAME_EVENT_ID	PLAYER_ID	PLAYER_NAME	\
0	Shot Chart Detail	0021000043	582	202399	Jeff Adrien	
1	Shot Chart Detail	0021000119	288	202399	Jeff Adrien	
2	Shot Chart Detail	0021000119	292	202399	Jeff Adrien	
3	Shot Chart Detail	0021000137	299	202399	Jeff Adrien	
4	Shot Chart Detail	0021000137	308	202399	Jeff Adrien	
..	…	…	…	…	…	
389	Shot Chart Detail	0022001047	28	1627826	Ivica Zubac	

```
390  Shot Chart Detail  0022001047           100    1627826  Ivica Zubac
391  Shot Chart Detail  0022001047           102    1627826  Ivica Zubac
392  Shot Chart Detail  0022001047           358    1627826  Ivica Zubac
393  Shot Chart Detail  0022001058            13    1627826  Ivica Zubac

        TEAM_ID              TEAM_NAME  PERIOD  MINUTES_REMAINING  \
0    1610612744  Golden State Warriors       4                  0
1    1610612744  Golden State Warriors       3                  6
2    1610612744  Golden State Warriors       3                  5
3    1610612744  Golden State Warriors       3                  5
4    1610612744  Golden State Warriors       3                  5
..          …                      …     …                  …
389  1610612746           LA Clippers       1                  9
390  1610612746           LA Clippers       1                  2
391  1610612746           LA Clippers       1                  2
392  1610612746           LA Clippers       3                  6
393  1610612746           LA Clippers       1                 10

     SECONDS_REMAINING  …  SHOT_ZONE_RANGE SHOT_DISTANCE LOC_X LOC_Y  \
0                    4  …  Less Than 8 ft.             1    15     7
1                   23  …  Less Than 8 ft.             2   -21    11
2                   44  …         8-16 ft.            14   -88   115
3                   52  …  Less Than 8 ft.             0    -4     6
4                    1  …  Less Than 8 ft.             0    -6     6
..                 …  …               …           …   …   …
389                 36  …  Less Than 8 ft.             0     5     3
390                 53  …  Less Than 8 ft.             6   -60    14
391                 44  …  Less Than 8 ft.             1    -2    14
392                  9  …  Less Than 8 ft.             5    28    52
393                 51  …          24+ ft.            26     3   264

    SHOT_ATTEMPTED_FLAG SHOT_MADE_FLAG  GAME_DATE  HTM  VTM   SEASON
0                     1              1  20101031  LAL  GSW  2010-11
1                     1              1  20101111  CHI  GSW  2010-11
2                     1              0  20101111  CHI  GSW  2010-11
3                     1              0  20101113  MIL  GSW  2010-11
4                     1              1  20101113  MIL  GSW  2010-11
..                  …            …        …  …  …      …
389                   1              1  20210513  CHA  LAC  2020-21
390                   1              0  20210513  CHA  LAC  2020-21
391                   1              1  20210513  CHA  LAC  2020-21
392                   1              1  20210513  CHA  LAC  2020-21
393                   1              1  20210514  HOU  LAC  2020-21

[2174339 rows x 25 columns]
```