

```
In [1]: #Import numpy
import numpy as np

#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 = [15946875,17718750,19490625,21262500,23034375,24806250,25244493,27850000,30612500,34250000,38125000,42125000,46125000,50125000,54125000,58125000,62125000,66125000]
Rahul_Salary = [12000000,12744189,13488377,14232567,14976754,16324500,18038573,19750000,21450000,23150000,24850000,26550000,28250000,30000000,31750000,33500000,35250000,37000000,38750000]
Smith_Salary = [4621800,5828090,13041250,14410581,15779912,14500000,16022500,17545000,19067500,20612500,22150000,23700000,25250000,26800000,28350000,29900000,31450000,33000000,34550000]
Sami_Salary = [3713640,4694041,13041250,14410581,15779912,17149243,18518574,19450000,20867500,22412500,23950000,25500000,27050000,28600000,30150000,31700000,33250000,34800000,36350000]
Pollard_Salary = [4493160,4806720,6061274,13758000,15202590,16647180,18091770,19536000,21087500,22632500,24180000,25725000,27270000,28815000,30360000,31905000,33450000,34995000,36540000]
Morris_Salary = [3348000,4235220,12455000,14410581,15779912,14500000,16022500,17545000,19067500,20612500,22150000,23700000,25250000,26800000,28350000,29900000,31450000,33000000,34550000]
Samson_Salary = [3144240,3380160,3615960,4574189,13520500,14940153,16359805,17779450,19227500,20772500,22320000,23867500,25415000,26963000,28510500,29958000,31505000,33052500,34600000]
Dhoni_Salary = [0,0,4171200,4484040,4796880,6053663,15506632,16669630,17832627,18990000,20437500,21985000,23532500,25080000,26627500,28175000,29722500,31269500,32817000,34364500]
Kohli_Salary = [0,0,0,4822800,5184480,5546160,6993708,16402500,17632688,18862875]
Sky_Salary = [3031920,3841443,13041250,14410581,15779912,14200000,15691000,17182000]

#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_PTS, Samson_PTS, Dhoni_PTS, Kohli_PTS, Sky_PTS])
```

```
In [2]: # Matrix formate  
Salary
```

```
Out[2]: 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 [3]: # Builing your first matrix  
Games
```

```
Out[3]: 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 [4]: Points
```

```
Out[4]: 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 [5]: Games[0]
```

```
Out[5]: array([ 80,  77,  82,  82,  73,  82,  58,  78,   6,  35])
```

```
In [6]: Games[5]
```

```
Out[6]: array([70, 69, 67, 77, 70, 77, 57, 74, 79, 44])
```

```
In [7]: Games[0:5]
```

```
Out[7]: 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 [8]: Games[0,5]
```

```
Out[8]: 82
```

```
In [9]: Games[0,3]
```

```
Out[9]: 82
```

```
In [10]: Games[:]
```

```
Out[10]: 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 [11]: Games[0:2]
```

```
Out[11]: array([[80, 77, 82, 82, 73, 82, 58, 78, 6, 35],  
                 [82, 57, 82, 79, 76, 72, 60, 72, 79, 80]])
```

```
In [12]: Games[1:2]
```

```
Out[12]: array([[82, 57, 82, 79, 76, 72, 60, 72, 79, 80]])
```

```
In [13]: Games[1:4]
```

```
Out[13]: array([[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]])
```

```
In [14]: Games[2,5]
```

```
Out[14]: 79
```

```
In [15]: Games[-3:-1]
```

```
Out[15]: array([[35, 35, 80, 74, 82, 78, 66, 81, 81, 27],  
                 [40, 40, 40, 81, 78, 81, 39, 0, 10, 51]])
```

```
In [16]: Games[-3,-1]
```

```
Out[16]: 27
```

```
In [17]: Points
```

```
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 [18]: Points[0]
```

```
Out[18]: array([2832, 2430, 2323, 2201, 1970, 2078, 1616, 2133, 83, 782])
```

```
In [19]: Points[6,1]
```

```
Out[19]: 1104
```

```
In [20]: Points[3:5]
```

```
Out[20]: array([[2122, 1881, 1978, 1504, 1943, 1970, 1245, 1920, 2112, 966],  
                 [1292, 1443, 1695, 1624, 1503, 1784, 1113, 1296, 1297, 646]])
```

```
In [21]: Points[-3:-4]
```

```
Out[21]: array([], shape=(0, 10), dtype=int32)
```

```
In [22]: Points[-6,-1]
```

```
Out[22]: 646
```

```
In [23]: Games
```

```
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],  
                 [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 [24]: Pdict
```

```
Out[24]: {'Sachin': 0,  
          'Rahul': 1,  
          'Smith': 2,  
          'Sami': 3,  
          'Pollard': 4,  
          'Morris': 5,  
          'Samson': 6,  
          'Dhoni': 7,  
          'Kohli': 8,  
          'Sky': 9}
```

```
In [25]: Sdict
```

```
Out[25]: {'2010': 0,  
          '2011': 1,  
          '2012': 2,  
          '2013': 3,  
          '2014': 4,  
          '2015': 5,  
          '2016': 6,  
          '2017': 7,  
          '2018': 8,  
          '2019': 9}
```

```
In [26]: Pdict['Sachin']
```

```
Out[26]: 0
```

```
In [27]: Games[0]
```

```
Out[27]: array([80, 77, 82, 82, 73, 82, 58, 78, 6, 35])
```

```
In [28]: Pdict['Rahul']
```

```
Out[28]: 1
```

```
In [29]: Games[1]
```

```
Out[29]: array([82, 57, 82, 79, 76, 72, 60, 72, 79, 80])
```

```
In [30]: Pdict['Smith']
```

```
Out[30]: 2
```

```
In [31]: Games[2]
```

```
Out[31]: array([79, 78, 75, 81, 76, 79, 62, 76, 77, 69])
```

```
In [32]: Pdict['Sami']
```

```
Out[32]: 3
```

```
In [33]: Games[3]
```

```
Out[33]: array([80, 65, 77, 66, 69, 77, 55, 67, 77, 40])
```

```
In [34]: Games[Pdict['Pollard']]
```

```
Out[34]: array([82, 82, 82, 79, 82, 78, 54, 76, 71, 41])
```

```
In [35]: Salary
```

```
Out[35]: 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 [36]: Salary[2,4]
```

```
Out[36]: 15779912
```

```
In [37]: Salary[Pdict['Sachin']][Sdict['2019']]
```

```
Out[37]: 23500000
```

```
In [38]: Salary[Pdict['Smith']][Sdict['2014']]
```

```
Out[38]: 15779912
```

```
In [39]: Salary
```

```
Out[39]: 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 [40]: Games
```

```
Out[40]: 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 [41]: Salary/Games
```

```
C:\Users\swapn\AppData\Local\Temp\ipykernel_6332\3709746658.py:1: RuntimeWarning: divide by zero encountered in divide
Salary/Games
```

```
Out[41]: 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 [42]: np.round(Salary/Games)
```

```
C:\Users\swapn\AppData\Local\Temp\ipykernel_6332\3232172828.py:1: RuntimeWarning: di
vide by zero encountered in divide
np.round(Salary/Games)
```

```
Out[42]: array([[ 199336.,  230114.,  237691.,  259299.,  315539.,  302515.,
   435250.,  357040.,  5075634.,  671429.],
   [ 146341.,  223582.,  164492.,  180159.,  197063.,  226729.,
   300643.,  274342.,  271731.,  289760.],
   [ 58504.,  74719.,  173883.,  177908.,  207630.,  183544.,
   258427.,  230855.,  247630.,  299194.],
   [ 46420.,  72216.,  169367.,  218342.,  228694.,  222717.,
   336701.,  290299.,  291006.,  561450.],
   [ 54795.,  58619.,  73918.,  174152.,  185397.,  213425.,
   335033.,  257057.,  288918.,  522836.],
   [ 47829.,  61380.,  185896.,  187150.,  225427.,  188312.,
   281096.,  237095.,  241361.,  469191.],
   [ 40311.,  52815.,  45200.,  58643.,  300456.,  186752.,
   272663.,  253992.,  301104.,  244739.],
   [ 0.,  0.,  52140.,  60595.,  58499.,  77611.,
   234949.,  205798.,  220156.,  703542.],
   [ 0.,  0.,  0.,  59541.,  66468.,  68471.,
   179326.,  inf,  1763269.,  369860.],
   [ 40426.,  75322.,  255711.,  182412.,  204934.,  186842.,
   320224.,  249014.,  345796.,  241935.]])
```

```
In [43]: import warnings
warnings.filterwarnings('ignore')
```

- FIRST VISUALIZATION -

```
In [44]: import numpy as np
import matplotlib.pyplot as plt
```

```
In [45]: %matplotlib inline
```

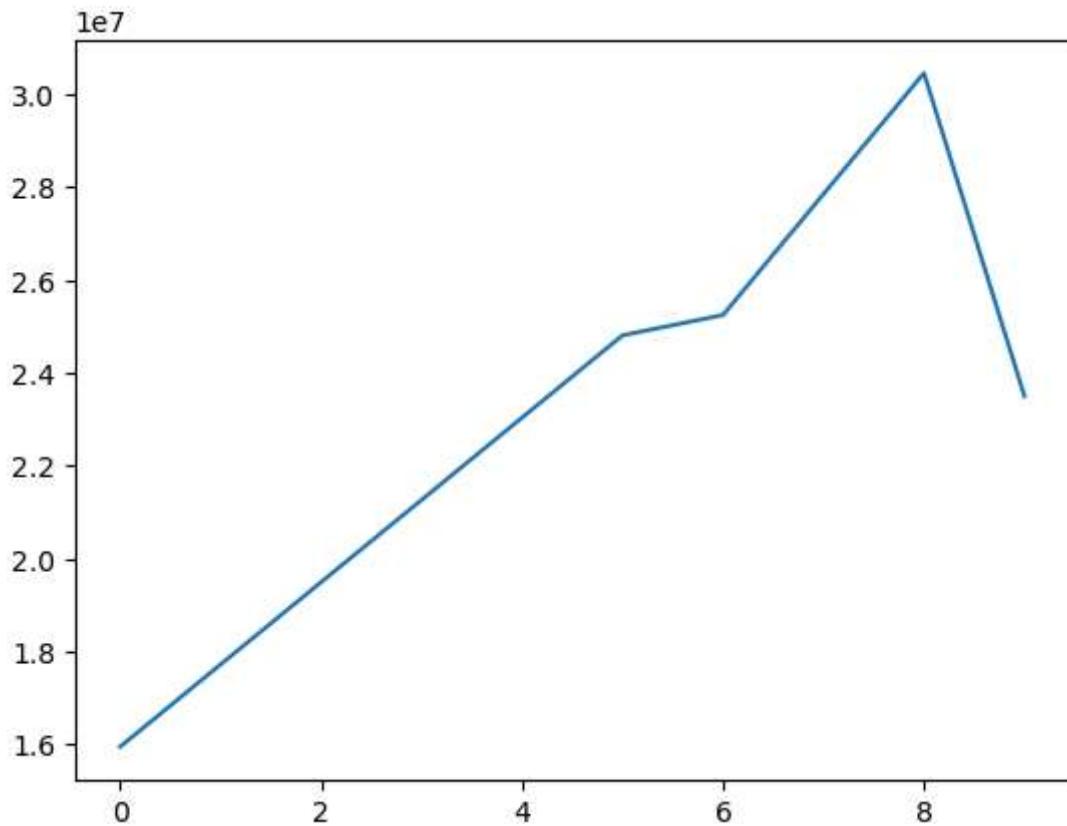
```
In [46]: Salary
```

```
Out[46]: 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]])
```

