

IPL Data Analysis Using NumPy and Matplotlib

```
In [7]: #Import numpy
import numpy as np
```

```
In [9]: #Seasons
Seasons = ["2010", "2011", "2012", "2013", "2014", "2015", "2016", "2017", "2018", "2019"]
Sdict = {"2010":0, "2011":1, "2012":2, "2013":3, "2014":4, "2015":5, "2016":6, "2017":7, "2018":8, "2019":9}

#Players
Players = ["Sachin", "Rahul", "Smith", "Sami", "Pollard", "Morris", "Samson", "Dhoni", "Kohli", "Sky"]
Pdict = {"Sachin":0, "Rahul":1, "Smith":2, "Sami":3, "Pollard":4, "Morris":5, "Samson":6, "Dhoni":7, "Kohli":8, "Sky":9}

#Salaries
Sachin_Salary = [15946875, 17718750, 19490625, 21262500, 23034375, 24806250, 25244493, 27850000, 30500000, 34000000, 37500000, 41000000, 44500000, 48000000, 51500000, 55000000, 58500000, 62000000, 65500000, 69000000, 72500000, 76000000, 79500000, 83000000, 86500000, 90000000, 93500000, 97000000, 100500000, 104000000, 107500000, 111000000, 114500000, 118000000, 121500000, 125000000, 128500000, 132000000, 135500000, 139000000, 142500000, 146000000, 149500000, 153000000, 156500000, 160000000, 163500000, 167000000, 170500000, 174000000, 177500000, 181000000, 184500000, 188000000, 191500000, 195000000, 198500000, 202000000, 205500000, 209000000, 212500000, 216000000, 219500000, 223000000, 226500000, 230000000, 233500000, 237000000, 240500000, 244000000, 247500000, 251000000, 254500000, 258000000, 261500000, 265000000, 268500000, 272000000, 275500000, 279000000, 282500000, 286000000, 289500000, 293000000, 296500000, 300000000, 303500000, 307000000, 310500000, 314000000, 317500000, 321000000, 324500000, 328000000, 331500000, 335000000, 338500000, 342000000, 345500000, 349000000, 352500000, 356000000, 359500000, 363000000, 366500000, 370000000, 373500000, 377000000, 380500000, 384000000, 387500000, 391000000, 394500000, 398000000, 401500000, 405000000, 408500000, 412000000, 415500000, 419000000, 422500000, 426000000, 429500000, 433000000, 436500000, 440000000, 443500000, 447000000, 450500000, 454000000, 457500000, 461000000, 464500000, 468000000, 471500000, 475000000, 478500000, 482000000, 485500000, 489000000, 492500000, 496000000, 499500000, 503000000, 506500000, 510000000, 513500000, 517000000, 520500000, 524000000, 527500000, 531000000, 534500000, 538000000, 541500000, 545000000, 548500000, 552000000, 555500000, 559000000, 562500000, 566000000, 569500000, 573000000, 576500000, 580000000, 583500000, 587000000, 590500000, 594000000, 597500000, 601000000, 604500000, 608000000, 611500000, 615000000, 618500000, 622000000, 625500000, 629000000, 632500000, 636000000, 639500000, 643000000, 646500000, 650000000, 653500000, 657000000, 660500000, 664000000, 667500000, 671000000, 674500000, 678000000, 681500000, 685000000, 688500000, 692000000, 695500000, 699000000, 702500000, 706000000, 709500000, 713000000, 716500000, 720000000, 723500000, 727000000, 730500000, 734000000, 737500000, 741000000, 744500000, 748000000, 751500000, 755000000, 758500000, 762000000, 765500000, 769000000, 772500000, 776000000, 779500000, 783000000, 786500000, 790000000, 793500000, 797000000, 800500000, 804000000, 807500000, 811000000, 814500000, 818000000, 821500000, 825000000, 828500000, 832000000, 835500000, 839000000, 842500000, 846000000, 849500000, 853000000, 856500000, 860000000, 863500000, 867000000, 870500000, 874000000, 877500000, 881000000, 884500000, 888000000, 891500000, 895000000, 898500000, 902000000, 905500000, 909000000, 912500000, 916000000, 919500000, 923000000, 926500000, 930000000, 933500000, 937000000, 940500000, 944000000, 947500000, 951000000, 954500000, 958000000, 961500000, 965000000, 968500000, 972000000, 975500000, 979000000, 982500000, 986000000, 989500000, 993000000, 996500000, 1000000000]

#Matrix
Salary = np.array([Sachin_Salary, Rahul_Salary, Smith_Salary, Sami_Salary, Pollard_Salary, Morris_Salary, Samson_Salary, Dhoni_Salary, Kohli_Salary, Sky_Salary])

#Games
Sachin_G = [80, 77, 82, 82, 73, 82, 58, 78, 6, 35]
Rahul_G = [82, 57, 82, 79, 76, 72, 60, 72, 79, 80]
Smith_G = [79, 78, 75, 81, 76, 79, 62, 76, 77, 69]
Sami_G = [80, 65, 77, 66, 69, 77, 55, 67, 77, 40]
Pollard_G = [82, 82, 82, 79, 82, 78, 54, 76, 71, 41]
Morris_G = [70, 69, 67, 77, 70, 77, 57, 74, 79, 44]
Samson_G = [78, 64, 80, 78, 45, 80, 60, 70, 62, 82]
Dhoni_G = [35, 35, 80, 74, 82, 78, 66, 81, 81, 27]
Kohli_G = [40, 40, 40, 81, 78, 81, 39, 0, 10, 51]
Sky_G = [75, 51, 51, 79, 77, 76, 49, 69, 54, 62]

#Matrix
Games = np.array([Sachin_G, Rahul_G, Smith_G, Sami_G, Pollard_G, Morris_G, Samson_G, Dhoni_G, Kohli_G, Sky_G])

#Points
Sachin PTS = [2832, 2430, 2323, 2201, 1970, 2078, 1616, 2133, 83, 782]
Rahul PTS = [1653, 1426, 1779, 1688, 1619, 1312, 1129, 1170, 1245, 1154]
Smith PTS = [2478, 2132, 2250, 2304, 2258, 2111, 1683, 2036, 2089, 1743]
Sami PTS = [2122, 1881, 1978, 1504, 1943, 1970, 1245, 1920, 2112, 966]
Pollard PTS = [1292, 1443, 1695, 1624, 1503, 1784, 1113, 1296, 1297, 646]
Morris PTS = [1572, 1561, 1496, 1746, 1678, 1438, 1025, 1232, 1281, 928]
Samson PTS = [1258, 1104, 1684, 1781, 841, 1268, 1189, 1186, 1185, 1564]
Dhoni PTS = [903, 903, 1624, 1871, 2472, 2161, 1850, 2280, 2593, 686]
```

```
Kohli PTS = [597, 597, 597, 1361, 1619, 2026, 852, 0, 159, 904]
Sky PTS = [2040, 1397, 1254, 2386, 2045, 1941, 1082, 1463, 1028, 1331]
#Matrix
Points = np.array([Sachin PTS, Rahul PTS, Smith PTS, Sami PTS, Pollard PTS, Morris_
```

In [11]: Salary # Matrix Format

```
Out[11]: array([[15946875, 17718750, 19490625, 21262500, 23034375, 24806250,
                 25244493, 27849149, 30453805, 23500000],
                  [12000000, 12744189, 13488377, 14232567, 14976754, 16324500,
                   18038573, 19752645, 21466718, 23180790],
                  [ 4621800, 5828090, 13041250, 14410581, 15779912, 14500000,
                   16022500, 17545000, 19067500, 20644400],
                  [ 3713640, 4694041, 13041250, 14410581, 15779912, 17149243,
                   18518574, 19450000, 22407474, 22458000],
                  [ 4493160, 4806720, 6061274, 13758000, 15202590, 16647180,
                   18091770, 19536360, 20513178, 21436271],
                  [ 3348000, 4235220, 12455000, 14410581, 15779912, 14500000,
                   16022500, 17545000, 19067500, 20644400],
                  [ 3144240, 3380160, 3615960, 4574189, 13520500, 14940153,
                   16359805, 17779458, 18668431, 20068563],
                  [ 0, 0, 4171200, 4484040, 4796880, 6053663,
                   15506632, 16669630, 17832627, 18995624],
                  [ 0, 0, 0, 4822800, 5184480, 5546160,
                   6993708, 16402500, 17632688, 18862875],
                  [ 3031920, 3841443, 13041250, 14410581, 15779912, 14200000,
                   15691000, 17182000, 18673000, 15000000]])
```

In [15]: Games #Game Matrix

```
Out[15]: array([[ 80,  77,  82,  82,  73,  82,  58,  78,   6,  35],
                 [ 82,  57,  82,  79,  76,  72,  60,  72,  79,  80],
                 [ 79,  78,  75,  81,  76,  79,  62,  76,  77,  69],
                 [ 80,  65,  77,  66,  69,  77,  55,  67,  77,  40],
                 [ 82,  82,  82,  79,  82,  78,  54,  76,  71,  41],
                 [ 70,  69,  67,  77,  70,  77,  57,  74,  79,  44],
                 [ 78,  64,  80,  78,  45,  80,  60,  70,  62,  82],
                 [ 35,  35,  80,  74,  82,  78,  66,  81,  81,  27],
                 [ 40,  40,  40,  81,  78,  81,  39,  0,  10,  51],
                 [ 75,  51,  51,  79,  77,  76,  49,  69,  54,  62]]))
```

In [17]: Points #Create Point Matrix

```
Out[17]: array([[ 2832,  2430,  2323,  2201,  1970,  2078,  1616,  2133,   83,  782],
                 [ 1653,  1426,  1779,  1688,  1619,  1312,  1129,  1170,  1245,  1154],
                 [ 2478,  2132,  2250,  2304,  2258,  2111,  1683,  2036,  2089,  1743],
                 [ 2122,  1881,  1978,  1504,  1943,  1970,  1245,  1920,  2112,  966],
                 [ 1292,  1443,  1695,  1624,  1503,  1784,  1113,  1296,  1297,  646],
                 [ 1572,  1561,  1496,  1746,  1678,  1438,  1025,  1232,  1281,  928],
                 [ 1258,  1104,  1684,  1781,  841,  1268,  1189,  1186,  1185,  1564],
                 [  903,   903,  1624,  1871,  2472,  2161,  1850,  2280,  2593,  686],
                 [  597,   597,  597,  1361,  1619,  2026,  852,   0,  159,  904],
                 [ 2040,  1397,  1254,  2386,  2045,  1941,  1082,  1463,  1028,  1331]]))
```

