```
In [2]: | import numpy as np #importing NUMPY
        #Seasons
        Seasons = ["2015","2016","2017","2018","2019","2020","2021","2022","2023","2024"]
        Sdict = {"2015":0,"2016":1,"2017":2,"2018":3,"2019":4,"2020":5,"2021":6,"2022":7,"20
        #Players
        Players = ["Sachin", "Rahul", "Smith", "Sami", "Pollard", "Morris", "Samson", "Dhoni", "Kohl
        Pdict = {"Sachin":0,"Rahul":1,"Smith":2,"Sami":3,"Pollard":4,"Morris":5,"Samson":6,"
        #Salaries
        Sachin Salary = [15946875,17718750,19490625,21262500,23034375,24806250,25244493,2784
        Rahul Salary = [12000000,12744189,13488377,14232567,14976754,16324500,18038573,19752]
        Smith Salary = [4621800,5828090,13041250,14410581,15779912,14500000,16022500,1754500]
        Sami Salary = [3713640,4694041,13041250,14410581,15779912,17149243,18518574,19450000]
        Pollard Salary = [4493160,4806720,6061274,13758000,15202590,16647180,18091770,195363]
        Morris Salary = [3348000,4235220,12455000,14410581,15779912,14500000,16022500,175450]
        Samson Salary = [3144240,3380160,3615960,4574189,13520500,14940153,16359805,17779458]
        Dhoni Salary = [0,0,4171200,4484040,4796880,6053663,15506632,16669630,17832627,18995]
        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 S
        #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]
```

```
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,

#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]
```

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

Samson G = [78,64,80,78,45,80,60,70,62,82]

Points = np.array([Sachin_PTS, Rahul_PTS, Smith_PTS, Sami_PTS, Pollard_PTS, Morris_P

```
Out[3]: array([[15946875, 17718750, 19490625, 21262500, 23034375, 24806250,
               25244493, 27849149, 30453805, 235000001,
               [12000000, 12744189, 13488377, 14232567, 14976754, 16324500,
               18038573, 19752645, 21466718, 23180790],
              [ 4621800, 5828090, 13041250, 14410581, 15779912, 14500000,
               16022500, 17545000, 19067500, 206444001,
              [ 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, 200685631.
               [ 0, 0, 4171200, 4484040, 4796880, 6053663,
               15506632, 16669630, 17832627, 18995624],
                   0, 0, 4822800, 5184480, 5546160,
                6993708, 16402500, 17632688, 18862875],
              [ 3031920, 3841443, 13041250, 14410581, 15779912, 14200000,
               15691000, 17182000, 18673000, 15000000]])
```

In [3]: |Salary

```
In [4]:
        Games
Out[4]: 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 [5]:
        Points
Out[5]: 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 [6]:
        Games
Out[6]: 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]])
        Games[5]
In [7]:
Out[7]: array([70, 69, 67, 77, 70, 77, 57, 74, 79, 44])
        Games[0:5]
In [8]:
Out[8]: 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 [9]:
        Games[0,5]
Out[9]: 82
```

```
In [10]: Games[0,2]
Out[10]: 82
In [11]: Games[1:2]
Out[11]: array([[82, 57, 82, 79, 76, 72, 60, 72, 79, 80]])
```

In [12]: Salary/Games

C:\Users\manga\AppData\Local\Temp\ipykernel_2108\3709746658.py:1: RuntimeWarning: d
ivide by zero encountered in true_divide
 Salary/Games

```
Out[12]: 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, 226729.166666667,
                300642.88333333, 274342.29166667, 271730.60759494,
                289759.875 1.
              [ 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, 300455.5555556, 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],
```

```
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]])
```

0.

0.

0.

```
In [13]: np.round(Salary/Games)
```

C:\Users\manga\AppData\Local\Temp\ipykernel_2108\2909567671.py:1: RuntimeWarning: d
ivide by zero encountered in true_divide
 np.round(Salary/Games)

```
Out[13]: 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 [14]: import warnings
    warnings.filterwarnings('ignore')
    #np.round(FieldGoals/Games)
    #FieldGoals/Games # this matrix is lot of decimal points yo can not round
    #round()
```

```
In [15]: import numpy as np
import matplotlib.pyplot as plt
```

```
In [16]: %matplotlib inline # keep the plot inside jupyter nots insted of getting in other sc
```