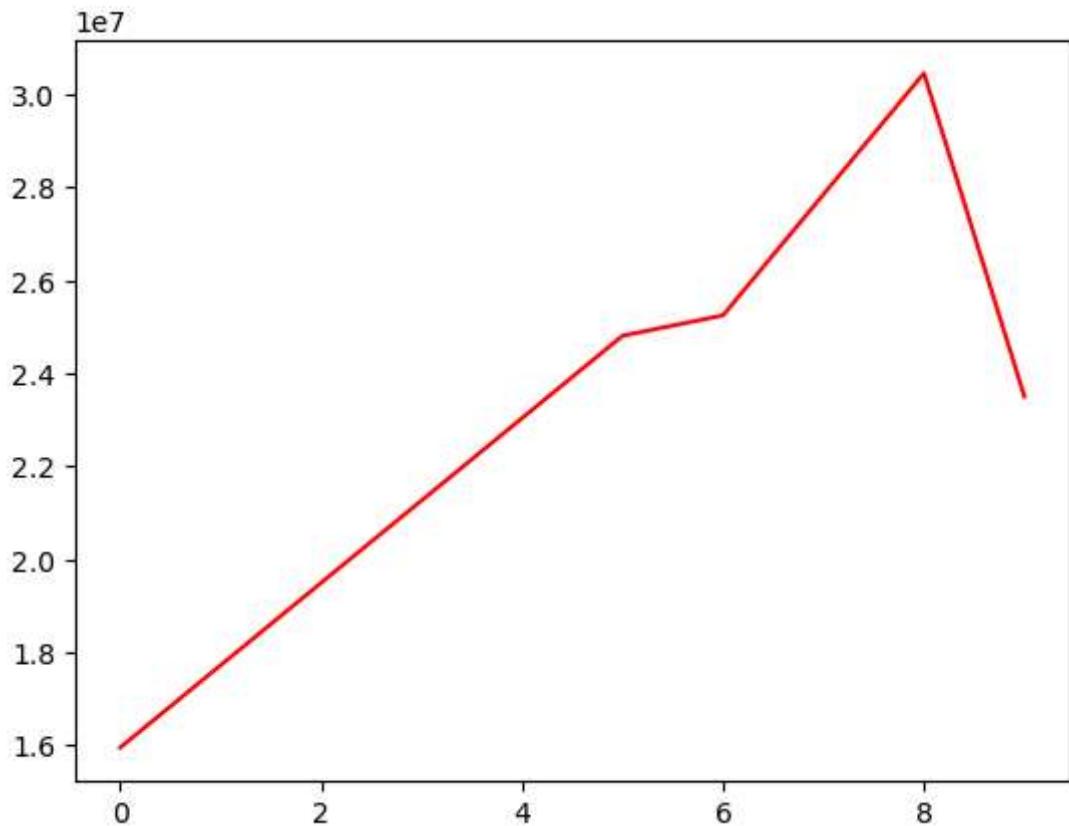
```
In [47]: Salary[0]
```

```
Out[47]: array([15946875, 17718750, 19490625, 21262500, 23034375, 24806250,  
   25244493, 27849149, 30453805, 23500000])
```

```
In [48]: plt.plot(Salary[0])  
plt.show()
```

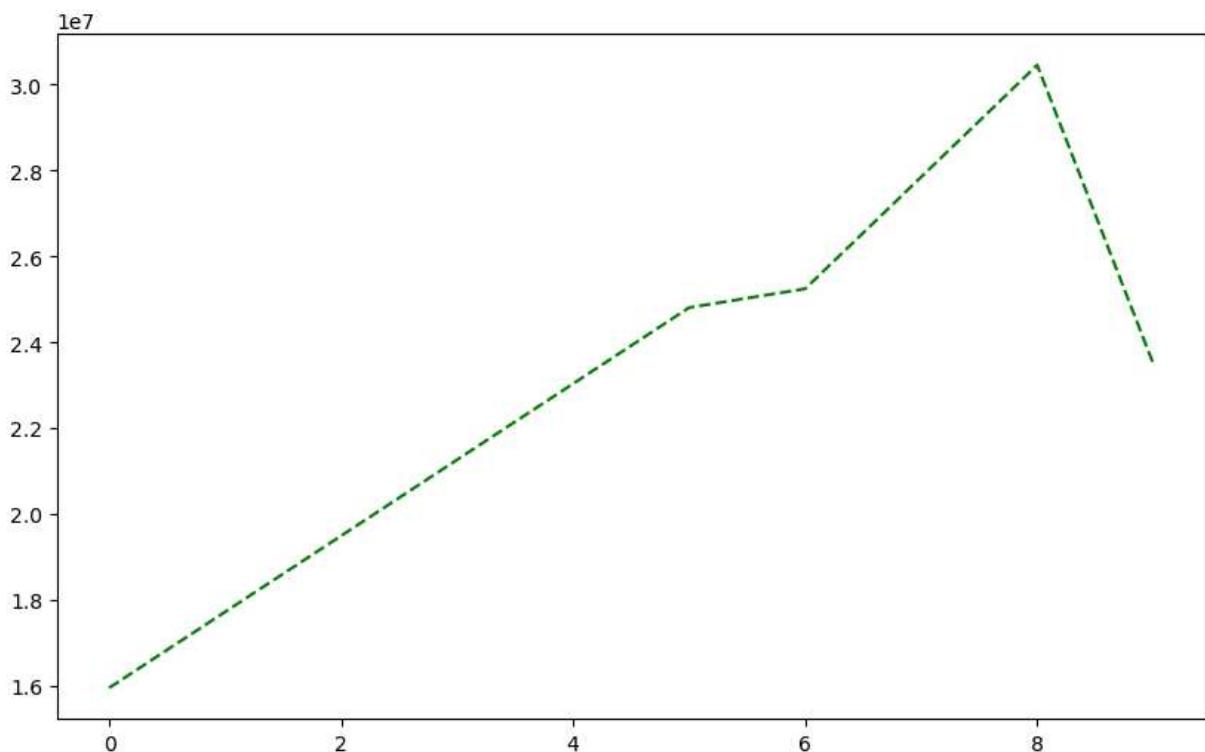


```
In [49]: plt.plot(Salary[0], c='red')  
plt.show()
```

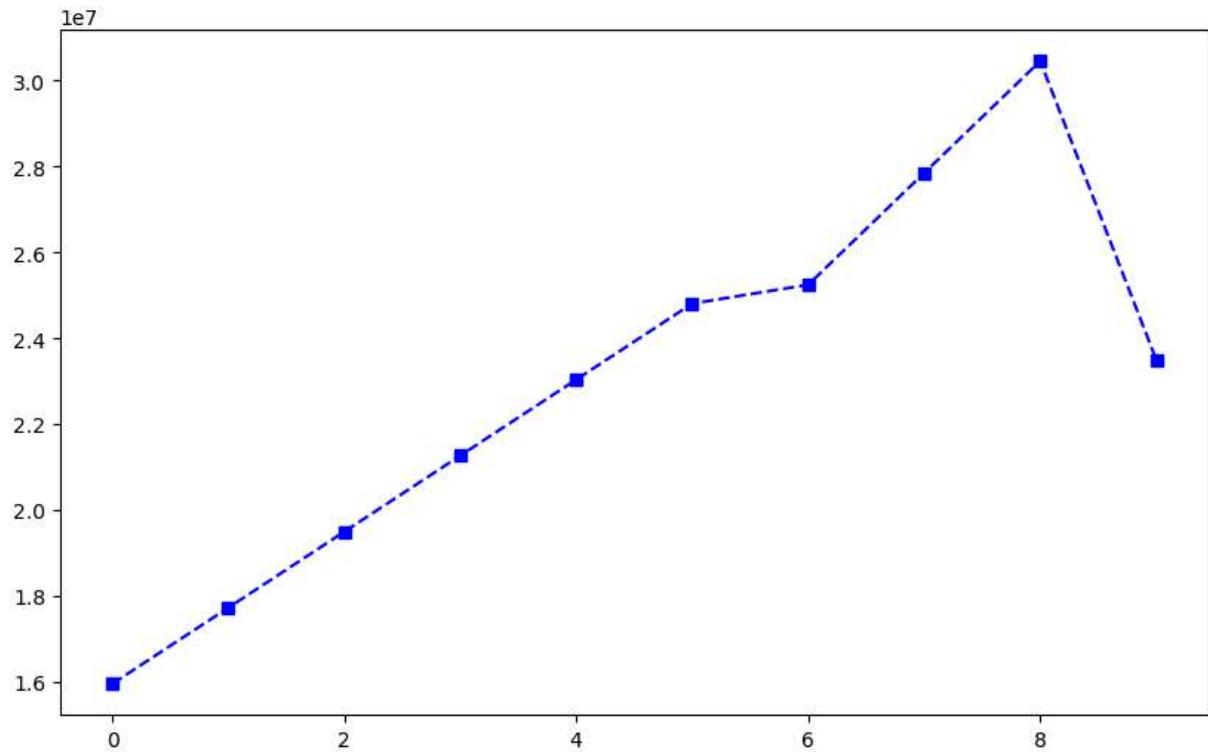


```
In [50]: %matplotlib inline  
plt.rcParams['figure.figsize'] = 10,6
```

```
In [51]: plt.plot(Salary[0], c = 'green',ls ='dashed')  
plt.show()
```