In [19]: Games

```
Out[19]: array([[80, 77, 82, 82, 73, 82, 58, 78, 6, 35],  
                 [82, 57, 82, 79, 76, 72, 60, 72, 79, 80],  
                 [79, 78, 75, 81, 76, 79, 62, 76, 77, 69],  
                 [80, 65, 77, 66, 69, 77, 55, 67, 77, 40],  
                 [82, 82, 82, 79, 82, 78, 54, 76, 71, 41],  
                 [70, 69, 67, 77, 70, 77, 57, 74, 79, 44],  
                 [78, 64, 80, 78, 45, 80, 60, 70, 62, 82],  
                 [35, 35, 80, 74, 82, 78, 66, 81, 81, 27],  
                 [40, 40, 40, 81, 78, 81, 39, 0, 10, 51],  
                 [75, 51, 51, 79, 77, 76, 49, 69, 54, 62]])
```

```
In [21]: Games[5]
```

```
Out[21]: array([70, 69, 67, 77, 70, 77, 57, 74, 79, 44])
```

```
In [23]: Games[0:5]
```

```
Out[23]: array([[80, 77, 82, 82, 73, 82, 58, 78, 6, 35],  
                 [82, 57, 82, 79, 76, 72, 60, 72, 79, 80],  
                 [79, 78, 75, 81, 76, 79, 62, 76, 77, 69],  
                 [80, 65, 77, 66, 69, 77, 55, 67, 77, 40],  
                 [82, 82, 82, 79, 82, 78, 54, 76, 71, 41]])
```

```
In [25]: Games[0:5]
```

```
Out[25]: 82
```

```
In [27]: Games[1:2]
```

```
Out[27]: array([[82, 57, 82, 79, 76, 72, 60, 72, 79, 80]])
```

```
In [29]: Points
```

```
Out[29]: array([[2832, 2430, 2323, 2201, 1970, 2078, 1616, 2133, 83, 782],  
                 [1653, 1426, 1779, 1688, 1619, 1312, 1129, 1170, 1245, 1154],  
                 [2478, 2132, 2250, 2304, 2258, 2111, 1683, 2036, 2089, 1743],  
                 [2122, 1881, 1978, 1504, 1943, 1970, 1245, 1920, 2112, 966],  
                 [1292, 1443, 1695, 1624, 1503, 1784, 1113, 1296, 1297, 646],  
                 [1572, 1561, 1496, 1746, 1678, 1438, 1025, 1232, 1281, 928],  
                 [1258, 1104, 1684, 1781, 841, 1268, 1189, 1186, 1185, 1564],  
                 [903, 903, 1624, 1871, 2472, 2161, 1850, 2280, 2593, 686],  
                 [597, 597, 597, 1361, 1619, 2026, 852, 0, 159, 904],  
                 [2040, 1397, 1254, 2386, 2045, 1941, 1082, 1463, 1028, 1331]])
```

```
In [31]: Points[0]
```

```
Out[31]: array([2832, 2430, 2323, 2201, 1970, 2078, 1616, 2133, 83, 782])
```

```
In [33]: Points[:]
```

```
Out[33]: array([[2832, 2430, 2323, 2201, 1970, 2078, 1616, 2133, 83, 782],  
                [1653, 1426, 1779, 1688, 1619, 1312, 1129, 1170, 1245, 1154],  
                [2478, 2132, 2250, 2304, 2258, 2111, 1683, 2036, 2089, 1743],  
                [2122, 1881, 1978, 1504, 1943, 1970, 1245, 1920, 2112, 966],  
                [1292, 1443, 1695, 1624, 1503, 1784, 1113, 1296, 1297, 646],  
                [1572, 1561, 1496, 1746, 1678, 1438, 1025, 1232, 1281, 928],  
                [1258, 1104, 1684, 1781, 841, 1268, 1189, 1186, 1185, 1564],  
                [ 903,  903, 1624, 1871, 2472, 2161, 1850, 2280, 2593, 686],  
                [ 597,  597,  597, 1361, 1619, 2026,  852,    0, 159,  904],  
                [2040, 1397, 1254, 2386, 2045, 1941, 1082, 1463, 1028, 1331]])
```

```
In [35]: Points[6,1]
```

```
Out[35]: 1104
```

```
In [37]: Points[3,1]
```

```
Out[37]: 1881
```

```
In [39]: Points[3:1]
```

```
Out[39]: array([], shape=(0, 10), dtype=int32)
```

```
In [41]: Points[-6,-1]
```

```
Out[41]: 646
```

```
In [43]: Pdict
```

```
Out[43]: {'Sachin': 0,  
          'Rahul': 1,  
          'Smith': 2,  
          'Sami': 3,  
          'Pollard': 4,  
          'Morris': 5,  
          'Samson': 6,  
          'Dhoni': 7,  
          'Kohli': 8,  
          'Sky': 9}
```

```
In [45]: Games[1]
```

```
Out[45]: array([82, 57, 82, 79, 76, 72, 60, 72, 79, 80])
```

```
In [47]: Pdict['Sachin'] #Predicting the value for key names Sachin
```

```
Out[47]: 0
```

```
In [49]: Games[0]
```

```
Out[49]: array([80, 77, 82, 82, 73, 82, 58, 78, 6, 35])
```

```
In [51]: Games[Pdict['Sachin']] #Retriving Games played by Sachin
```

```
Out[51]: array([80, 77, 82, 82, 73, 82, 58, 78, 6, 35])
```

```
In [53]: Points
```

```
Out[53]: array([[2832, 2430, 2323, 2201, 1970, 2078, 1616, 2133, 83, 782],  
[1653, 1426, 1779, 1688, 1619, 1312, 1129, 1170, 1245, 1154],  
[2478, 2132, 2250, 2304, 2258, 2111, 1683, 2036, 2089, 1743],  
[2122, 1881, 1978, 1504, 1943, 1970, 1245, 1920, 2112, 966],  
[1292, 1443, 1695, 1624, 1503, 1784, 1113, 1296, 1297, 646],  
[1572, 1561, 1496, 1746, 1678, 1438, 1025, 1232, 1281, 928],  
[1258, 1104, 1684, 1781, 841, 1268, 1189, 1186, 1185, 1564],  
[ 903, 903, 1624, 1871, 2472, 2161, 1850, 2280, 2593, 686],  
[ 597, 597, 597, 1361, 1619, 2026, 852, 0, 159, 904],  
[2040, 1397, 1254, 2386, 2045, 1941, 1082, 1463, 1028, 1331]])
```

```
In [55]: Salary
```

```
Out[55]: array([[15946875, 17718750, 19490625, 21262500, 23034375, 24806250,  
25244493, 27849149, 30453805, 23500000],  
[12000000, 12744189, 13488377, 14232567, 14976754, 16324500,  
18038573, 19752645, 21466718, 23180790],  
[ 4621800, 5828090, 13041250, 14410581, 15779912, 14500000,  
16022500, 17545000, 19067500, 20644400],  
[ 3713640, 4694041, 13041250, 14410581, 15779912, 17149243,  
18518574, 19450000, 22407474, 22458000],  
[ 4493160, 4806720, 6061274, 13758000, 15202590, 16647180,  
18091770, 19536360, 20513178, 21436271],  
[ 3348000, 4235220, 12455000, 14410581, 15779912, 14500000,  
16022500, 17545000, 19067500, 20644400],  
[ 3144240, 3380160, 3615960, 4574189, 13520500, 14940153,  
16359805, 17779458, 18668431, 20068563],  
[ 0, 0, 4171200, 4484040, 4796880, 6053663,  
15506632, 16669630, 17832627, 18995624],  
[ 0, 0, 0, 4822800, 5184480, 5546160,  
6993708, 16402500, 17632688, 18862875],  
[ 3031920, 3841443, 13041250, 14410581, 15779912, 14200000,  
15691000, 17182000, 18673000, 15000000]])
```

```
In [71]: Salary[9,9]
```

```
Out[71]: 15000000
```

```
In [73]: np.round(Salary//Games)
```

```
C:\Users\VARDHAN REDDY\AppData\Local\Temp\ipykernel_22956\3663165759.py:1: RuntimeWarning: divide by zero encountered in floor_divide  
np.round(Salary//Games)
```

```
Out[73]: array([[ 199335,  230113,  237690,  259298,  315539,  302515,  435249,
   357040,  5075634,  671428],
 [ 146341,  223582,  164492,  180159,  197062,  226729,  300642,
  274342,  271730,  289759],
 [ 58503,   74719,  173883,  177908,  207630,  183544,  258427,
 230855,  247629,  299194],
 [ 46420,   72216,  169366,  218342,  228694,  222717,  336701,
 290298,  291006,  561450],
 [ 54794,   58618,  73917,  174151,  185397,  213425,  335032,
 257057,  288918,  522835],
 [ 47828,   61380,  185895,  187150,  225427,  188311,  281096,
 237094,  241360,  469190],
 [ 40310,   52815,  45199,  58643,  300455,  186751,  272663,
 253992,  301103,  244738],
 [ 0,        0,      52140,  60595,  58498,  77611,  234948,
 205797,  220155,  703541],
 [ 0,        0,      0,      59540,  66467,  68471,  179325,
 0,      1763268,  369860],
 [ 40425,   75322,  255710,  182412,  204933,  186842,  320224,
 249014,  345796,  241935]])
```

```
In [86]: Salary/Games
```

```
Out[86]: array([[ 199335.9375 ,  230113.63636364,  237690.54878049,
   259298.7804878 ,  315539.38356164,  302515.24390244,
   435249.87931034,  357040.37179487,  5075634.16666667,
   671428.57142857],
 [ 146341.46341463,  223582.26315789,  164492.40243902,
  180159.07594937,  197062.55263158,  226729.16666667,
  300642.88333333,  274342.29166667,  271730.60759494,
  289759.875     ],
 [ 58503.79746835,  74719.1025641 ,  173883.33333333,
  177908.40740741,  207630.42105263,  183544.30379747,
  258427.41935484,  230855.26315789,  247629.87012987,
  299194.20289855],
 [ 46420.5       ,  72216.01538462,  169366.88311688,
  218342.13636364,  228694.37681159,  222717.44155844,
  336701.34545455,  290298.50746269,  291006.15584416,
  561450.        ],
 [ 54794.63414634,  58618.53658537,  73917.97560976,
  174151.89873418,  185397.43902439,  213425.38461538,
  335032.77777778,  257057.36842105,  288918.        ,
  522835.87804878],
 [ 47828.57142857,  61380.        ,  185895.52238806,
  187150.4025974 ,  225427.31428571,  188311.68831169,
  281096.49122807,  237094.59459459,  241360.75949367,
  469190.90909091],
 [ 40310.76923077,  52815.        ,  45199.5       ,
  58643.44871795,  300455.55555556,  186751.9125       ,
  272663.41666667,  253992.25714286,  301103.72580645,
  244738.57317073],
 [ 0.        ,  0.        ,  52140.        ,
  60595.13513514,  58498.53658537,  77611.06410256,
  234948.96969697,  205797.90123457,  220155.88888889,
  703541.62962963],
 [ 0.        ,  0.        ,  0.        ,
  59540.74074074,  66467.69230769,  68471.11111111,
  179325.84615385,  inf,  1763268.8       ,
  369860.29411765],
 [ 40425.6       ,  75322.41176471,  255710.78431373,
  182412.41772152,  204933.92207792,  186842.10526316,
  320224.48979592,  249014.49275362,  345796.2962963 ,
  241935.48387097]])
```

```
In [88]: import warnings
warnings.filterwarnings('ignore')
```

```
In [90]: import matplotlib.pyplot as plt
```

```
In [92]: %matplotlib inline
```

```
In [94]: Salary
```