UsageError: unrecognized arguments: # keep the plot inside jupyter nots insted of g etting in other screen

```
Out[17]: 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, 206444001,
               [ 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, 4822800, 5184480, 5546160,
                 6993708, 16402500, 17632688, 18862875],
               [ 3031920, 3841443, 13041250, 14410581, 15779912, 14200000,
                15691000, 17182000, 18673000, 15000000]])
```

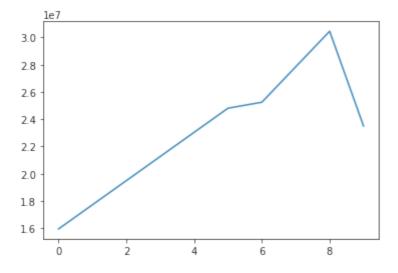
In [17]: |Salary

In [18]: |Salary[0]

```
Out[18]: array([15946875, 17718750, 19490625, 21262500, 23034375, 24806250, 25244493, 27849149, 30453805, 23500000])
```

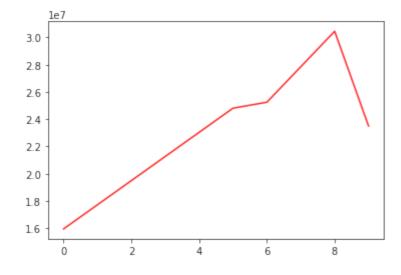
In [19]: plt.plot(Salary[0])

Out[19]: [<matplotlib.lines.Line2D at 0x2c92407ea30>]



```
In [20]: plt.plot(Salary[0], c='red')
```

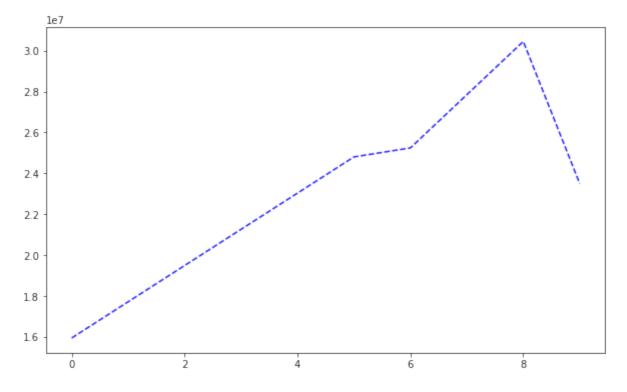
Out[20]: [<matplotlib.lines.Line2D at 0x2c924812fa0>]



```
In [21]: %matplotlib inline
plt.rcParams['figure.figsize'] = 10,6
```

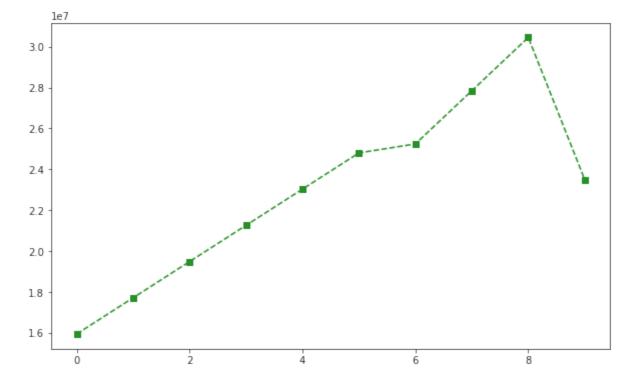
In [22]: plt.plot(Salary[0], c='Blue', ls = 'dashed')

Out[22]: [<matplotlib.lines.Line2D at 0x2c9248829d0>]

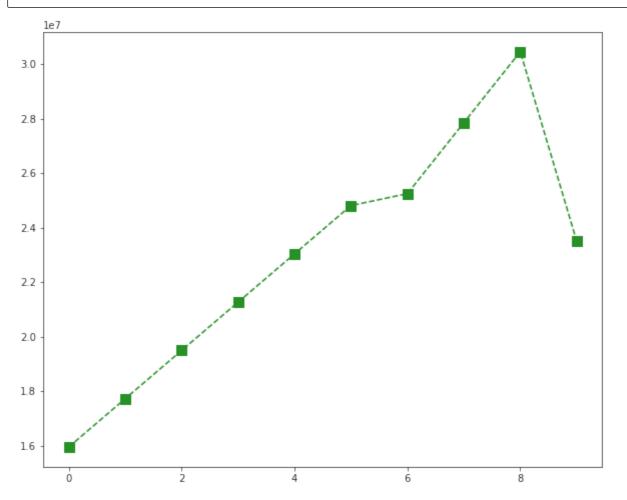


In [23]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's') # s - squares

Out[23]: [<matplotlib.lines.Line2D at 0x2c9248f51f0>]