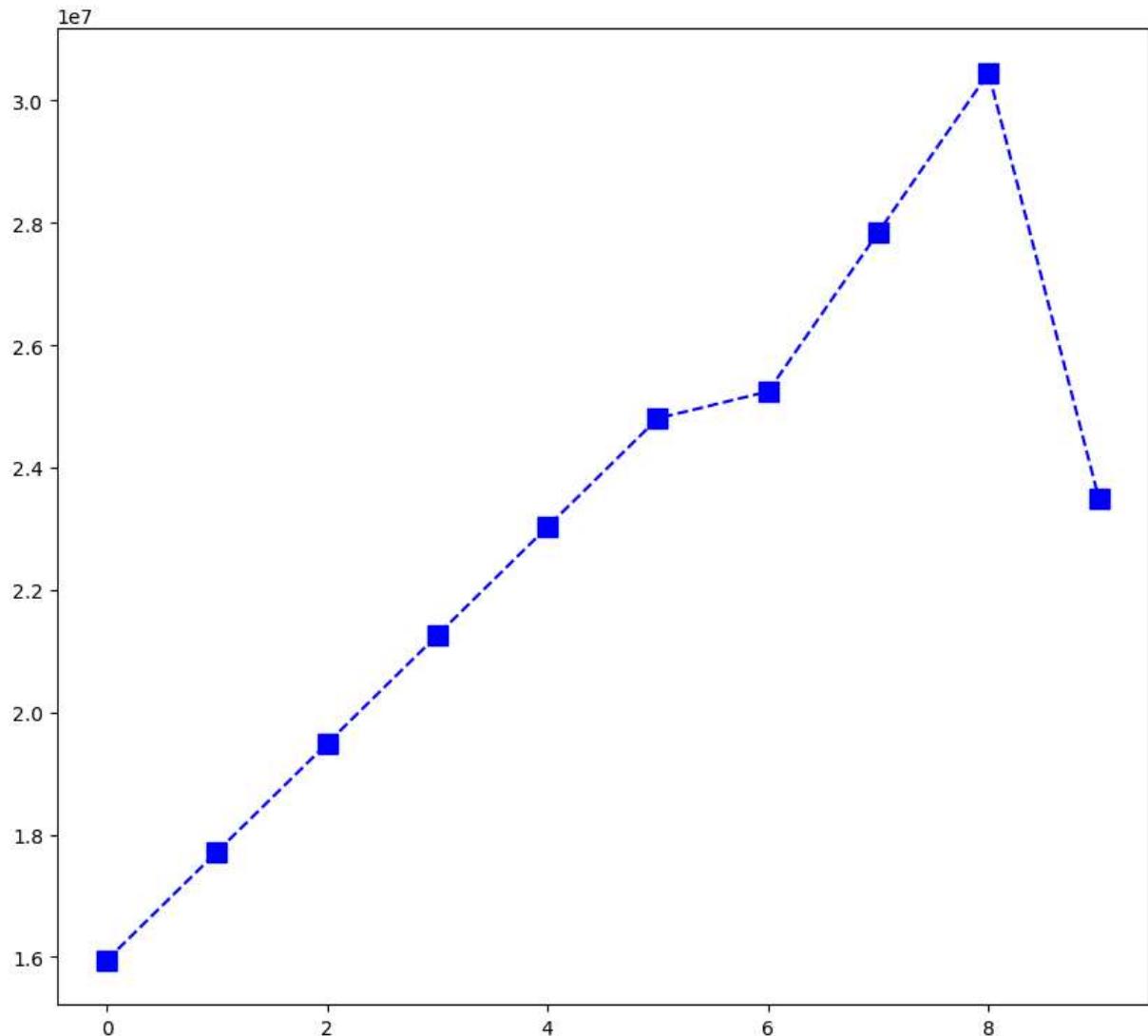


```
In [52]: plt.plot(Salary[0],c = 'b',ls= '--',marker='s') #Squares  
plt.show()
```



```
In [53]: %matplotlib inline  
plt.rcParams['figure.figsize']=10,9
```

```
In [54]: plt.plot(Salary[0], c = 'b',ls= '--',marker='s',ms=10)  
plt.show()
```



```
In [55]: list(range(10))
```

```
Out[55]: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

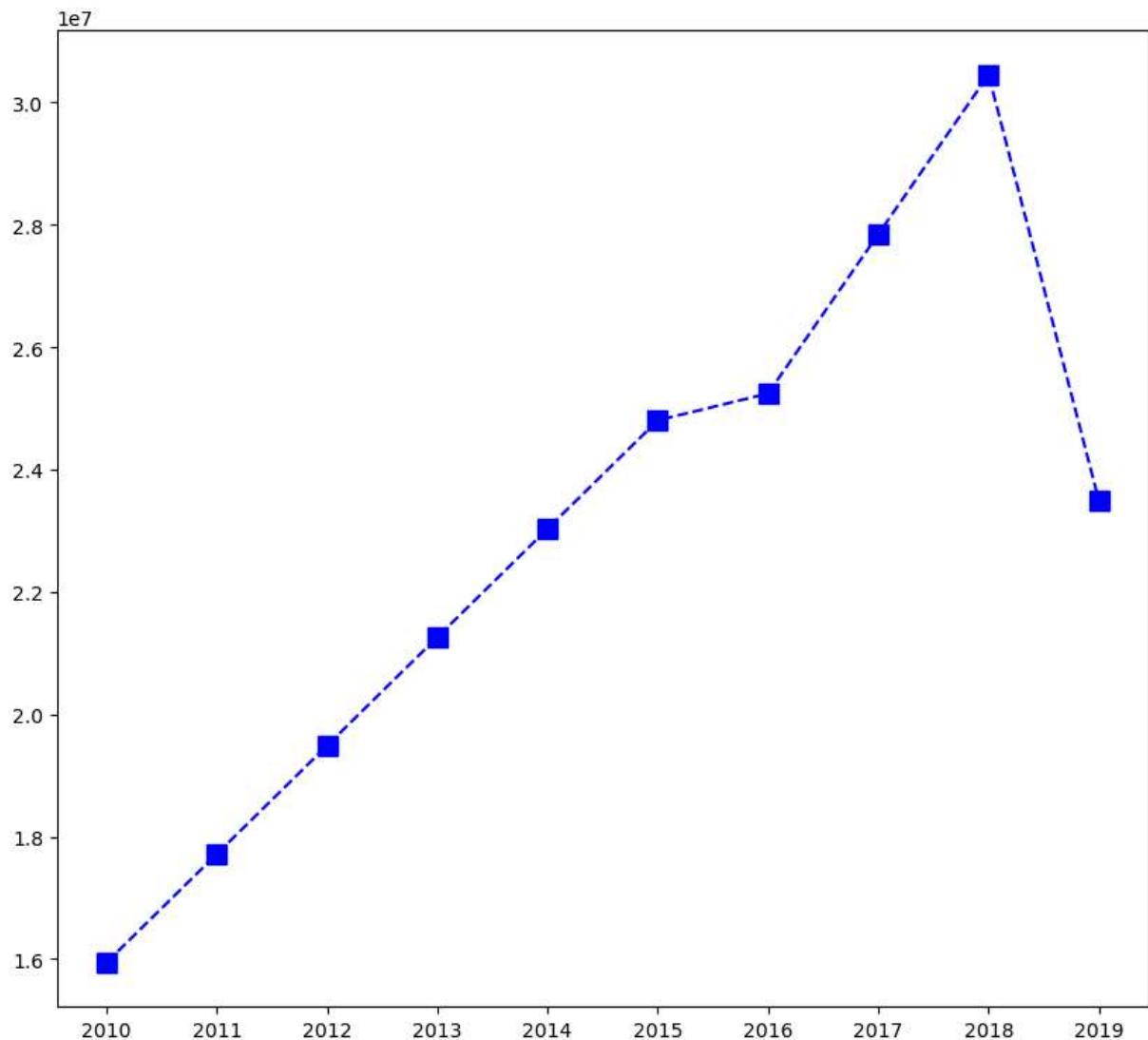
```
In [56]: Sdict
```

```
Out[56]: {'2010': 0,
           '2011': 1,
           '2012': 2,
           '2013': 3,
           '2014': 4,
           '2015': 5,
           '2016': 6,
           '2017': 7,
           '2018': 8,
           '2019': 9}
```

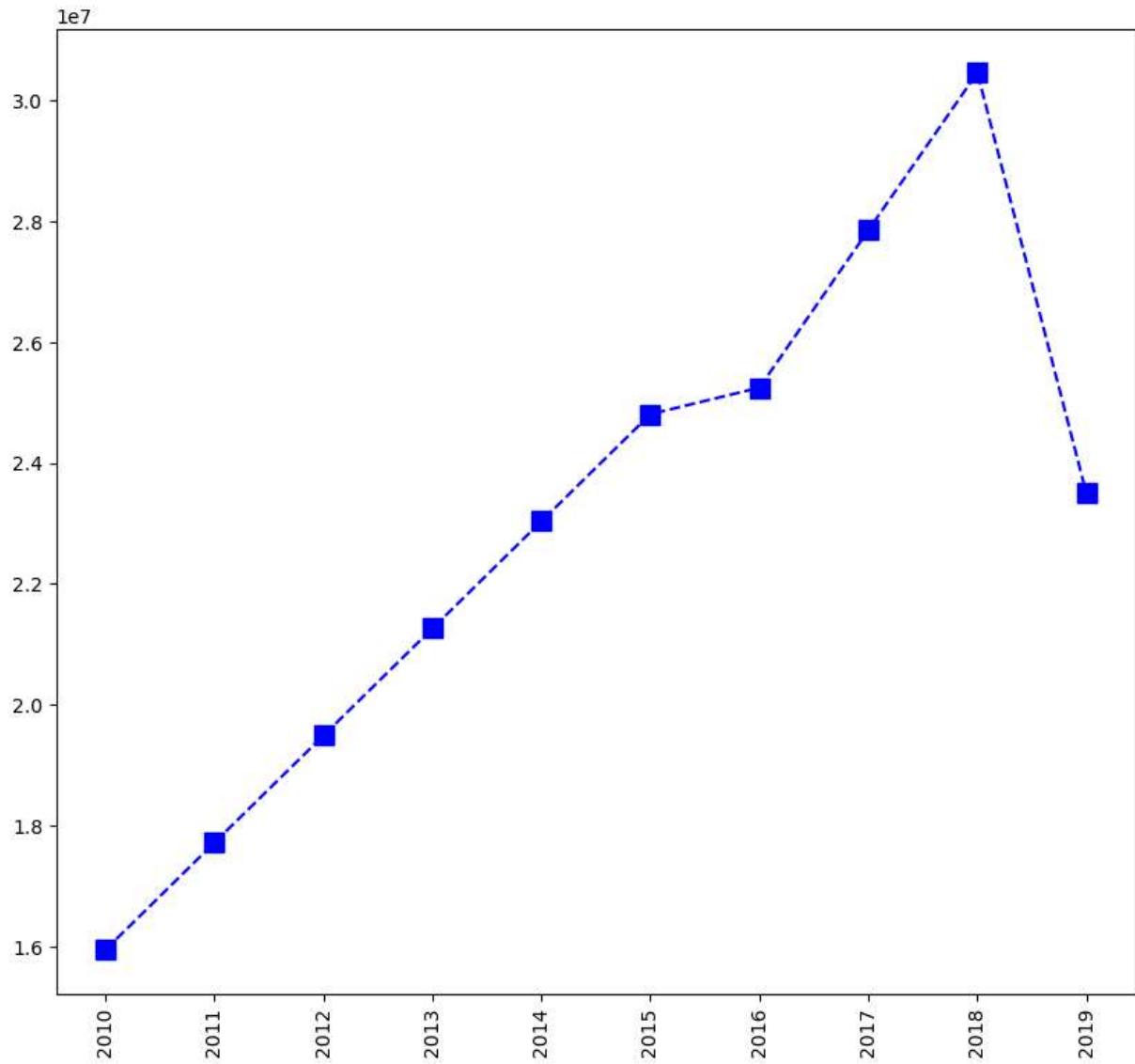
```
In [57]: Pdict
```