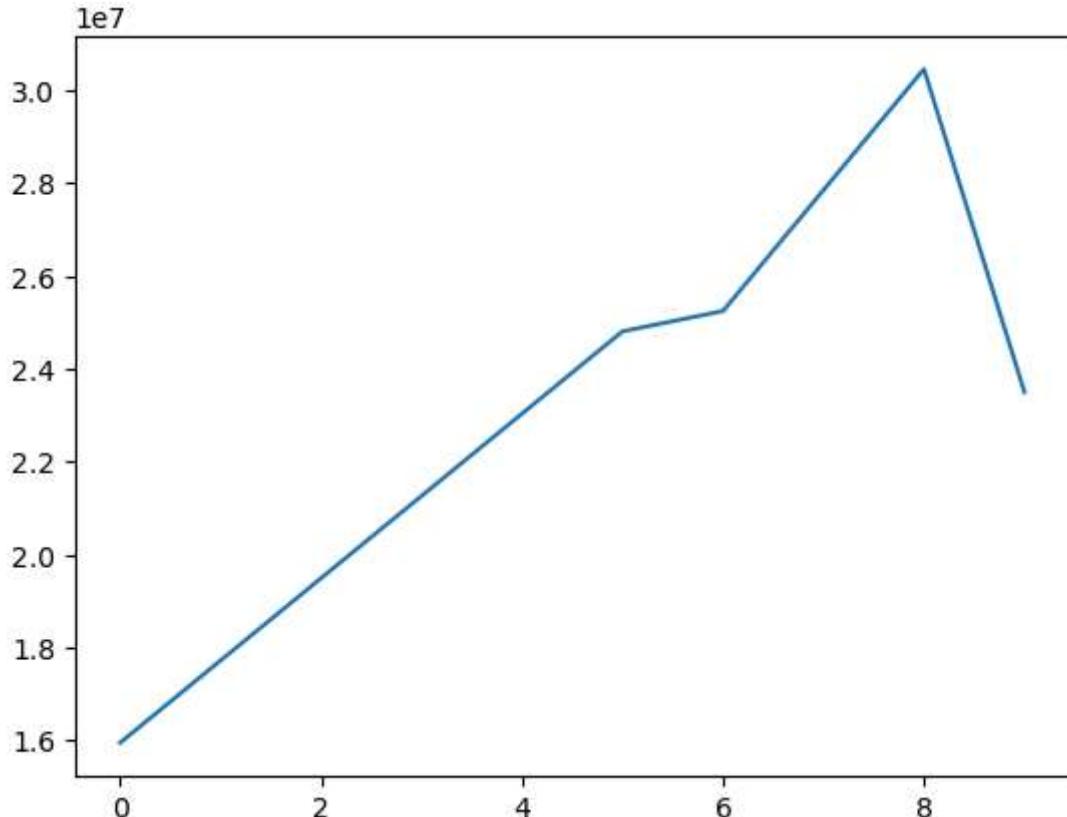
```
Out[94]: array([[15946875, 17718750, 19490625, 21262500, 23034375, 24806250,
   25244493, 27849149, 30453805, 23500000],
   [12000000, 12744189, 13488377, 14232567, 14976754, 16324500,
   18038573, 19752645, 21466718, 23180790],
   [ 4621800, 5828090, 13041250, 14410581, 15779912, 14500000,
   16022500, 17545000, 19067500, 20644400],
   [ 3713640, 4694041, 13041250, 14410581, 15779912, 17149243,
   18518574, 19450000, 22407474, 22458000],
   [ 4493160, 4806720, 6061274, 13758000, 15202590, 16647180,
   18091770, 19536360, 20513178, 21436271],
   [ 3348000, 4235220, 12455000, 14410581, 15779912, 14500000,
   16022500, 17545000, 19067500, 20644400],
   [ 3144240, 3380160, 3615960, 4574189, 13520500, 14940153,
   16359805, 17779458, 18668431, 20068563],
   [ 0, 0, 4171200, 4484040, 4796880, 6053663,
   15506632, 16669630, 17832627, 18995624],
   [ 0, 0, 0, 4822800, 5184480, 5546160,
   6993708, 16402500, 17632688, 18862875],
   [ 3031920, 3841443, 13041250, 14410581, 15779912, 14200000,
   15691000, 17182000, 18673000, 15000000]])
```

```
In [96]: Salary[0]
```

```
Out[96]: array([15946875, 17718750, 19490625, 21262500, 23034375, 24806250,
   25244493, 27849149, 30453805, 23500000])
```

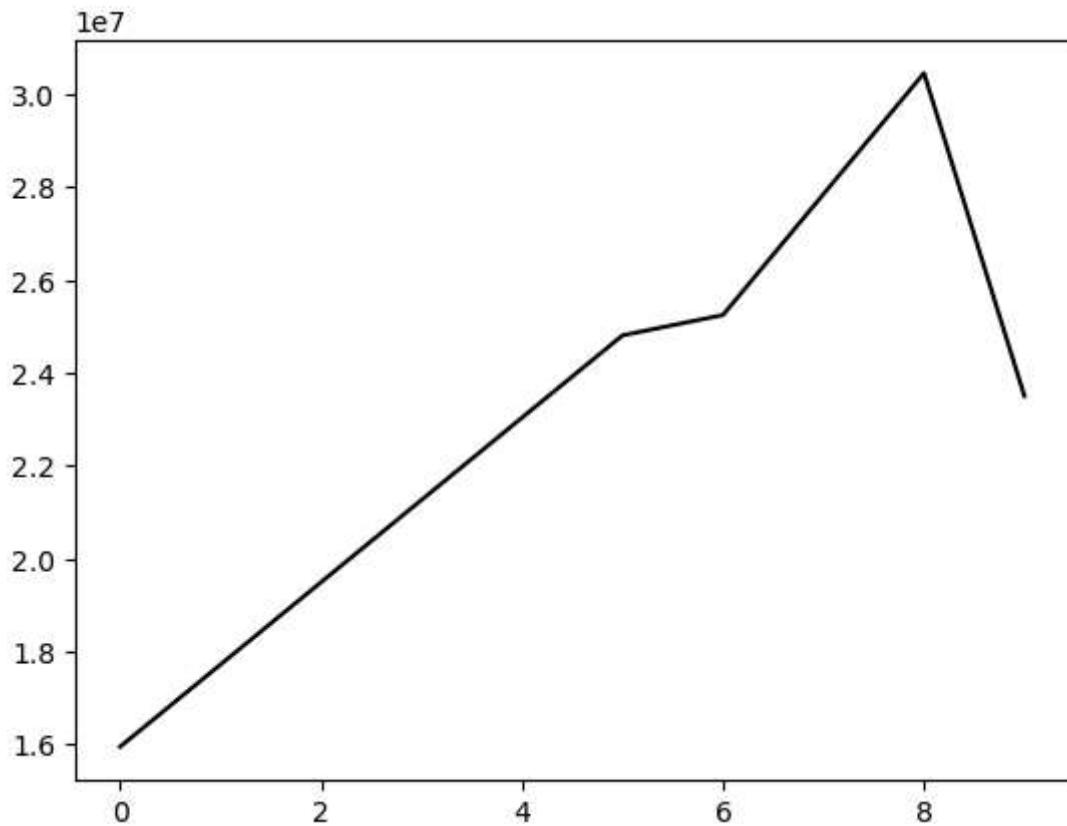
```
In [98]: plt.plot(Salary[0])
plt.show
```

```
Out[98]: <function matplotlib.pyplot.show(close=None, block=None)>
```



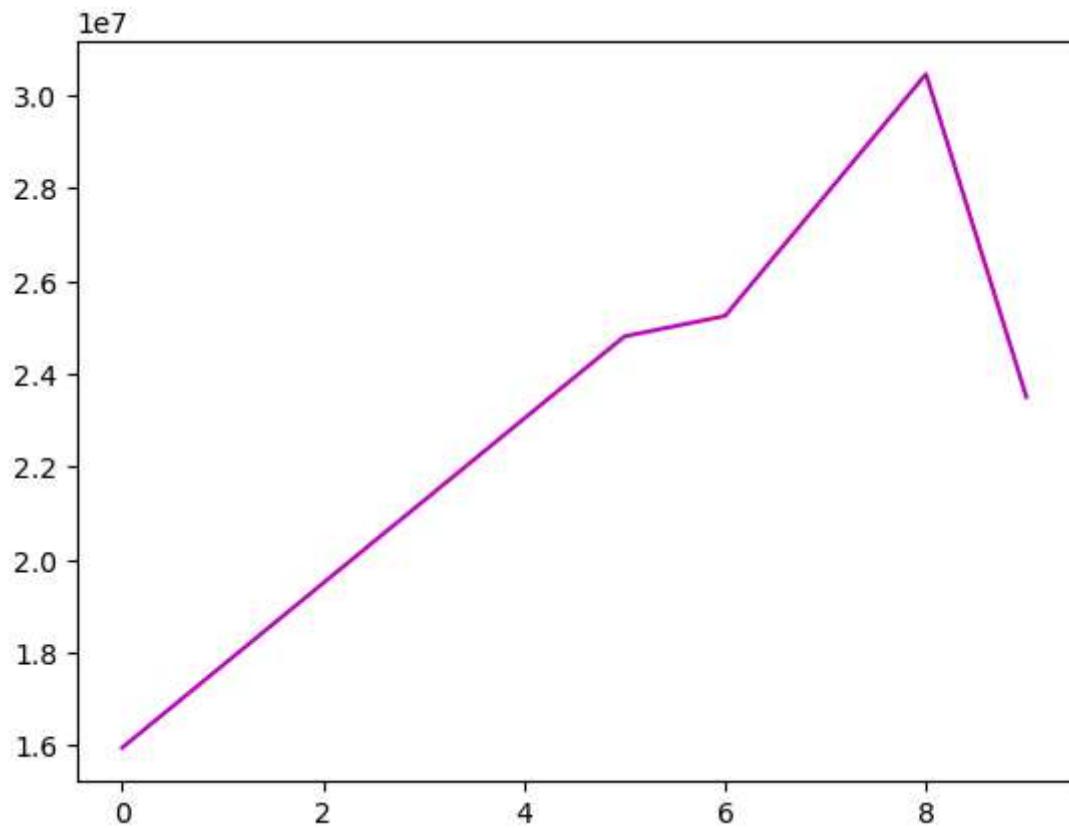
```
In [104... plt.plot(Salary[0],color='black')  
plt.show
```

```
Out[104... <function matplotlib.pyplot.show(close=None, block=None)>
```