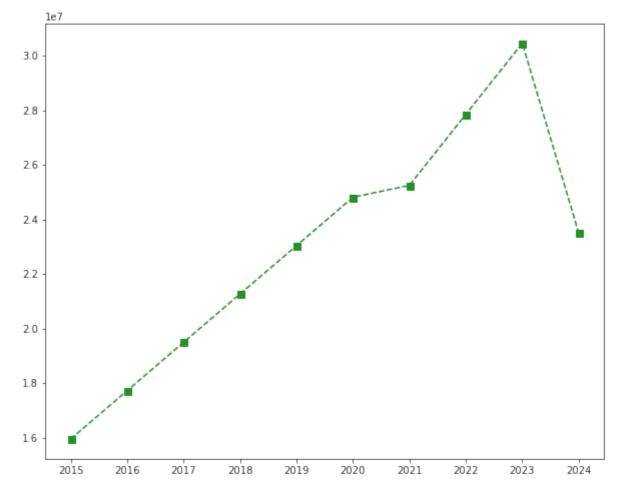


In [25]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 10)
plt.show()

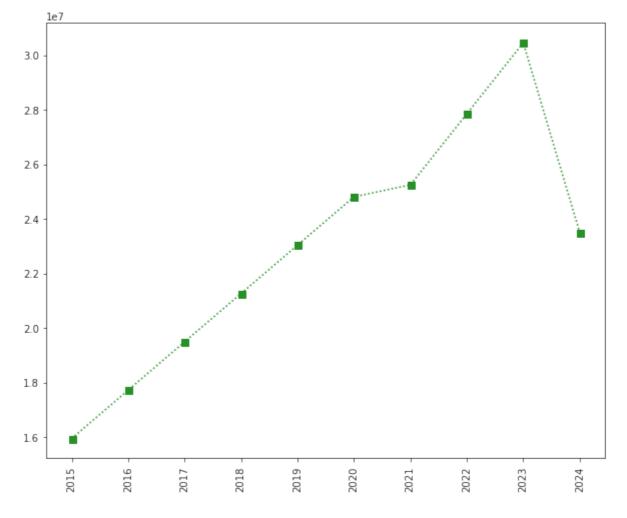


```
In [26]: list(range(0,10))
Out[26]: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
In [27]: Sdict
Out[27]: {'2015': 0,
          '2016': 1,
          '2017': 2,
           '2018': 3,
          '2019': 4,
          '2020': 5,
          '2021': 6,
          '2022': 7,
          '2023': 8,
          '2024': 9}
In [28]:
         Pdict
Out[28]: {'Sachin': 0,
          'Rahul': 1,
           'Smith': 2,
          'Sami': 3,
          'Pollard': 4,
           'Morris': 5,
          'Samson': 6,
          'Dhoni': 7,
          'Kohli': 8,
           'Sky': 9}
```

```
In [29]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7)
plt.xticks(list(range(0,10)), Seasons)
plt.show()
```



```
In [30]: 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()
```

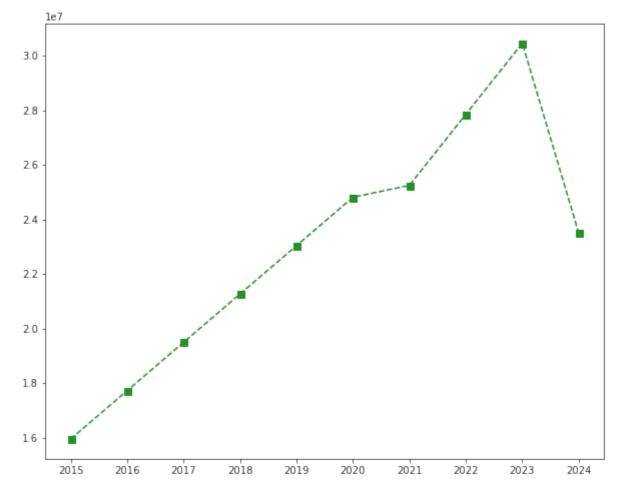


```
Out[31]: array([[80, 77, 82, 82, 73, 82, 58, 78, 6, 35], [82, 57, 82, 79, 76, 72, 60, 72, 79, 80], [79, 78, 75, 81, 76, 79, 62, 76, 77, 69], [80, 65, 77, 66, 69, 77, 55, 67, 77, 40], [82, 82, 82, 79, 82, 78, 54, 76, 71, 41], [70, 69, 67, 77, 70, 77, 57, 74, 79, 44], [78, 64, 80, 78, 45, 80, 60, 70, 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 [31]:

Games