```
Out[57]: {'Sachin': 0,  
          'Rahul': 1,  
          'Smith': 2,  
          'Sami': 3,  
          'Pollard': 4,  
          'Morris': 5,  
          'Samson': 6,  
          'Dhoni': 7,  
          'Kohli': 8,  
          'Sky': 9}
```

```
In [58]: plt.plot(Salary[0], c = 'b',ls= '--',marker='s',ms=10)  
plt.xticks(list(range(10)),Seasons)  
plt.show()
```



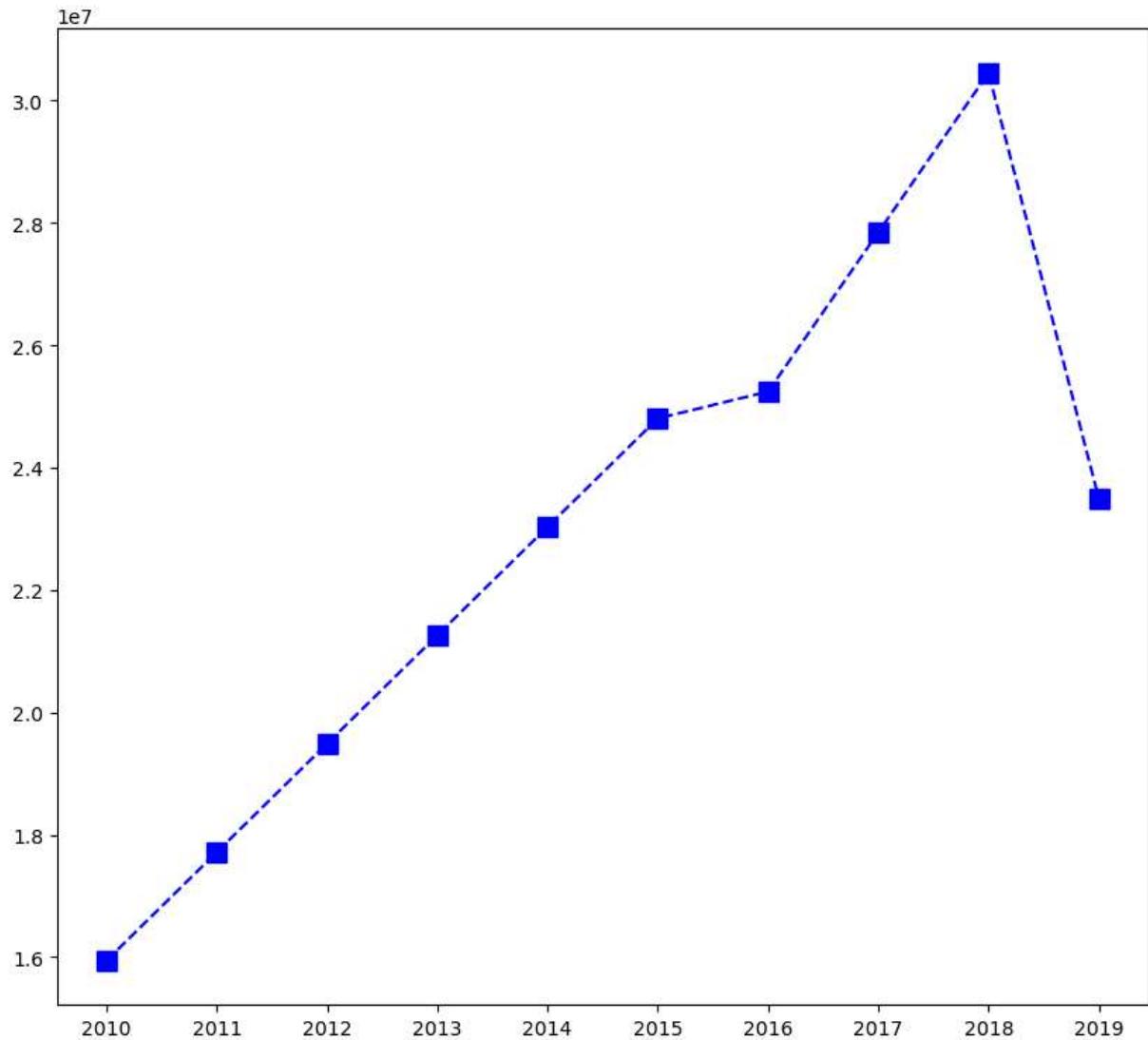
```
In [59]: plt.plot(Salary[0], c = 'b',ls= '--',marker='s',ms=10)  
plt.xticks(list(range(10)),Seasons,rotation='vertical')  
plt.show()
```



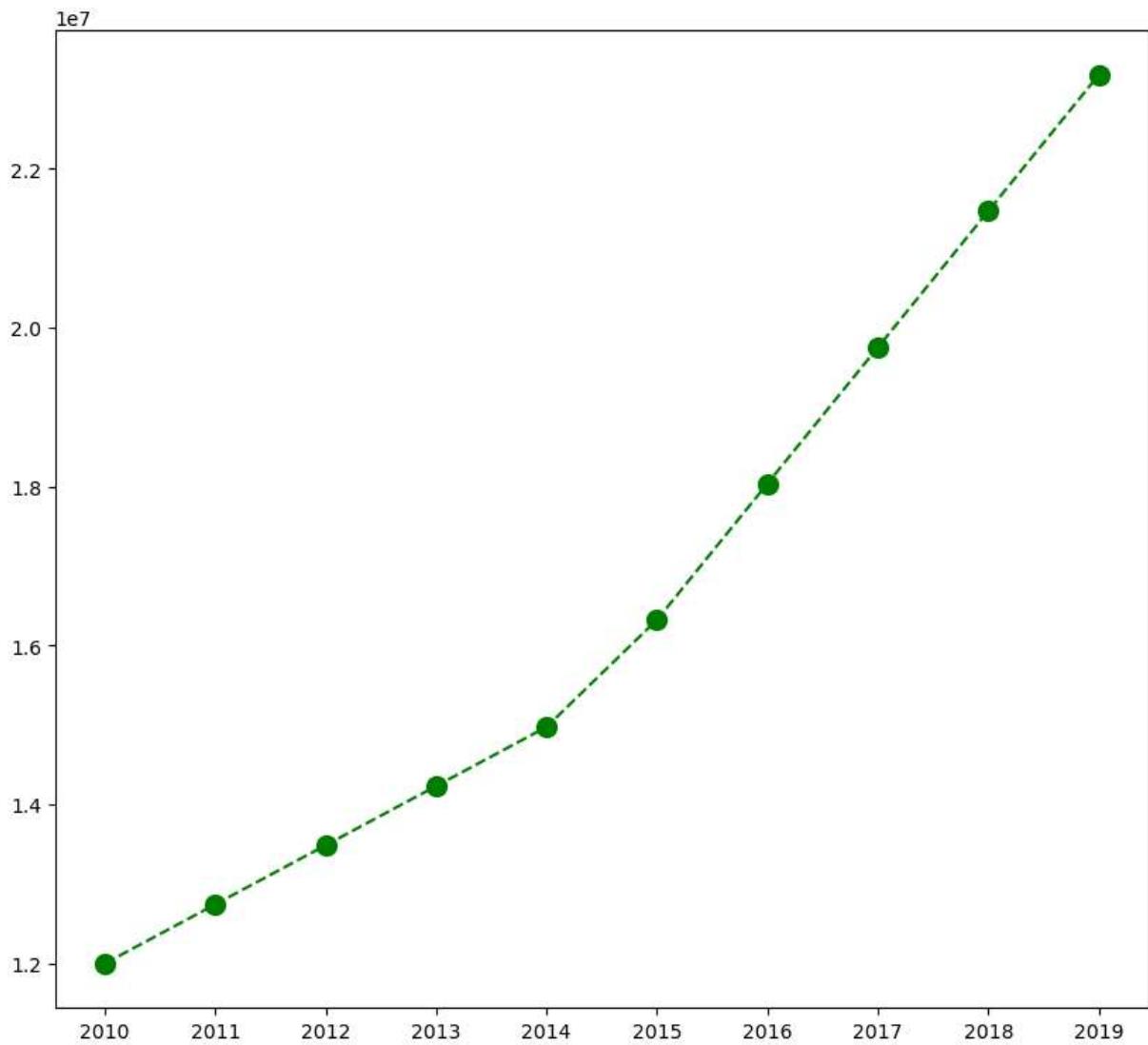
In [60]: Games