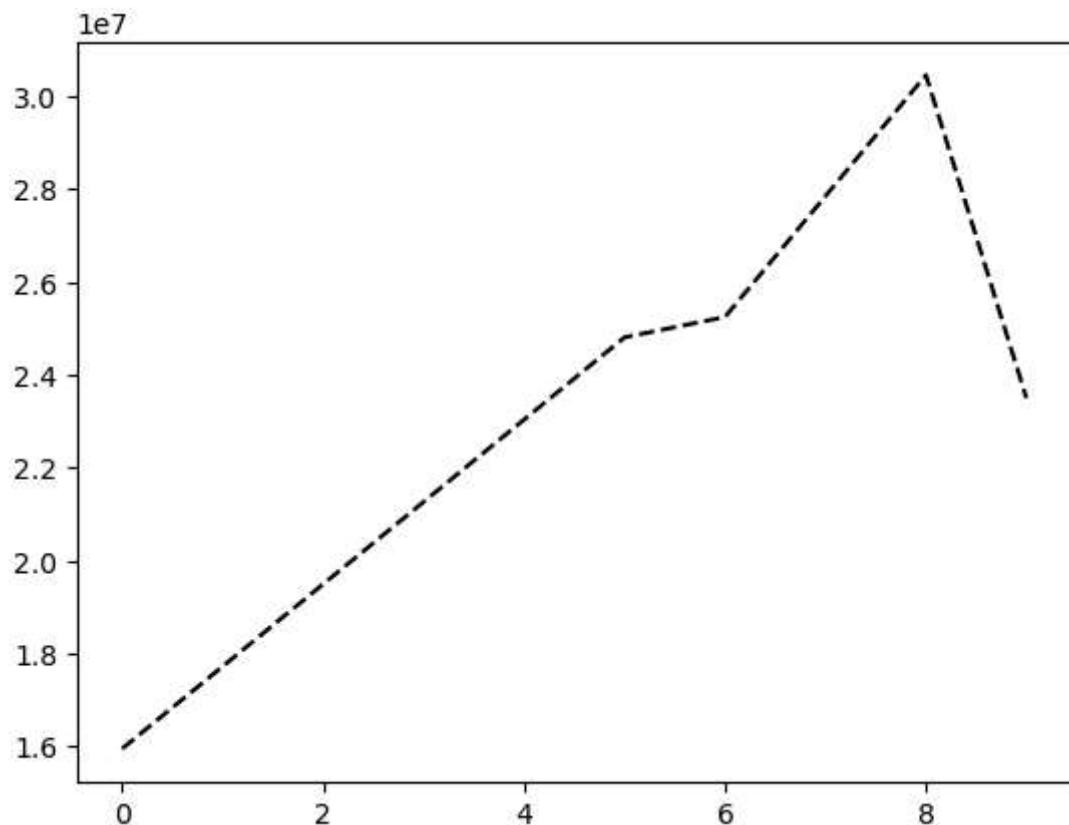
```
In [106... plt.plot(Salary[0],color='m')  
plt.show
```

```
Out[106... <function matplotlib.pyplot.show(close=None, block=None)>
```



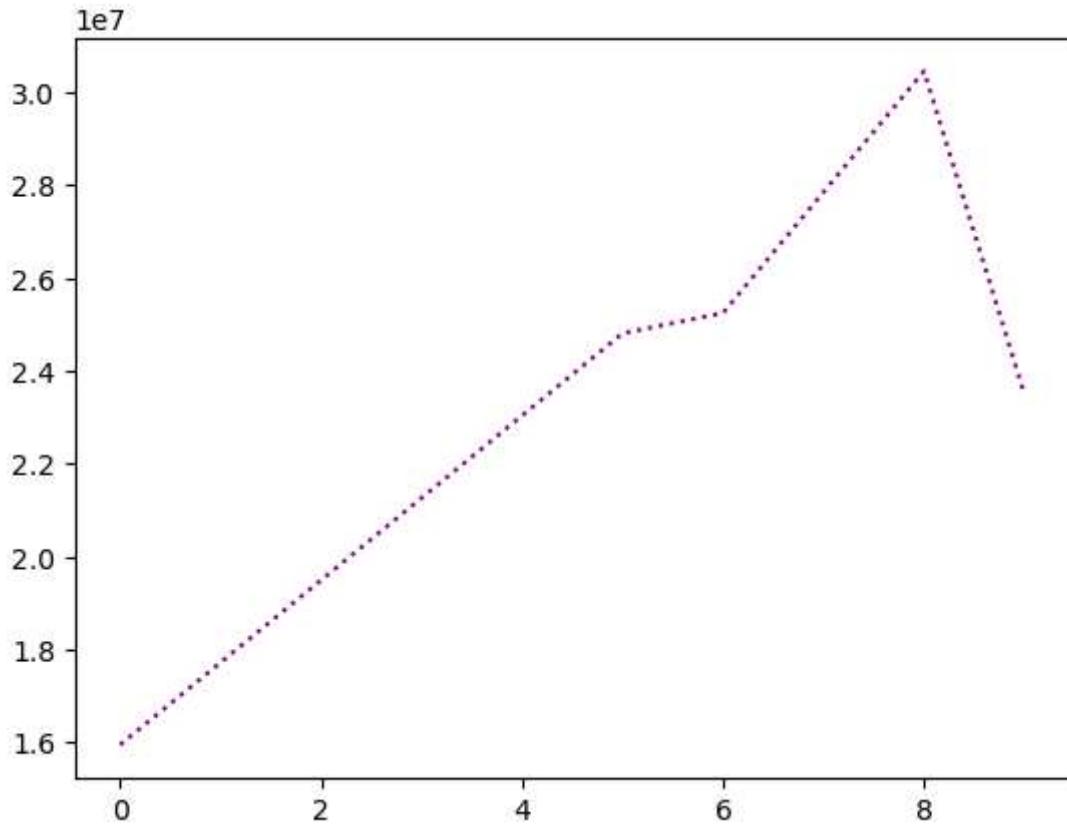
```
In [108]: plt.plot(Salary[0], color='black', ls='--')
```

```
Out[108]: <matplotlib.lines.Line2D at 0x1bcfc284e60>
```



```
In [114... plt.plot(Salary[0],color='purple',ls = 'dotted')
```

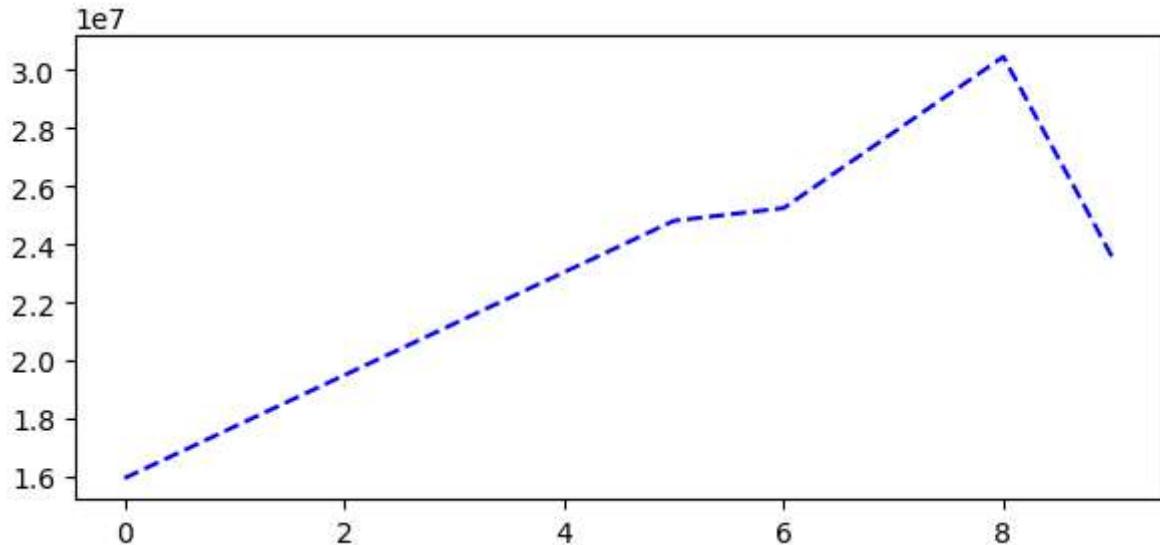
```
Out[114... <matplotlib.lines.Line2D at 0x1bcfd9d8b00>]
```



```
In [116... %matplotlib inline  
plt.rcParams['figure.figsize']=7,3
```