```
In [32]: 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()
```



```
Out[34]: array([15946875, 17718750, 19490625, 21262500, 23034375, 24806250, 25244493, 27849149, 30453805, 23500000])

In [35]: Salary[1]

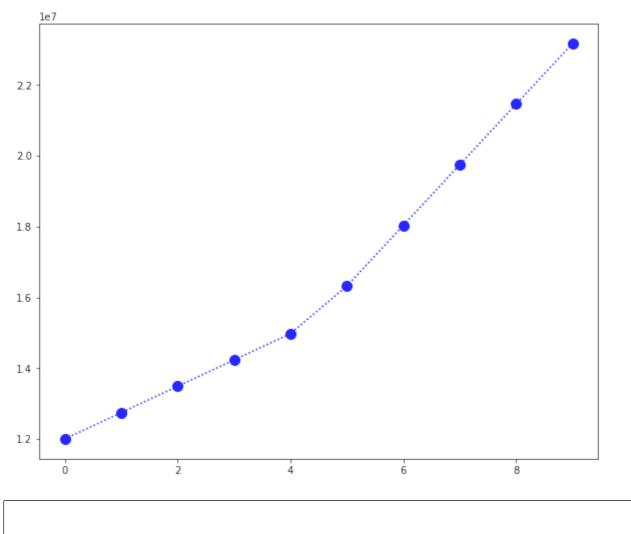
Out[35]: array([12000000, 12744189, 13488377, 14232567, 14976754, 16324500,
```

18038573, 19752645, 21466718, 23180790])

In [34]: Salary[0]

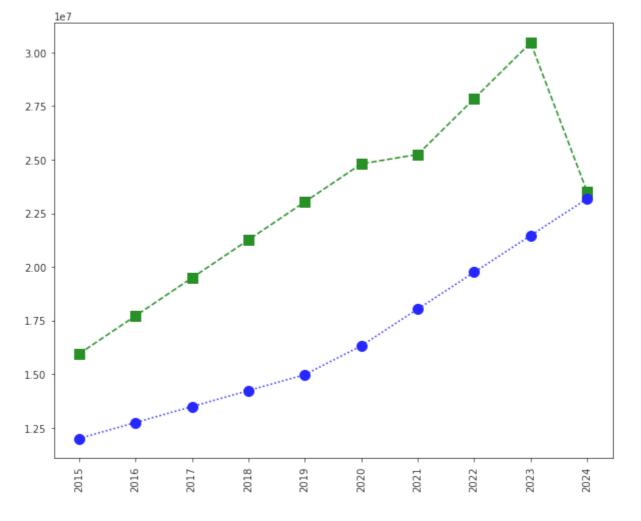
```
In [36]: plt.plot(Salary[1], c='Blue', ls = ':', marker = 'o', ms = 10, label = Players[1])
```

Out[36]: [<matplotlib.lines.Line2D at 0x2c924c2dca0>]



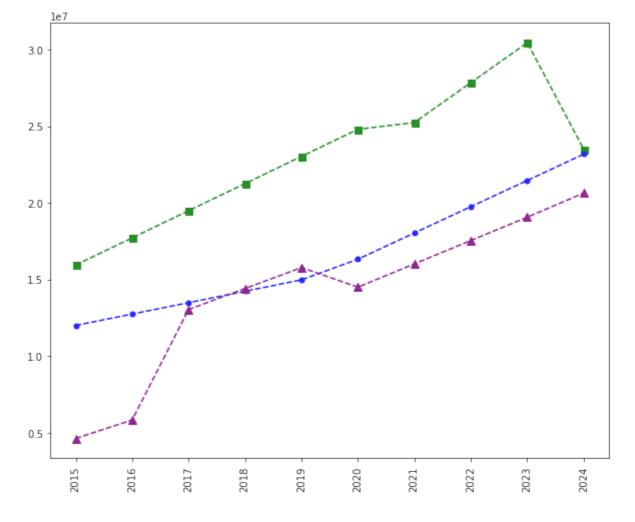
More Visualisation