```
Out[60]: 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]])
```

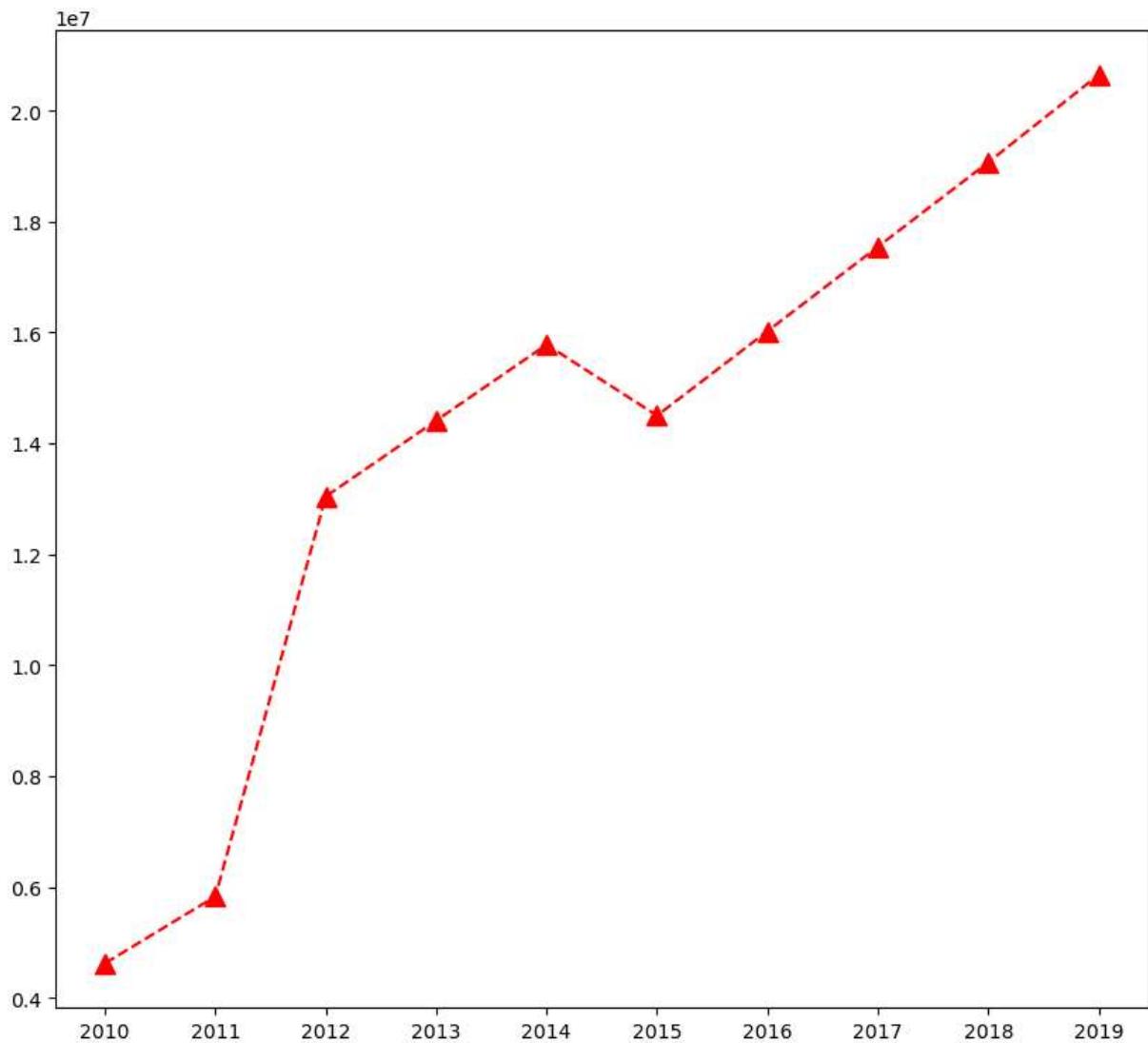
In [61]: `plt.plot(Salary[0], c = 'b', ls= '--', marker='s', ms=10, label=Players[0])  
plt.xticks(list(range(10)), Seasons, rotation='horizontal')  
plt.show()`



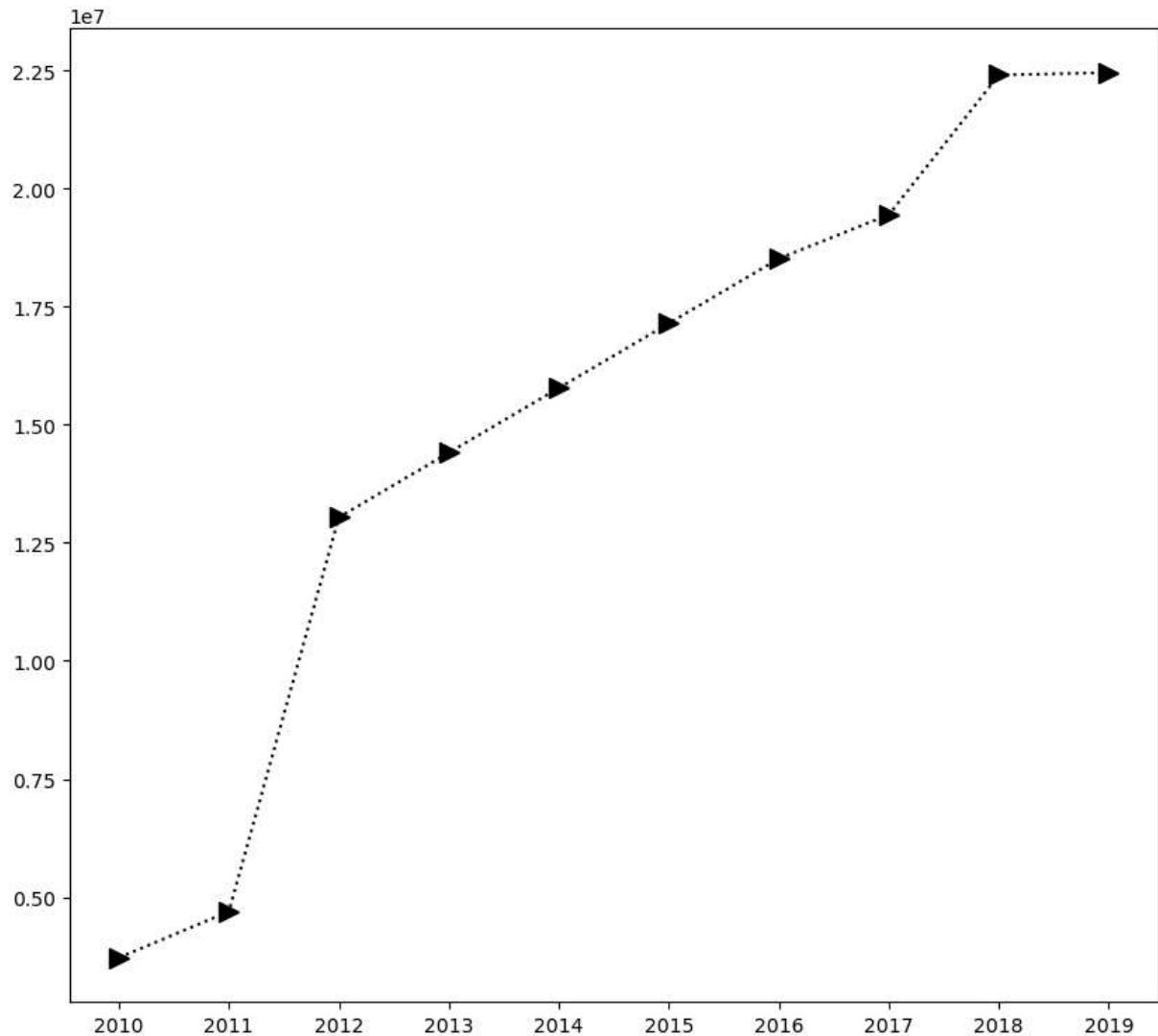
```
In [62]: plt.plot(Salary[1], c = 'g',ls= '--',marker='o',ms=10,label=Players[1])
plt.xticks(list(range(10)),Seasons,rotation='horizontal')
plt.show()
```



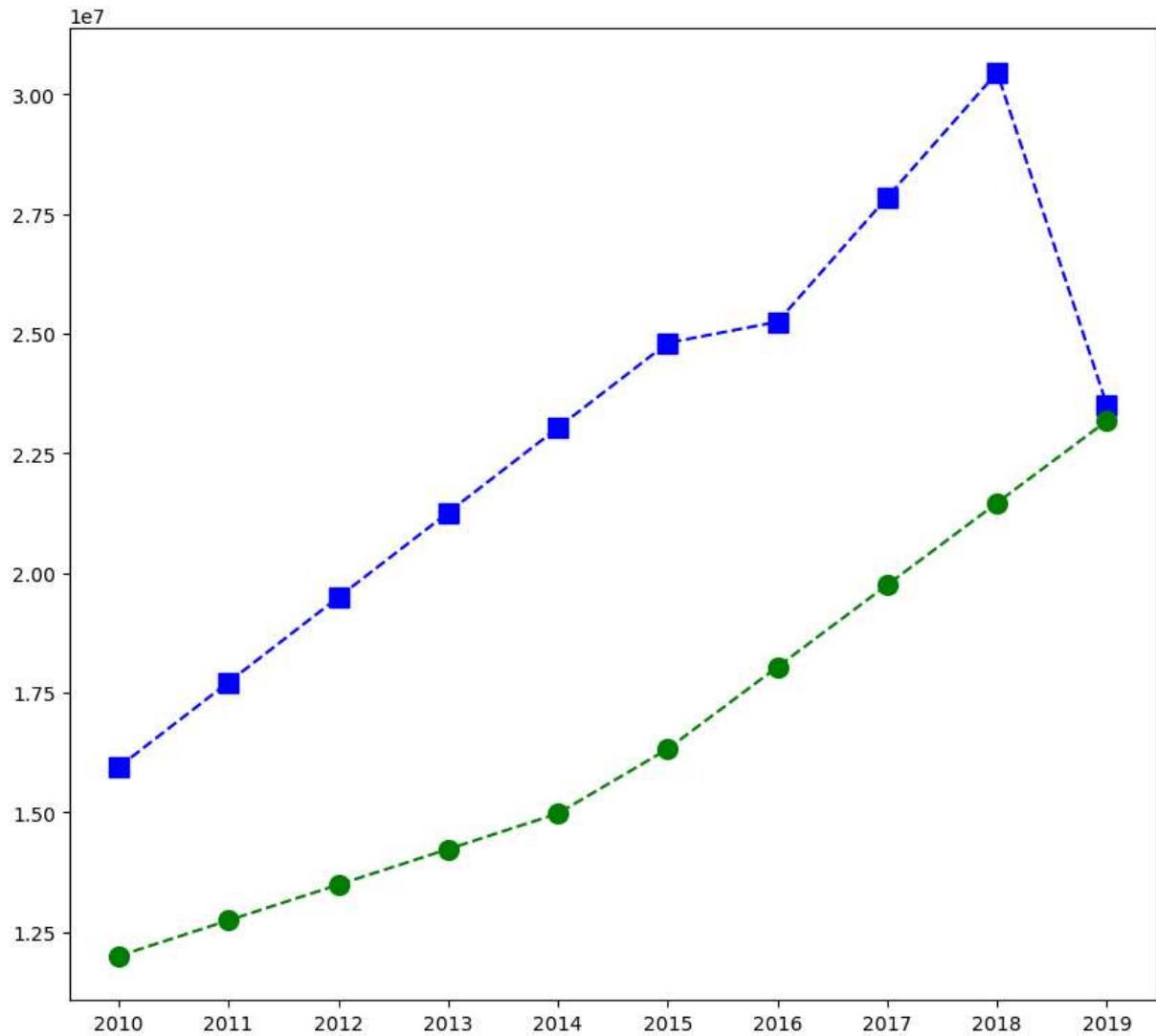
```
In [63]: plt.plot(Salary[2], c = 'r',ls= '--',marker='^',ms=10,label=Players[2])
plt.xticks(list(range(10)),Seasons,rotation='horizontal')
plt.show()
```