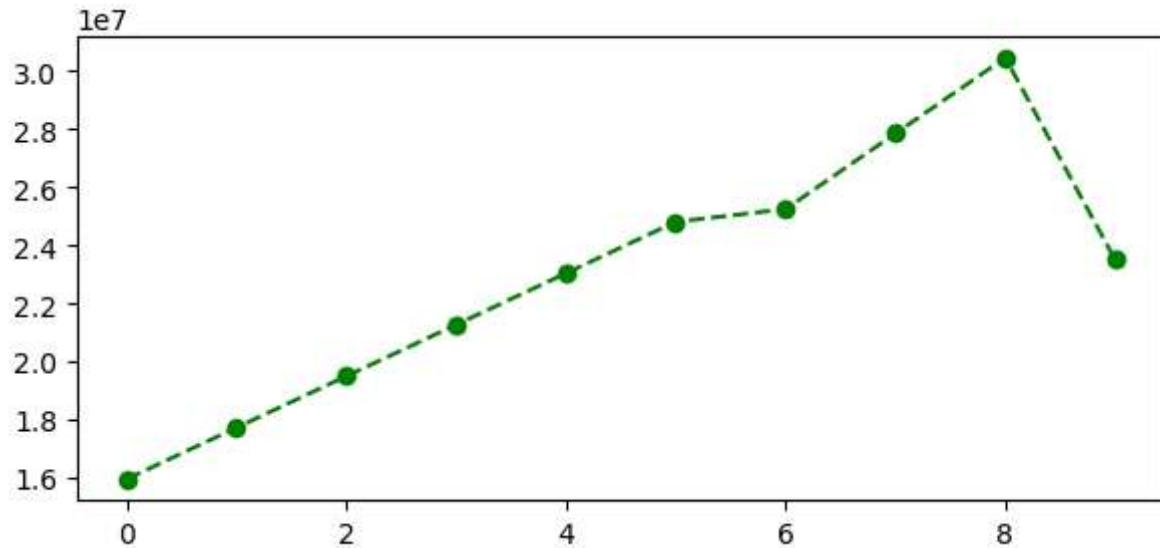
```
In [120... plt.plot(Salary[0],c='Blue',ls='--')  
plt.show()
```

```
Out[120... <function matplotlib.pyplot.show(close=None, block=None)>
```



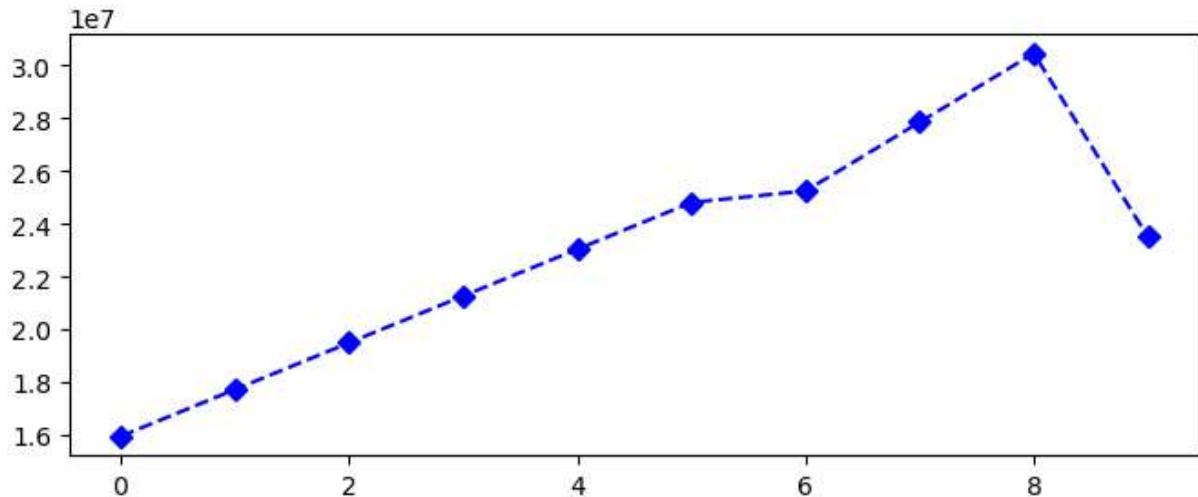
```
In [132... plt.plot(Salary[0] , c = "Green" , ls = '--',marker ='o')
```

```
Out[132... [<matplotlib.lines.Line2D at 0x1bcfe412090>]
```



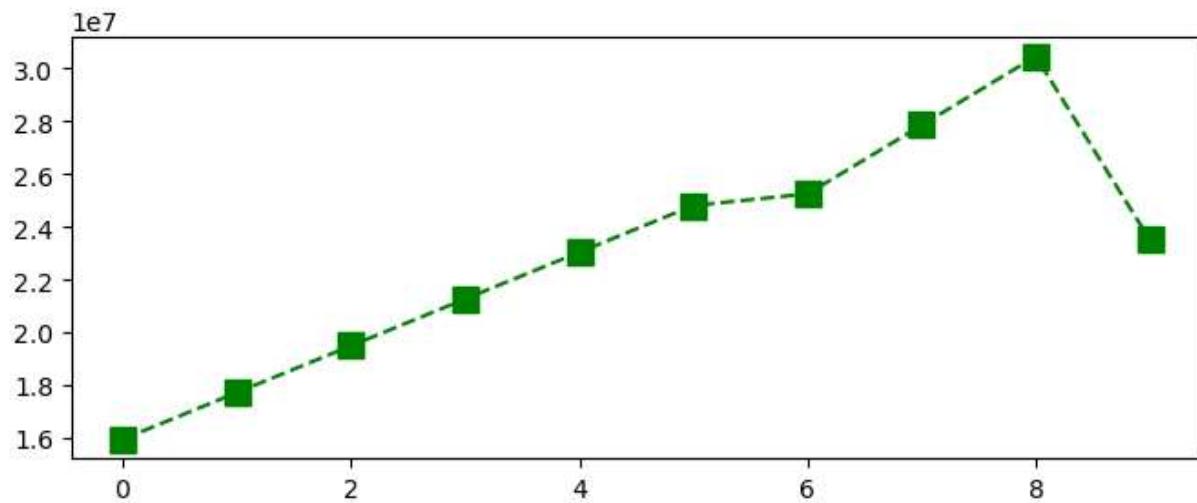
```
In [146... plt.plot(Salary[0],c='Blue', ls='--', marker = 'D')
```

```
Out[146... [<matplotlib.lines.Line2D at 0x1bc80f02d50>]
```



```
In [158... plt.plot(Salary[0],c='Green',ls='--',marker='s',ms=10)
```

```
Out[158... [<matplotlib.lines.Line2D at 0x1bcfdcf34d0>]
```



```
In [162...]: list(range(0,10))
```

```
Out[162...]: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

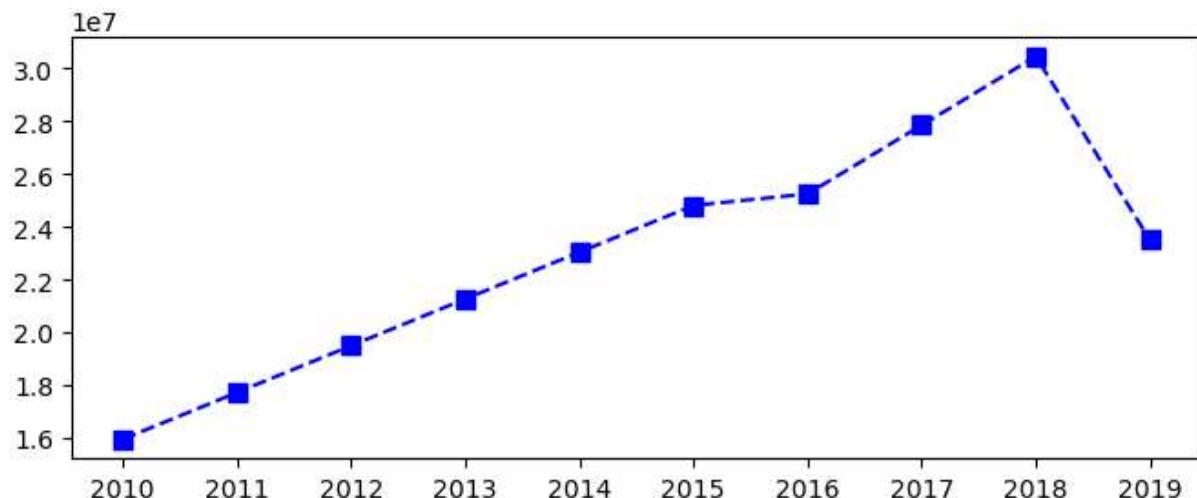
```
In [164...]: Sdict
```

```
Out[164...]: {'2010': 0,
 '2011': 1,
 '2012': 2,
 '2013': 3,
 '2014': 4,
 '2015': 5,
 '2016': 6,
 '2017': 7,
 '2018': 8,
 '2019': 9}
```

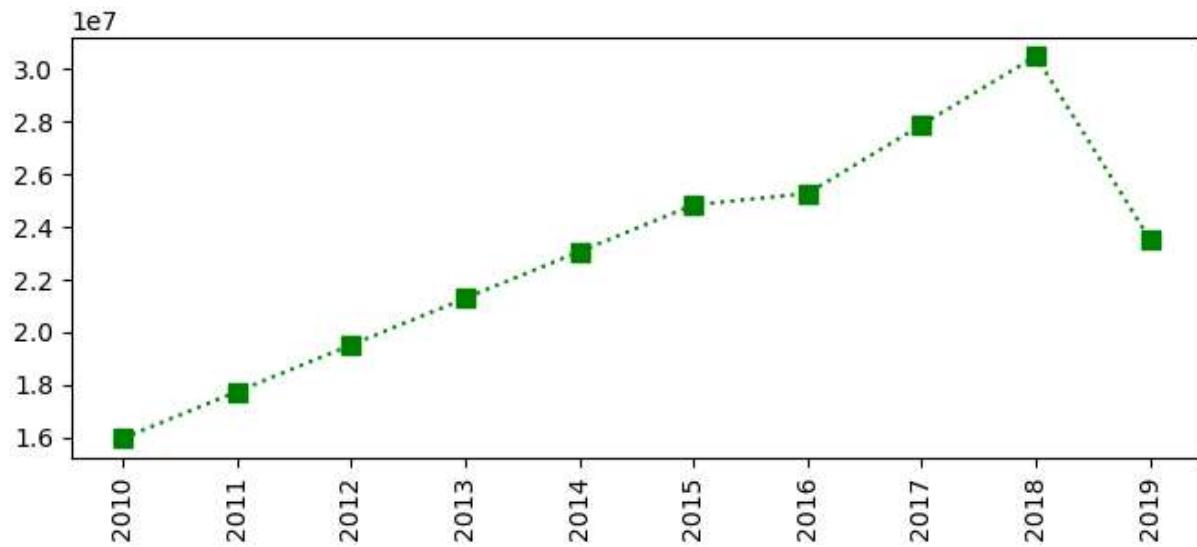
```
In [166...]: Pdict
```