```
In [39]: 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()
```

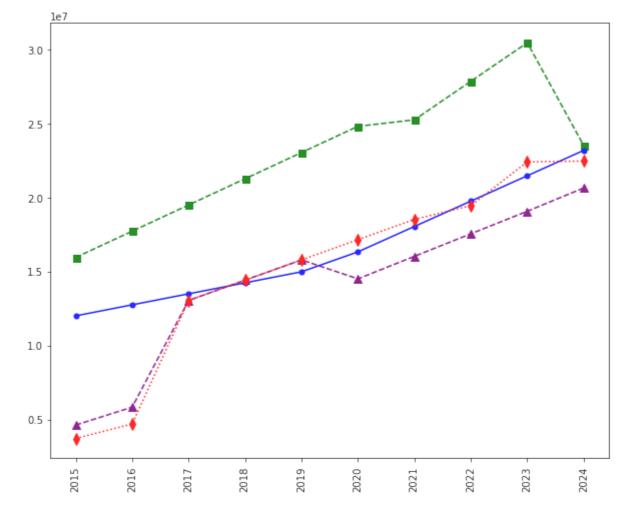


```
In [40]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5, label = Players[1])
plt.plot(Salary[2], c='purple', ls = '--', marker = '^', ms = 8, label = Players[2])

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

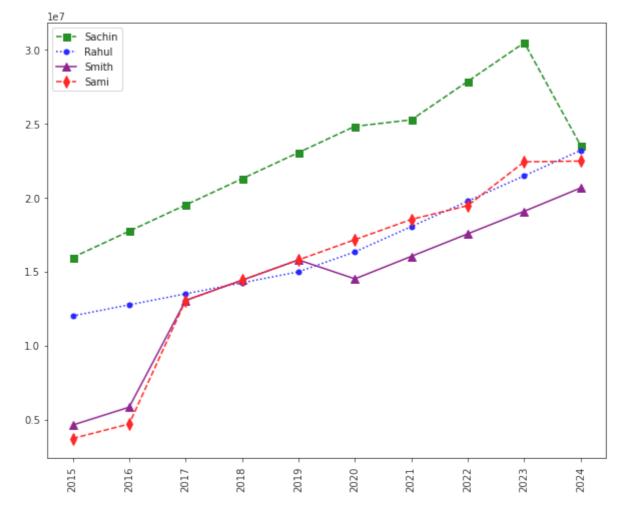


```
In [41]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5, label = Players[1])
plt.plot(Salary[2], c='purple', ls = '--', marker = '^-', ms = 8, label = Players[2])
plt.plot(Salary[3], c='Red', ls = ':', marker = 'd', ms = 8, label = Players[3])
plt.xticks(list(range(0,10)), Seasons, rotation='vertical')
plt.show()
```