```
In [64]: plt.plot(Salary[3], c = 'k',ls= ':',marker='>',ms=10,label=Players[3])
plt.xticks(list(range(10)),Seasons,rotation='horizontal')
plt.show()
```



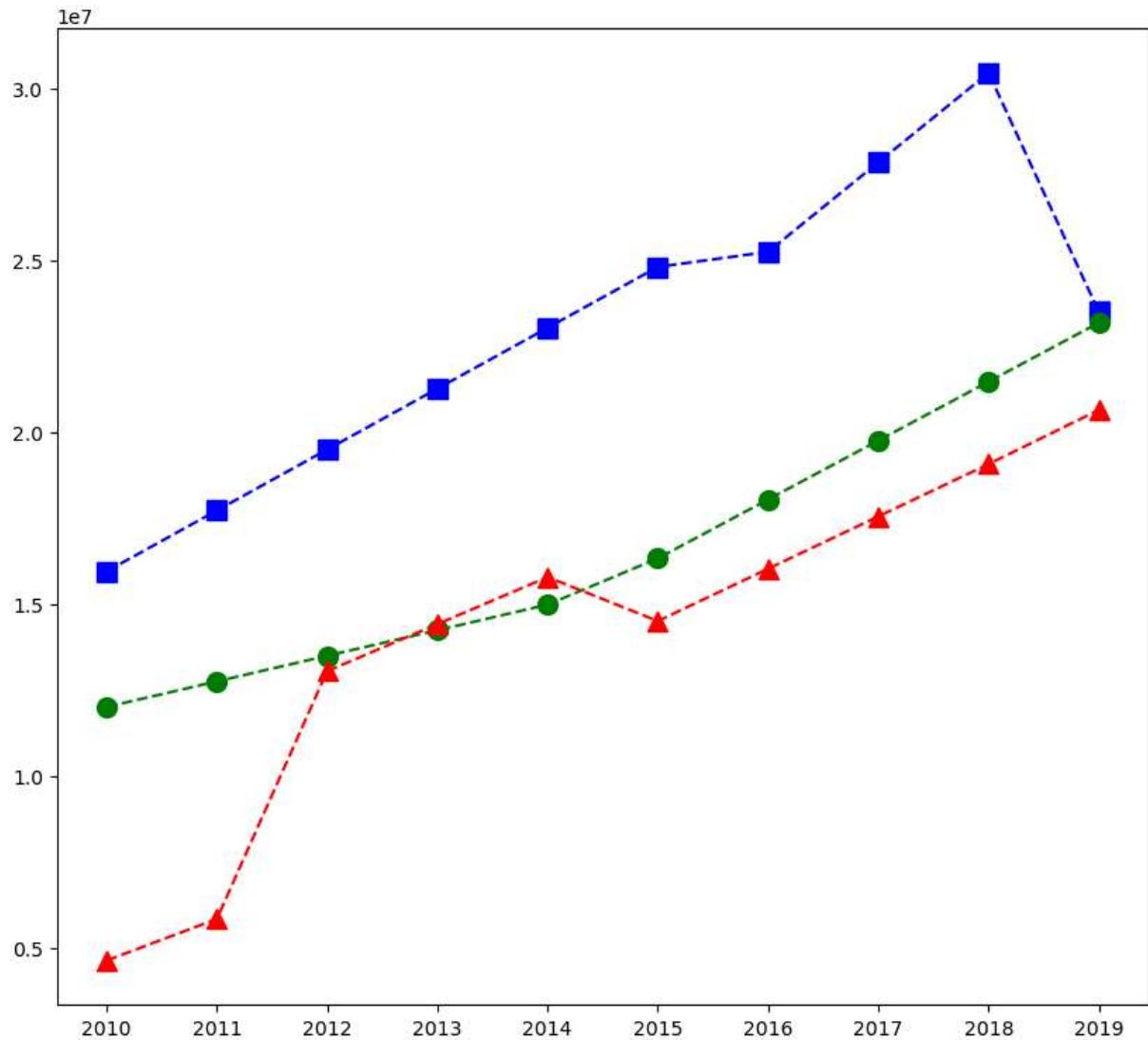
```
In [65]: #More visualization
plt.plot(Salary[0], c = 'b',ls= '--',marker='s',ms=10,label=Players[0])
plt.plot(Salary[1], c = 'g',ls= '--',marker='o',ms=10,label=Players[1])
plt.xticks(list(range(10)),Seasons,rotation='horizontal')
plt.show()
```



```
In [66]: #More visualization
plt.plot(Salary[0], c = 'b',ls= '--',marker='s',ms=10,label=Players[0])
plt.plot(Salary[1], c = 'g',ls= '--',marker='o',ms=10,label=Players[1])
plt.plot(Salary[2], c = 'r',ls= '--',marker='^',ms=10,label=Players[2])

plt.xticks(list(range(10)),Seasons,rotation='horizontal')

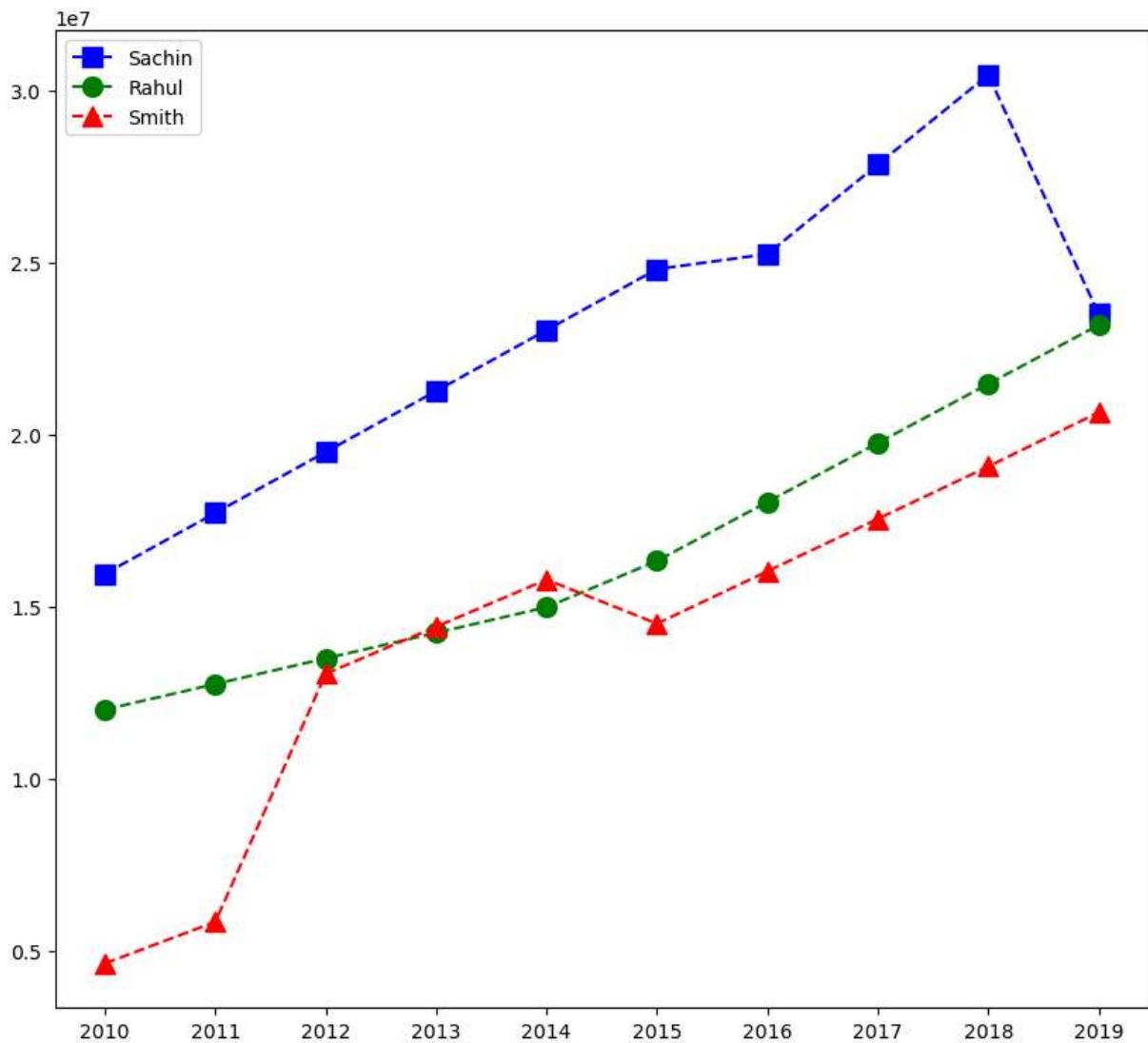
plt.show()
```



```
In [67]: #More visualization
plt.plot(Salary[0], c = 'b',ls= '--',marker='s',ms=10,label=Players[0])
plt.plot(Salary[1], c = 'g',ls= '--',marker='o',ms=10,label=Players[1])
plt.plot(Salary[2], c = 'r',ls= '--',marker='^',ms=10,label=Players[2])

plt.legend()
plt.xticks(list(range(10)),Seasons,rotation='horizontal')

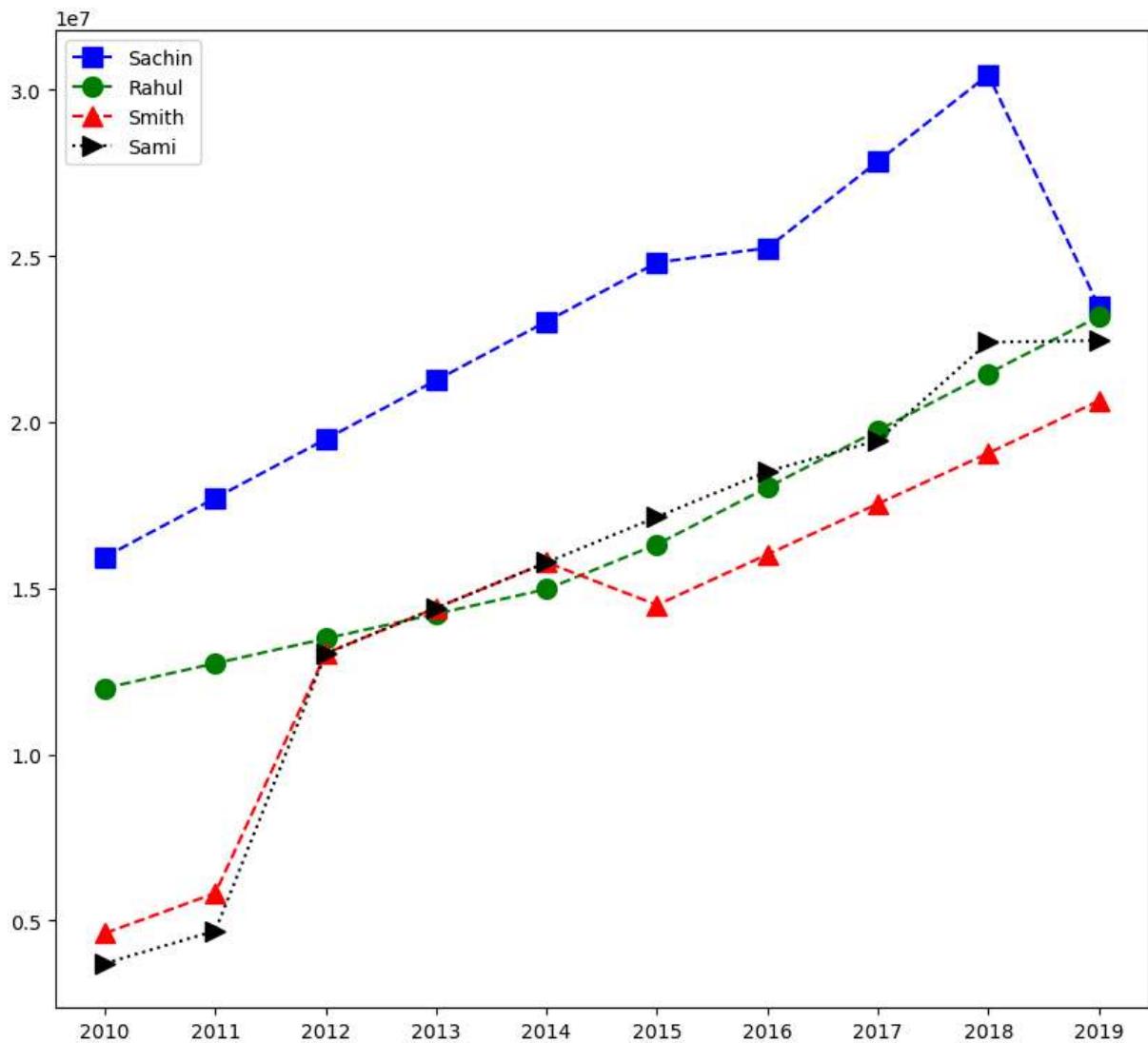
plt.show()
```



```
In [68]: #More visualization
plt.plot(Salary[0], c = 'b',ls= '--',marker='s',ms=10,label=Players[0])
plt.plot(Salary[1], c = 'g',ls= '--',marker='o',ms=10,label=Players[1])
plt.plot(Salary[2], c = 'r',ls= '--',marker='^',ms=10,label=Players[2])
plt.plot(Salary[3], c = 'k',ls= ':',marker='>',ms=10,label=Players[3])

plt.legend()
plt.xticks(list(range(10)),Seasons,rotation='horizontal')