```
Out[166...]: {'Sachin': 0,
 'Rahul': 1,
 'Smith': 2,
 'Sami': 3,
 'Pollard': 4,
 'Morris': 5,
 'Samson': 6,
 'Dhoni': 7,
 'Kohli': 8,
 'Sky': 9}
```

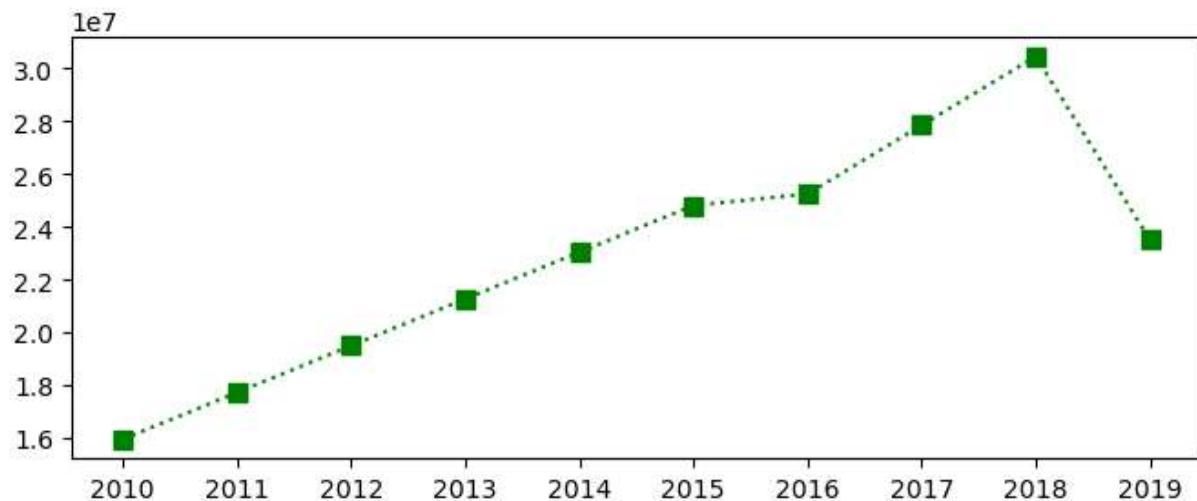
```
In [175...]: plt.plot(Salary[0], c='blue', ls='--', marker='s', ms=7)
plt.xticks(list(range(0,10,)), Seasons)
plt.show()
```



```
In [177]: plt.plot(Salary[0],c='Green',ls=':',marker='s',ms=7,label=Players[0])
plt.xticks(list(range(0,10)),Seasons,rotation='vertical')
plt.show()
```



```
In [179]: plt.plot(Salary[0],c='Green',ls=':',marker='s',ms=7,label=Players[0])
plt.xticks(list(range(0,10)),Seasons,rotation='horizontal')
plt.show()
```

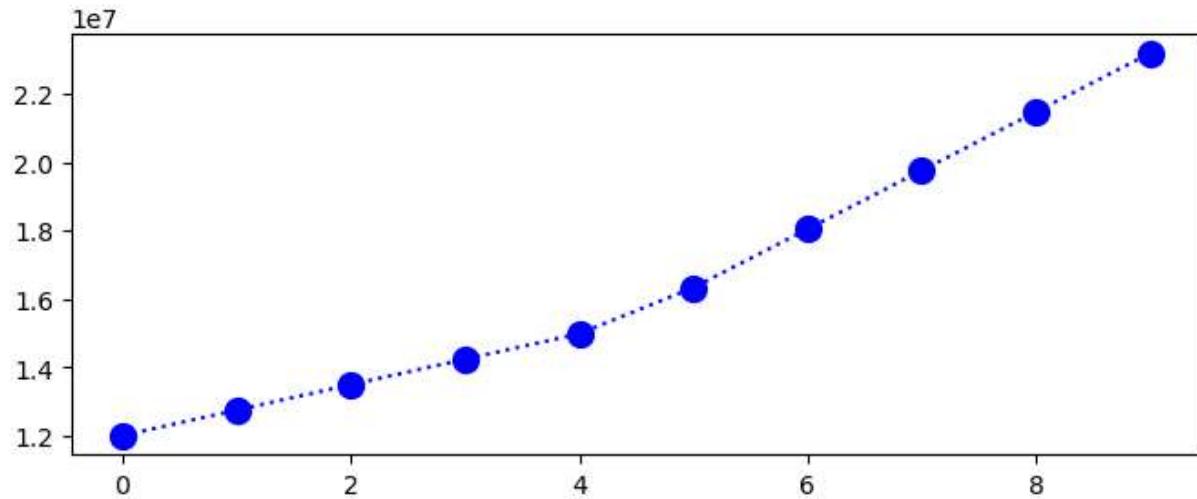


In [181...]: Salary[0]

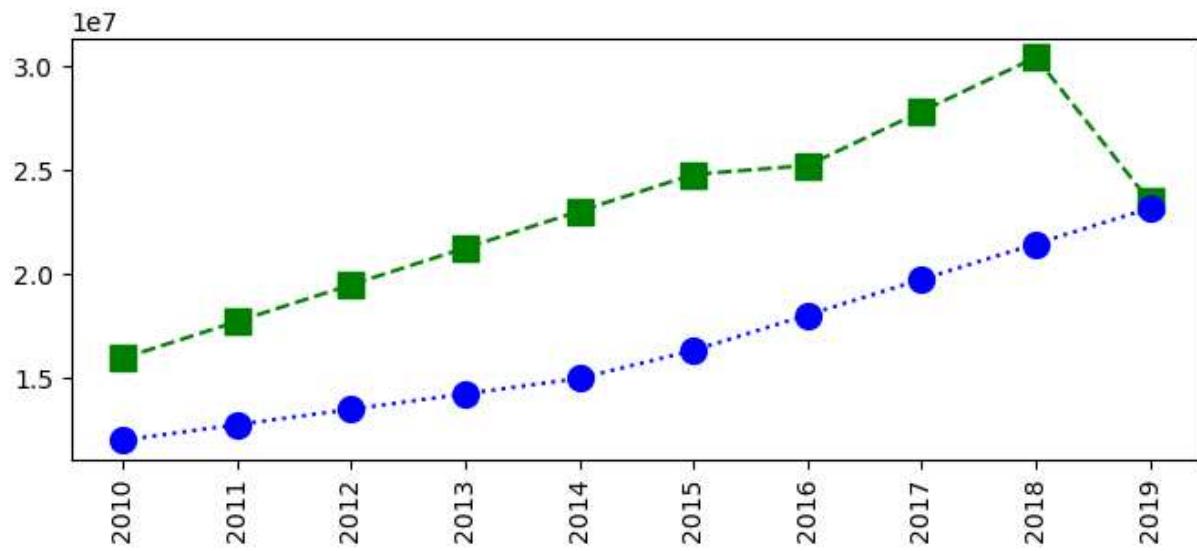
Out[181...]: array([15946875, 17718750, 19490625, 21262500, 23034375, 24806250, 25244493, 27849149, 30453805, 323500000])

In [201...]: plt.plot(Salary[1], c='Blue', ls = ':', marker = 'o', ms = 10, label = Players[1])

Out[201...]: [`<matplotlib.lines.Line2D at 0x1bc8196a690>`]

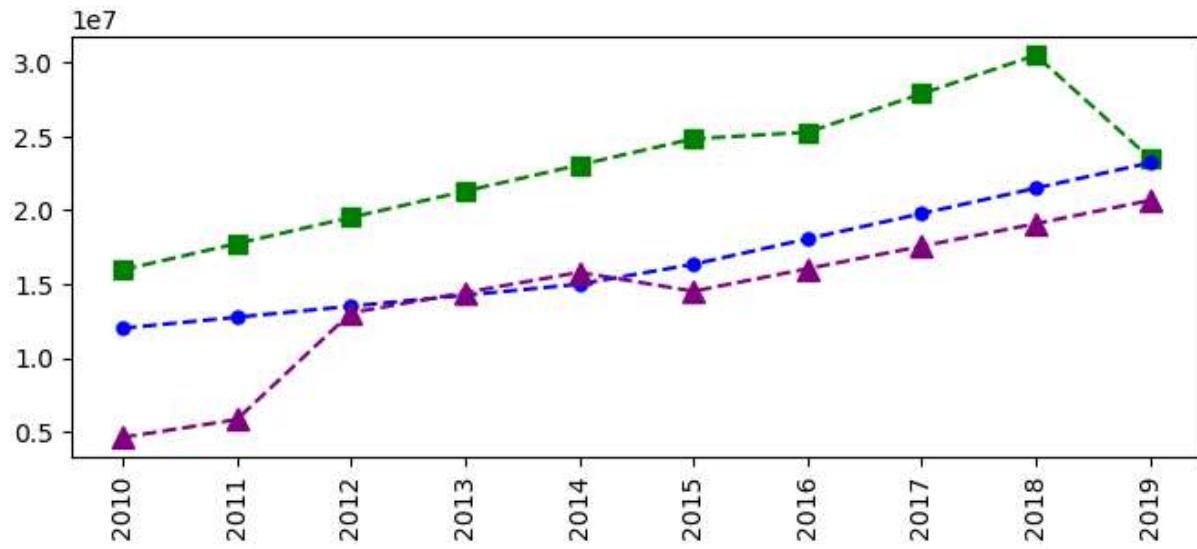


In [203...]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 10, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = ':', marker = 'o', ms = 10, label = Players[1])
plt.xticks(list(range(0,10)), Seasons, rotation='vertical')
plt.show()



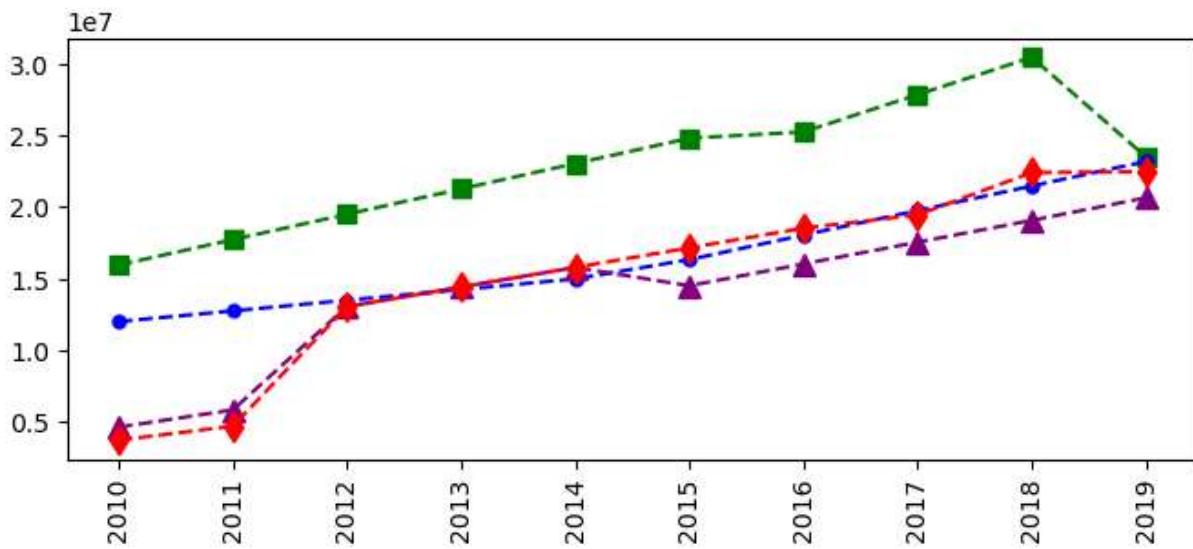
```
In [205]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5, label = Players[1])
plt.plot(Salary[2], c='purple', ls = '--', marker = '^', ms = 8, label = Players[2])