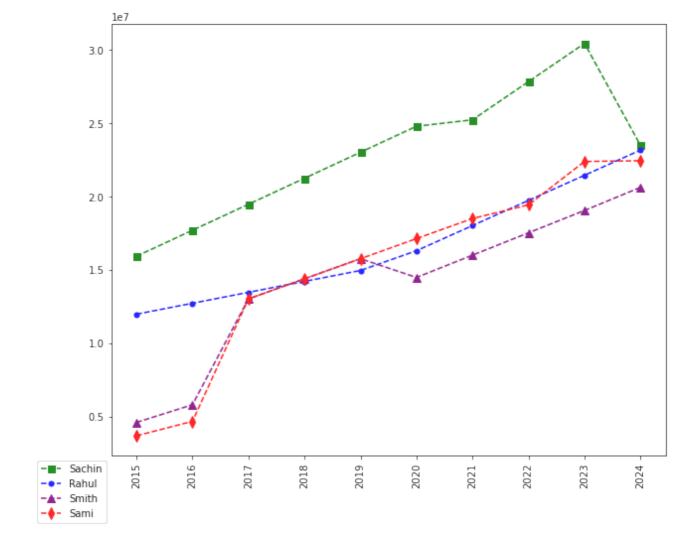


```
In [42]: # how to add Legned in visualisation

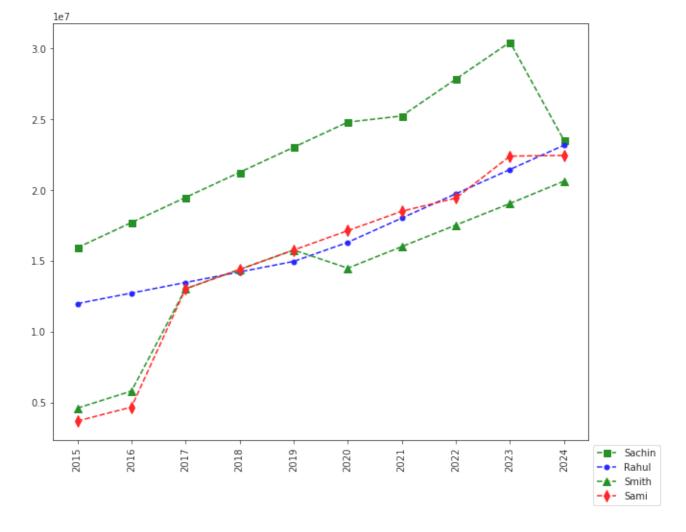
plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = ':', marker = 'o', ms = 5, label = Players[1])
plt.plot(Salary[2], c='purple', ls = '--', marker = '^', ms = 8, label = Players[2])
plt.plot(Salary[3], c='Red', ls = '--', marker = 'd',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



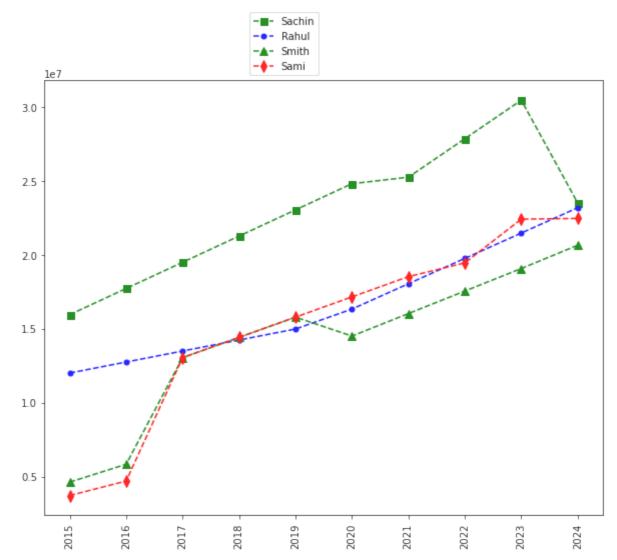
```
In [44]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5, label = Players[1])
plt.plot(Salary[2], c='purple', ls = '--', marker = '^', ms = 8, label = Players[2])
plt.plot(Salary[3], c='Red', ls = '--', marker = 'd', ms = 8, label = Players[3])
plt.legend(loc = 'upper right',bbox_to_anchor=(0,0))
plt.xticks(list(range(0,10)), Seasons,rotation='vertical')
```



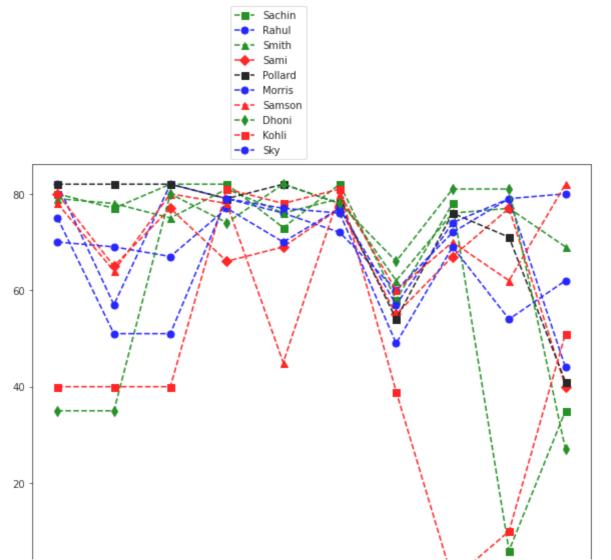
```
In [46]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5, label = Players[1])
plt.plot(Salary[2], c='Green', ls = '--', marker = '^', ms = 8, label = Players[2])
plt.plot(Salary[3], c='Red', ls = '--', 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')
```

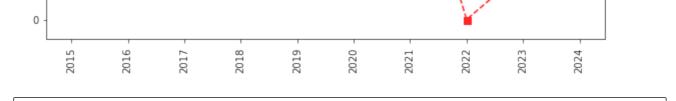


```
In [47]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 7, label = Players[0])
   plt.plot(Salary[1], c='Blue', ls = '--', marker = 'o', ms = 5, label = Players[1])
   plt.plot(Salary[2], c='Green', ls = '--', marker = '^', ms = 8, label = Players[2])
   plt.plot(Salary[3], c='Red', 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')
```



```
In [53]: # 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', 1s = '--', 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', 1s = '--', 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()
```





Completed The Project...