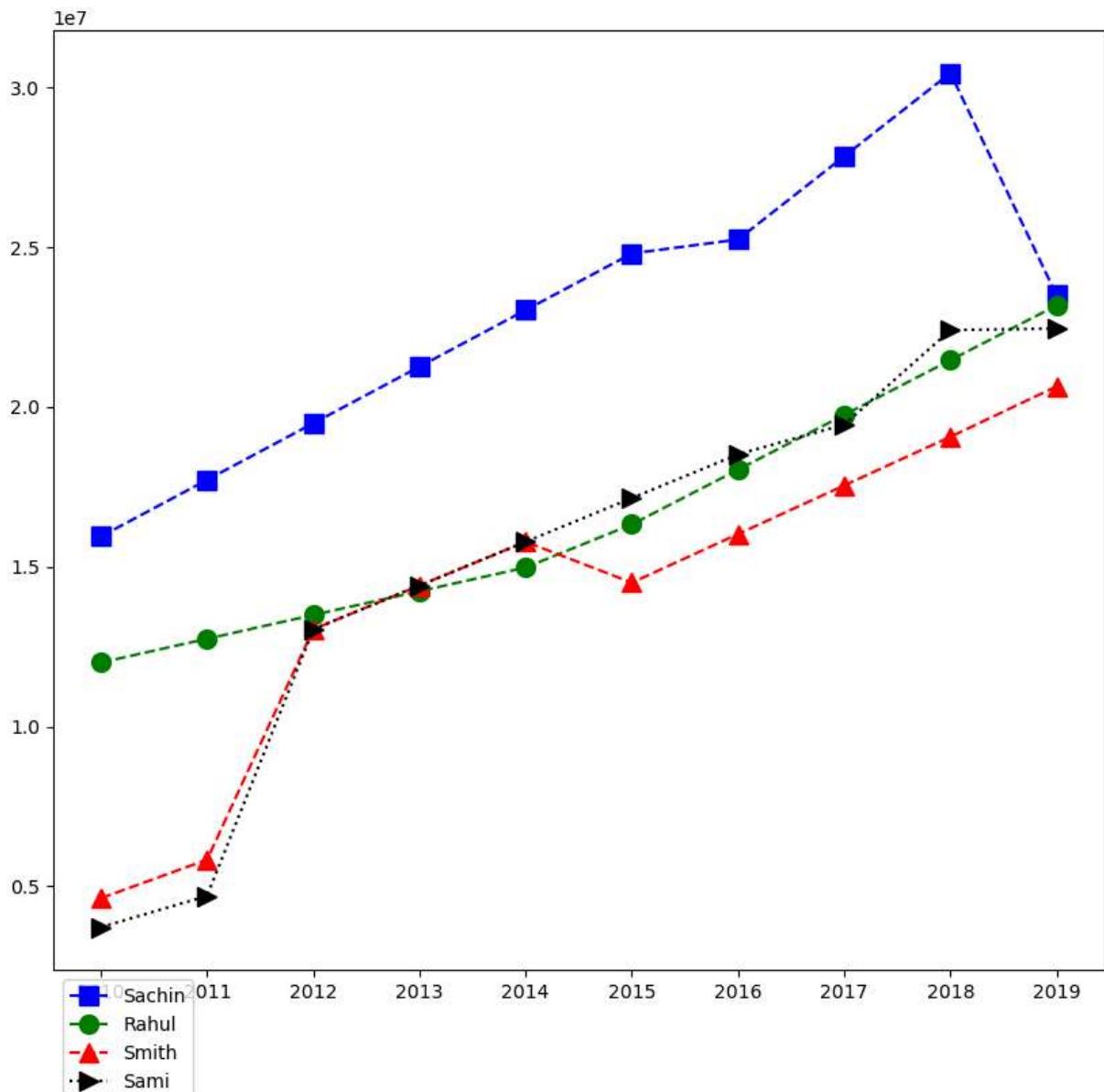
plt.show()
```



```
In [69]: #More visualization
plt.plot(Salary[0], c = 'b',ls= '--',marker='s',ms=10,label=Players[0])
plt.plot(Salary[1], c = 'g',ls= '--',marker='o',ms=10,label=Players[1])
plt.plot(Salary[2], c = 'r',ls= '--',marker='^',ms=10,label=Players[2])
plt.plot(Salary[3], c = 'k',ls= ':',marker='>',ms=10,label=Players[3])

plt.legend(loc = 'upper left',bbox_to_anchor =(0,0))
plt.xticks(list(range(10)),Seasons,rotation='horizontal')

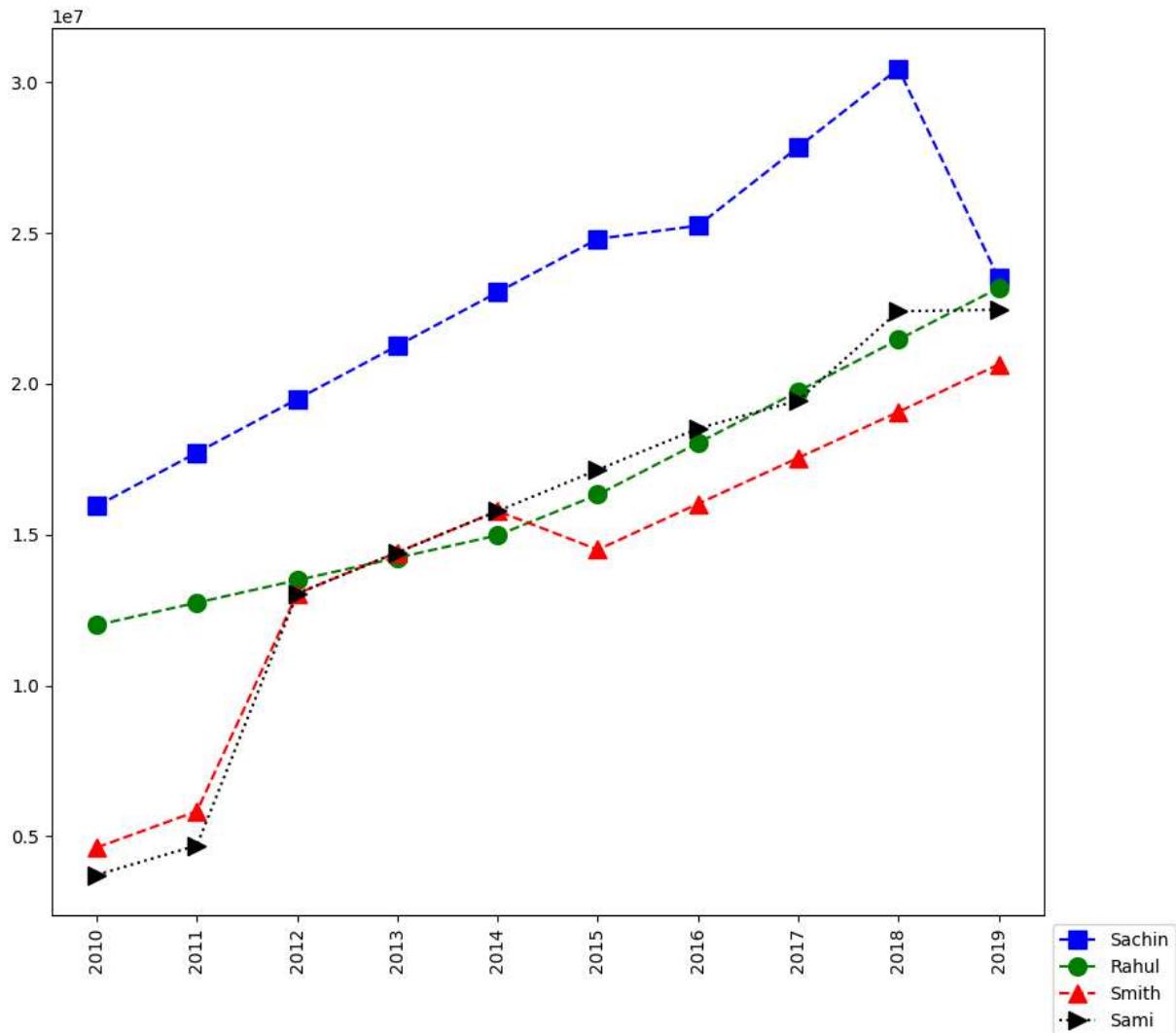
plt.show()
```



```
In [70]: #More visualization
plt.plot(Salary[0], c = 'b',ls= '--',marker='s',ms=10,label=Players[0])
plt.plot(Salary[1], c = 'g',ls= '--',marker='o',ms=10,label=Players[1])
plt.plot(Salary[2], c = 'r',ls= '--',marker='^',ms=10,label=Players[2])
plt.plot(Salary[3], c = 'k',ls= ':',marker='>',ms=10,label=Players[3])

plt.legend(loc = 'upper left',bbox_to_anchor =(1,0))
plt.xticks(list(range(10)),Seasons,rotation='vertical')