plt.xticks(list(range(0,10)), Seasons, rotation='vertical')
plt.show()
```



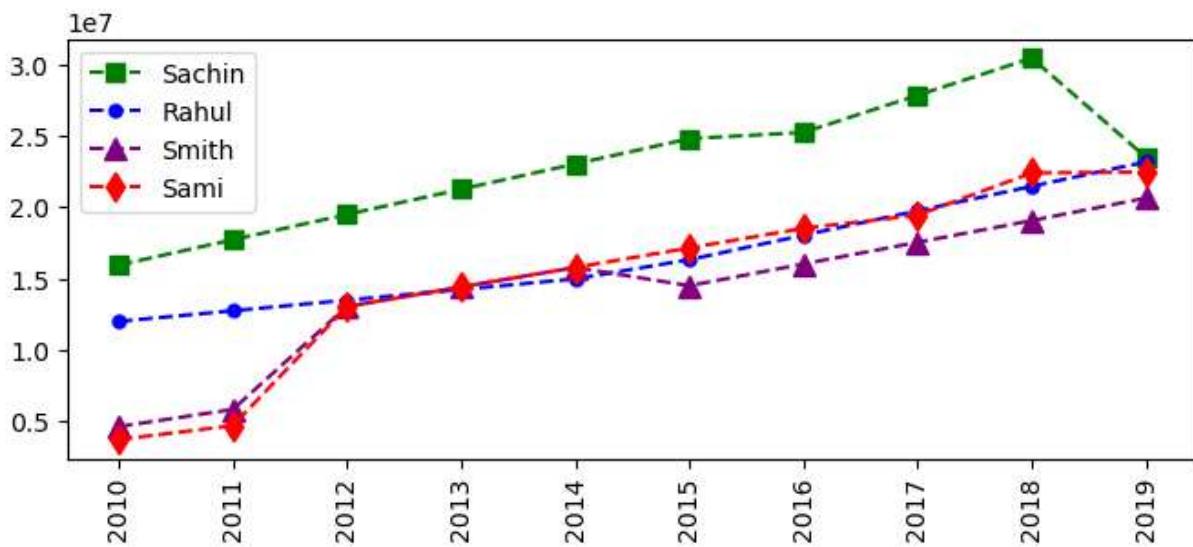
```
In [207]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5, label = Players[1])
plt.plot(Salary[2], c='purple', ls = '--', marker = '^', ms = 8, label = Players[2])
plt.plot(Salary[3], c='Red', ls = '--', marker = 'd', ms = 8, label = Players[3])

plt.xticks(list(range(0,10)), Seasons, rotation='vertical')
plt.show()
```



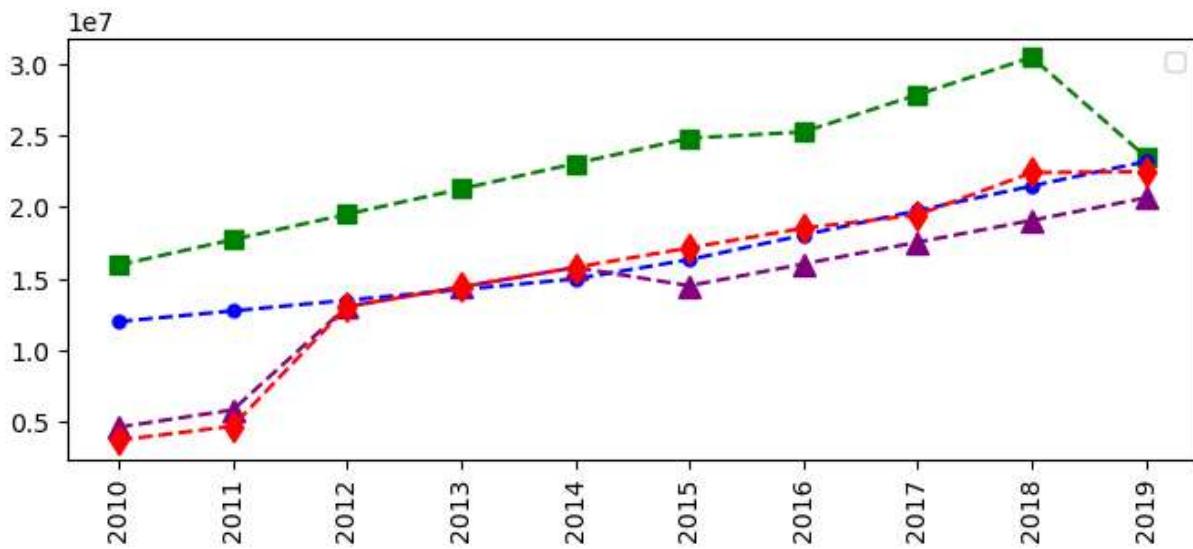
```
In [229]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5, label = Players[1])
plt.plot(Salary[2], c='purple', ls = '--', marker = '^', ms = 8, label = Players[2])
plt.plot(Salary[3], c='Red',ls='--',marker='d',ms=8,label=Players[3])
plt.legend()

plt.xticks(list(range(0,10)), Seasons,rotation='vertical')
plt.show()
```



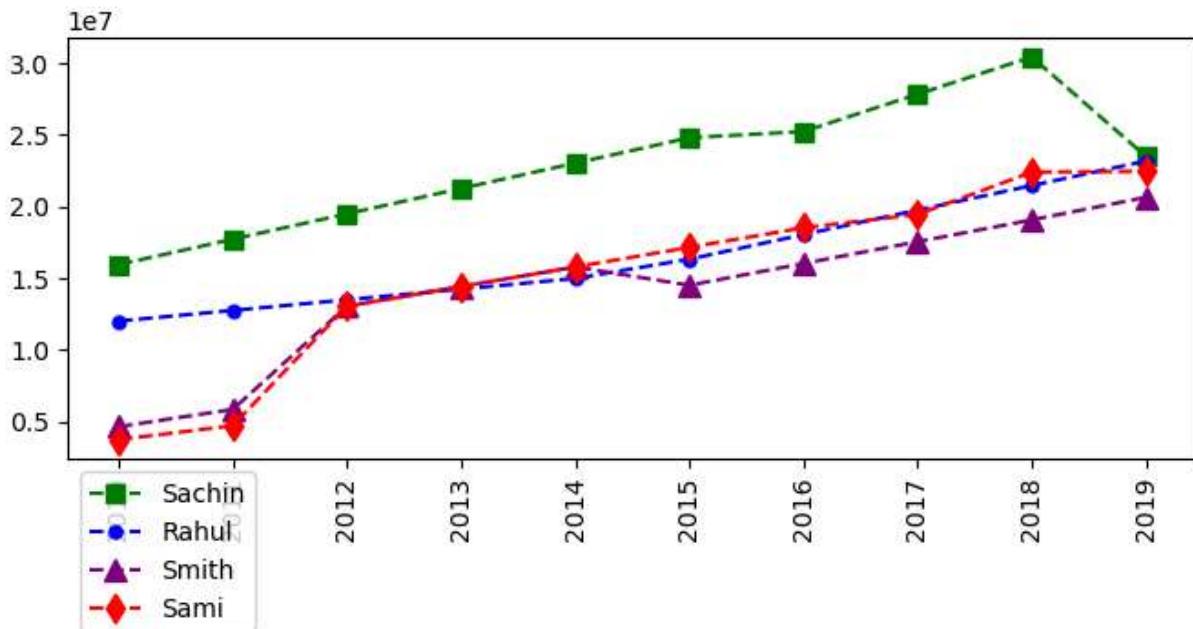
```
In [211]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7)
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5)
plt.plot(Salary[2], c='purple', ls = '--', marker = '^', ms = 8)
plt.plot(Salary[3],c='Red',ls='--',marker='d',ms=8)
plt.legend()

plt.xticks(list(range(0,10)), Seasons,rotation='vertical')
plt.show()
```



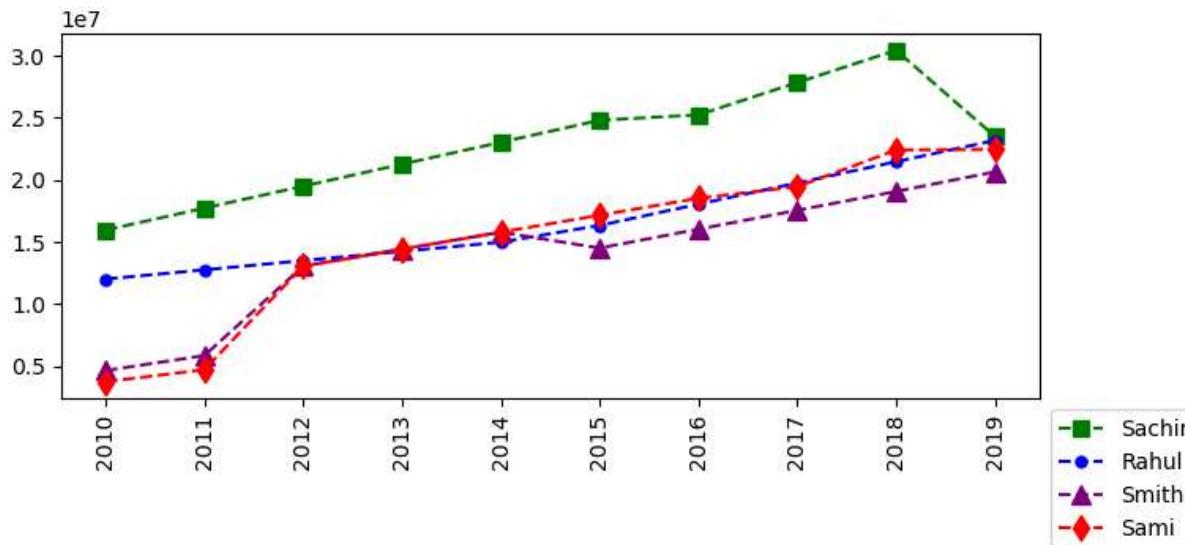
In [217]:

```
plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5, label = Players[1])
plt.plot(Salary[2], c='purple', ls = '--', marker = '^', ms = 8, label = Players[2])
plt.plot(Salary[3],c='Red',ls='--',marker='d',ms=8,label=Players[3])
plt.legend(loc='upper left',bbox_to_anchor=(0,0))
plt.xticks(list(range(0,10)), Seasons, rotation='vertical')
plt.show()
```

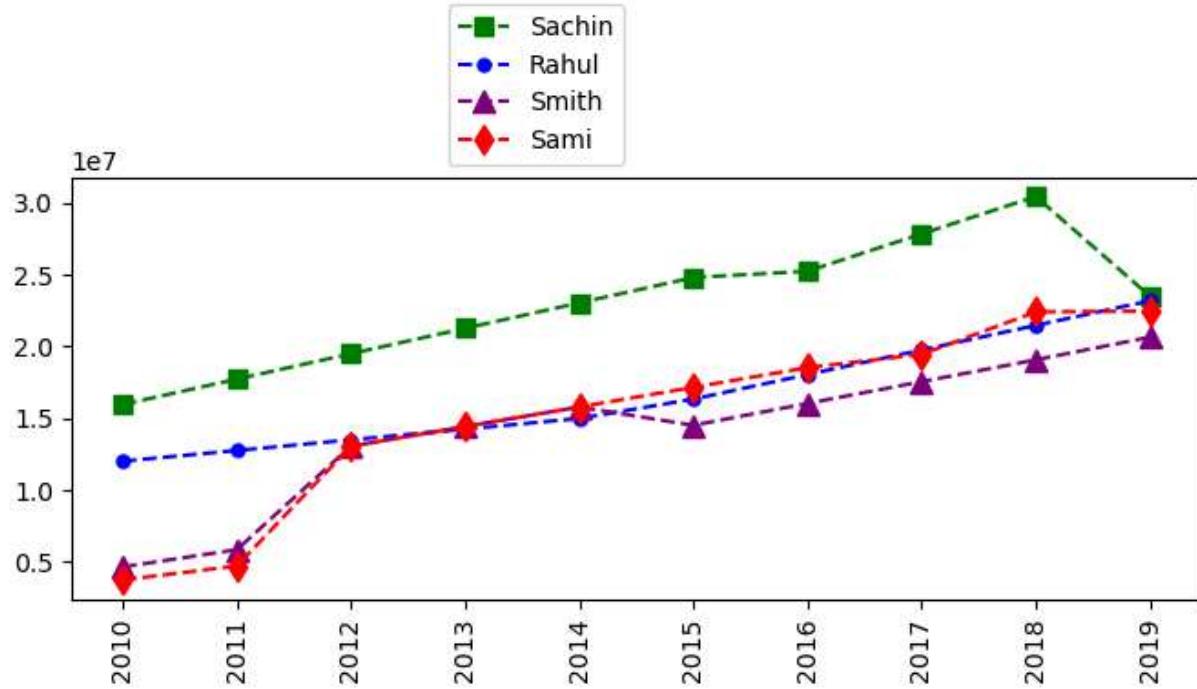


In [219]:

```
plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5, label = Players[1])
plt.plot(Salary[2], c='purple', ls = '--', marker = '^', ms = 8, label = Players[2])
plt.plot(Salary[3],c='Red',ls='--',marker='d',ms=8,label=Players[3])
plt.legend(loc='upper left',bbox_to_anchor=(1,0))
plt.xticks(list(range(0,10)), Seasons, rotation='vertical')
plt.show()
```



```
In [221]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5, label = Players[1])
plt.plot(Salary[2], c='purple', ls = '--', marker = '^', ms = 8, label = Players[2])
plt.plot(Salary[3],c='Red',ls='--',marker='d',ms=8,label=Players[3])
plt.legend(loc='lower right',bbox_to_anchor=(0.5,1))
plt.xticks(list(range(0,10)), Seasons, rotation='vertical')
plt.show()
```



```
In [225]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 7, label = Players[1])
plt.plot(Salary[2], c='Green', ls = '--', marker = '^', ms = 7, label = Players[2])
plt.plot(Salary[3], c='Purple', ls = '--', marker = 'D', ms = 7, label = Players[3])
plt.plot(Salary[4], c='Black', ls = '--', marker = 's', ms = 7, label = Players[4])
plt.plot(Salary[5], c='Red', ls = '--', marker = 'o', ms = 7, label = Players[5])
plt.plot(Salary[6], c='Red', ls = '--', marker = '^', ms = 7, label = Players[6])
plt.plot(Salary[7], c='Red', ls = '--', marker = 'd', ms = 7, label = Players[7])
```

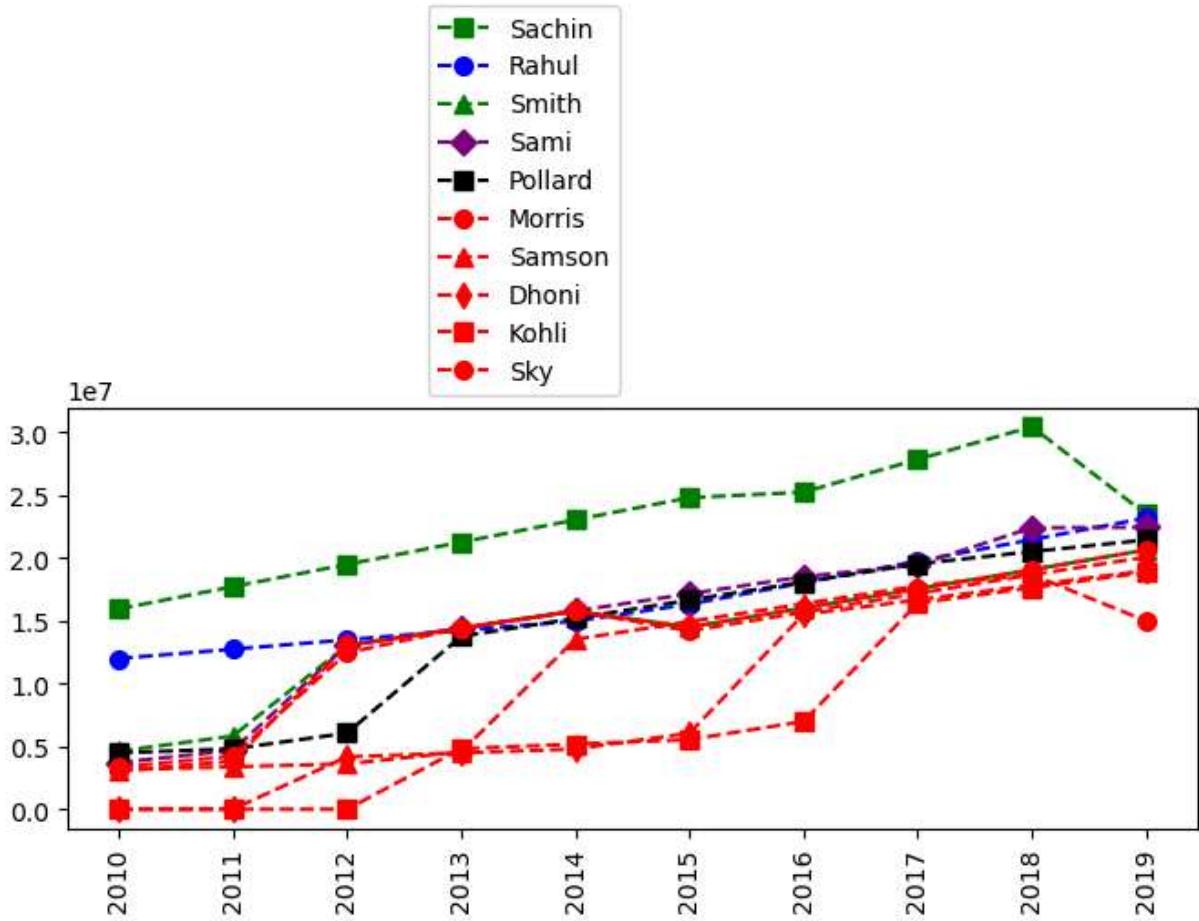
```

plt.plot(Salary[8], c='Red', ls = '--', marker = 's', ms = 7, label = Players[8])
plt.plot(Salary[9], c='Red', ls = '--', marker = 'o', ms = 7, label = Players[9])

plt.legend(loc = 'lower right',bbox_to_anchor=(0.5,1) )
plt.xticks(list(range(0,10)), Seasons, rotation='vertical')

plt.show()

```



In [227...]

```

# we can visualize the how many games played by a player

plt.plot(Games[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Games[1], c='Blue', ls = '--', marker = 'o', ms = 7, label = Players[1])
plt.plot(Games[2], c='Green', ls = '--', marker = '^', ms = 7, label = Players[2])
plt.plot(Games[3], c='Red', ls = '--', marker = 'D', ms = 7, label = Players[3])
plt.plot(Games[4], c='Black', ls = '--', marker = 's', ms = 7, label = Players[4])
plt.plot(Games[5], c='Blue', ls = '--', marker = 'o', ms = 7, label = Players[5])
plt.plot(Games[6], c='red', ls = '--', marker = '^', ms = 7, label = Players[6])
plt.plot(Games[7], c='Green', ls = '--', marker = 'd', ms = 7, label = Players[7])
plt.plot(Games[8], c='Red', ls = '--', marker = 's', ms = 7, label = Players[8])
plt.plot(Games[9], c='Blue', ls = '--', marker = 'o', ms = 7, label = Players[9])

plt.legend(loc = 'lower right',bbox_to_anchor=(0.5,1) )
plt.xticks(list(range(0,10)), Seasons, rotation='vertical')

plt.show()

```