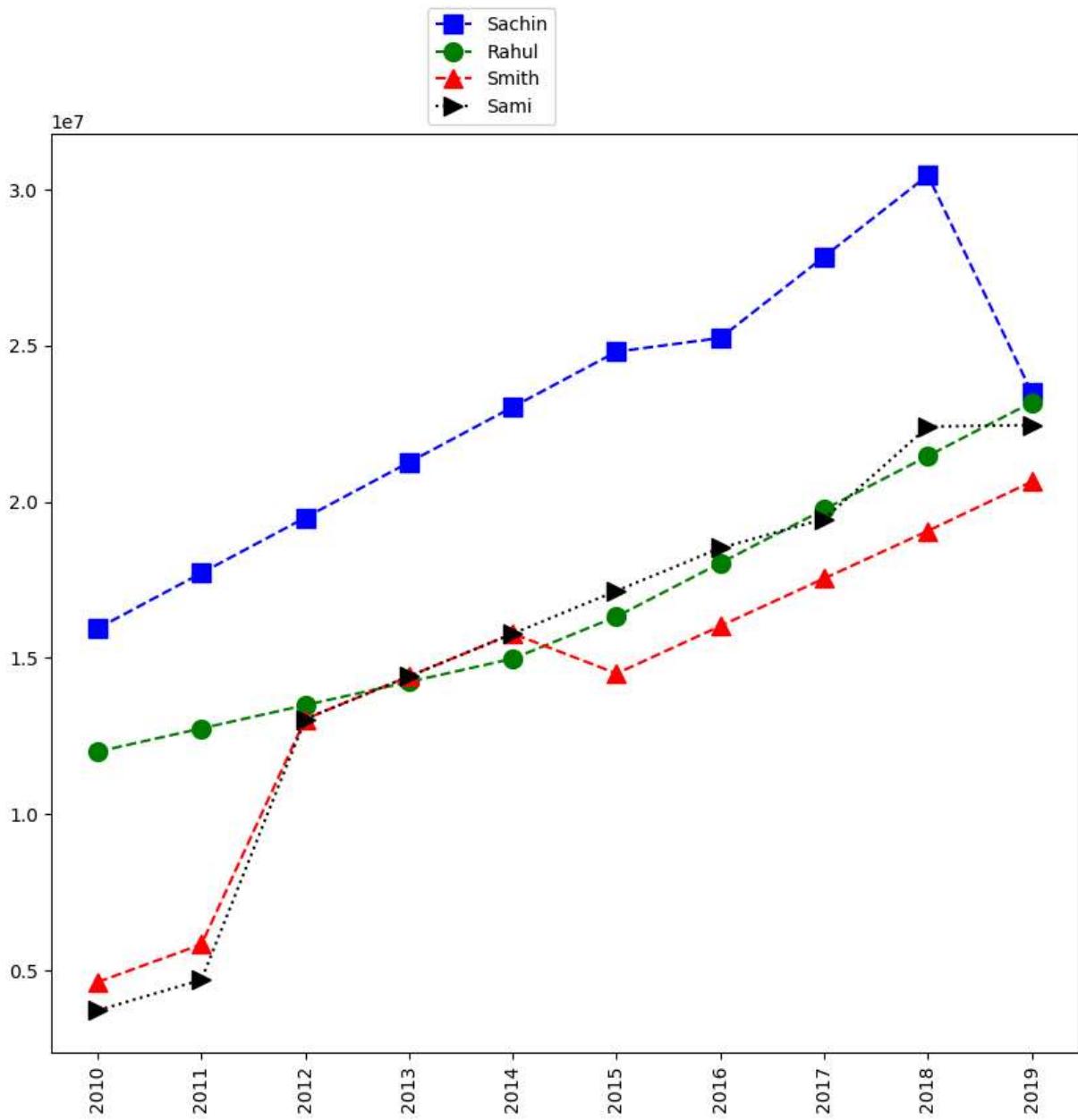
plt.show()
```



```
In [71]: #More visualization
plt.plot(Salary[0], c = 'b',ls= '--',marker='s',ms=10,label=Players[0])
plt.plot(Salary[1], c = 'g',ls= '--',marker='o',ms=10,label=Players[1])
plt.plot(Salary[2], c = 'r',ls= '--',marker='^',ms=10,label=Players[2])
plt.plot(Salary[3], c = 'k',ls= ':',marker='>',ms=10,label=Players[3])

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

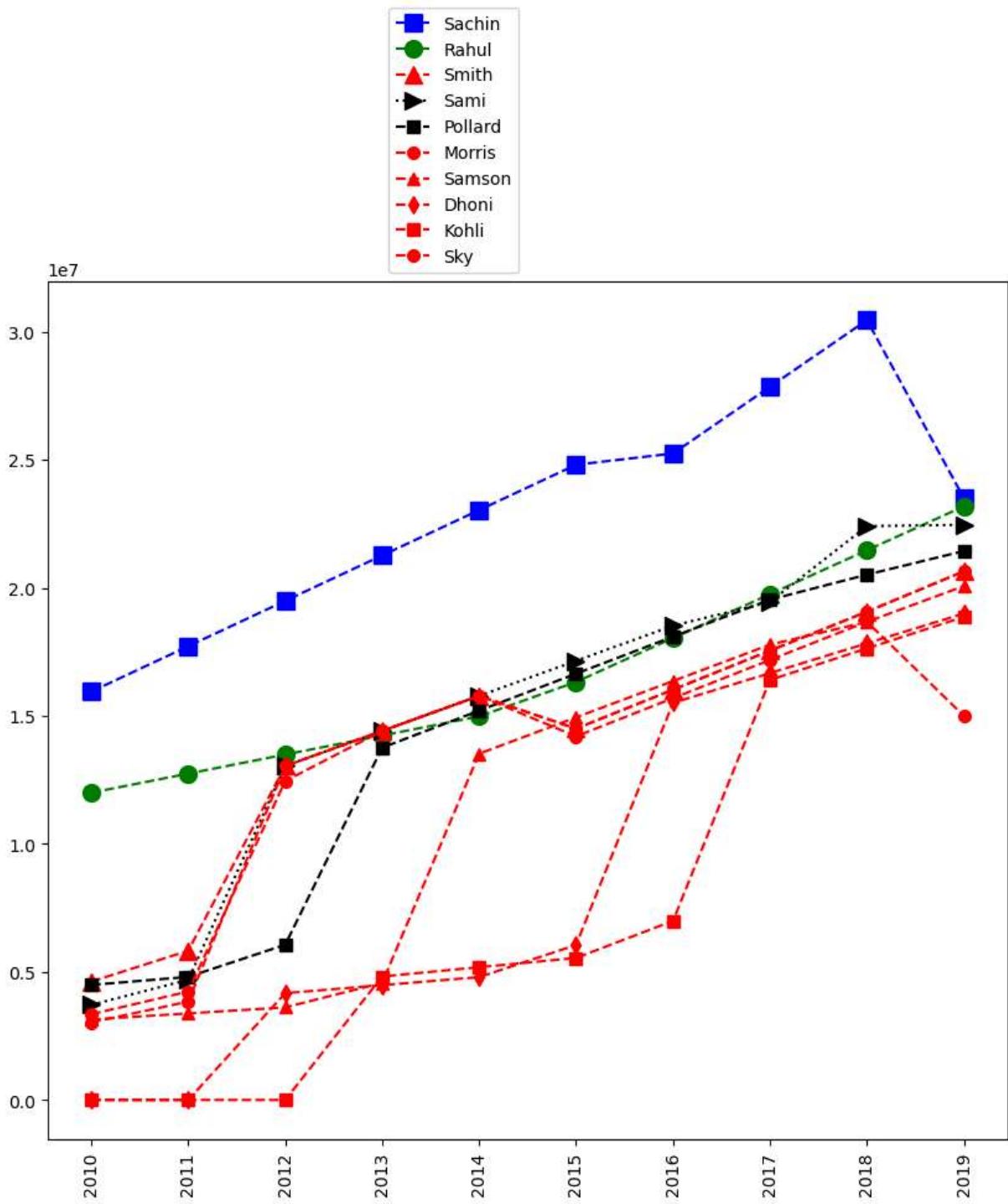
plt.show()
```



```
In [72]: plt.plot(Salary[0], c = 'b',ls= '--',marker='s',ms=10,label=Players[0])
plt.plot(Salary[1], c = 'g',ls= '--',marker='o',ms=10,label=Players[1])
plt.plot(Salary[2], c = 'r',ls= '--',marker='^',ms=10,label=Players[2])
plt.plot(Salary[3], c = 'k',ls= ':',marker='>',ms=10,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(10)),Seasons,rotation='vertical')

plt.show()
```



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

```
In [73]: 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])
```

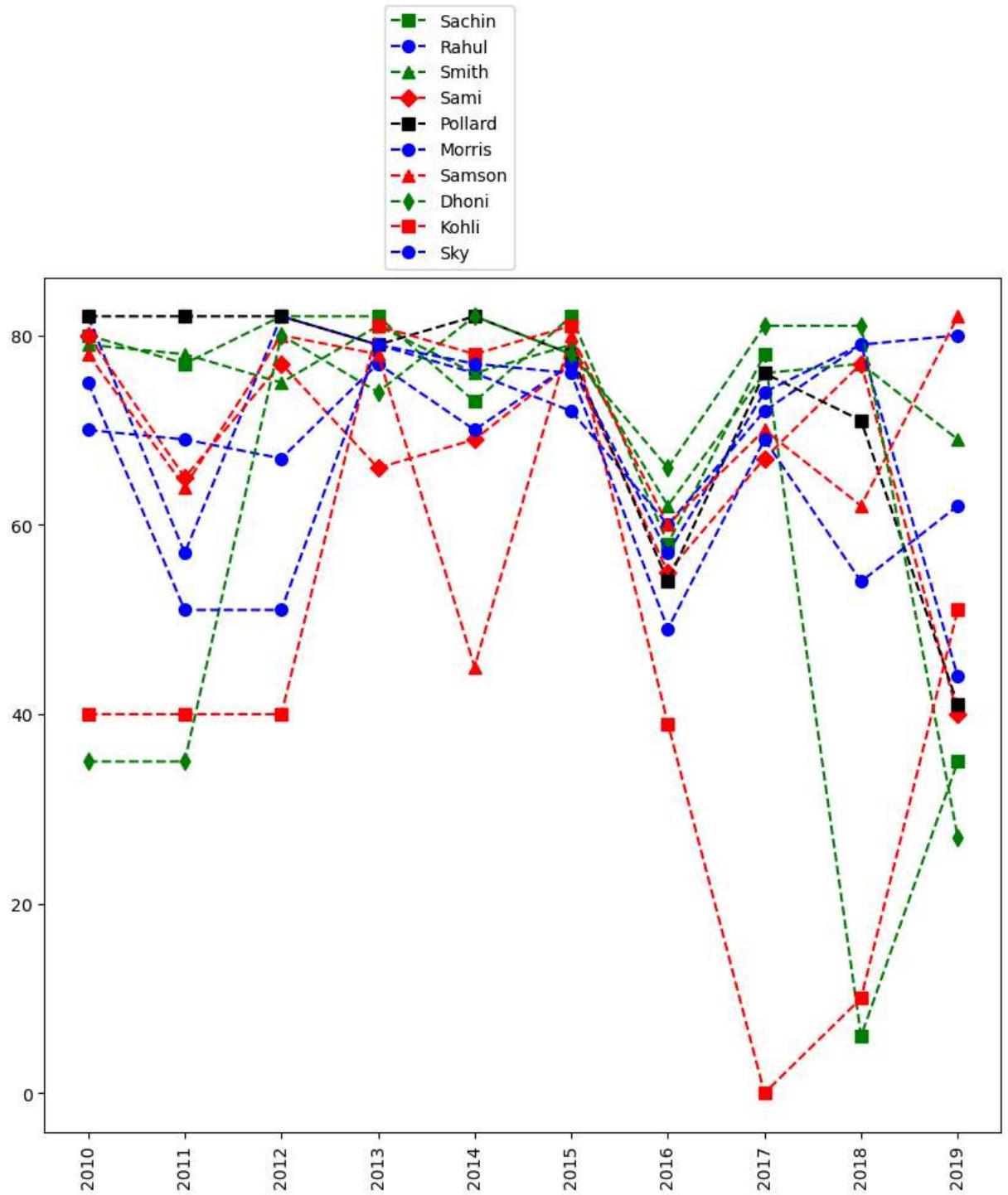
```

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()

```



In [ ]: