

# ipl data analysis using numpy and matplotlib

In [45]:

```
#Import numpy
import numpy as np

#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,"2023":8,"2024":9}

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

#Salaries
Sachin_Salary = [15946875,17718750,19490625,21262500,23034375,24806250,25244493,27850000,30519200,341443,3615960,4574189,13041250,14410581,15779912,14500000,16022500,1754500]
Rahul_Salary = [12000000,12744189,13488377,14232567,14976754,16324500,18038573,19750000,2135220,2380160,2615960,3574189,13041250,14410581,15779912,14500000,16022500,1754500]
Smith_Salary = [4621800,5828090,13041250,14410581,15779912,14500000,16022500,1754500,3713640,4694041,13041250,14410581,15779912,17149243,18518574,1945000]
Sami_Salary = [3713640,4694041,13041250,14410581,15779912,17149243,18518574,1945000,4493160,4806720,6061274,13758000,15202590,16647180,18091770,1953600]
Pollard_Salary = [4493160,4806720,6061274,13758000,15202590,16647180,18091770,1953600,3348000,4235220,12455000,14410581,15779912,14500000,16022500,1754500]
Morris_Salary = [3348000,4235220,12455000,14410581,15779912,14500000,16022500,1754500,3144240,3380160,3615960,4574189,13520500,14940153,16359805,17779450]
Samson_Salary = [3144240,3380160,3615960,4574189,13520500,14940153,16359805,17779450,4171200,4484040,4796880,6053663,15506632,16669630,17832627,1899000]
Dhoni_Salary = [0,0,4171200,4484040,4796880,6053663,15506632,16669630,17832627,1899000,Kohli_Salary = [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_
```

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 [8]: Games

```
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],
   [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 [43]: Sdict

```
Out[43]: {'2015': 0,
 '2016': 1,
 '2017': 2,
 '2018': 3,
 '2019': 4,
 '2020': 5,
 '2021': 6,
 '2022': 7,
 '2023': 8,
 '2024': 9}
```

In [42]: Pdict

```
Out[42]: {'Sachin': 0,
          'Rahul': 1,
          'Smith': 2,
          'Sami': 3,
          'Pollard': 4,
          'Morris': 5,
          'Samson': 6,
          'Dhoni': 7,
          'Kohli': 8,
          'Sky': 9}
```

```
In [11]: Games
```

```
Out[11]: 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 [7]: Games[5]
```

```
Out[7]: array([70, 69, 67, 77, 70, 77, 57, 74, 79, 44])
```

```
In [12]: Games[5,3]
```

```
Out[12]: np.int64(77)
```

```
In [13]: Salary
```

```
Out[13]: 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 [14]: Salary[0]
```

```
Out[14]: array([15946875, 17718750, 19490625, 21262500, 23034375, 24806250,  
25244493, 27849149, 30453805, 23500000])
```

```
In [15]: Salary[0]/Games[0]
```

```
Out[15]: array([ 199335.9375 , 230113.63636364, 237690.54878049,  
259298.7804878 , 315539.38356164, 302515.24390244,  
435249.87931034, 357040.37179487, 5075634.16666667,  
671428.57142857])
```

```
In [16]: np.round(Salary[0]/Games[0])
```

```
Out[16]: array([ 199336., 230114., 237691., 259299., 315539., 302515.,  
435250., 357040., 5075634., 671429.])
```

## lets visualize the data

```
In [17]: import warnings  
warnings.filterwarnings('ignore')
```

**to ignore unwanted errors like word doc  
,we need to write the code as ignore all**

```
In [18]: import warnings  
warnings.filterwarnings('ignore')
```

```
In [19]: import matplotlib.pyplot as plt
```

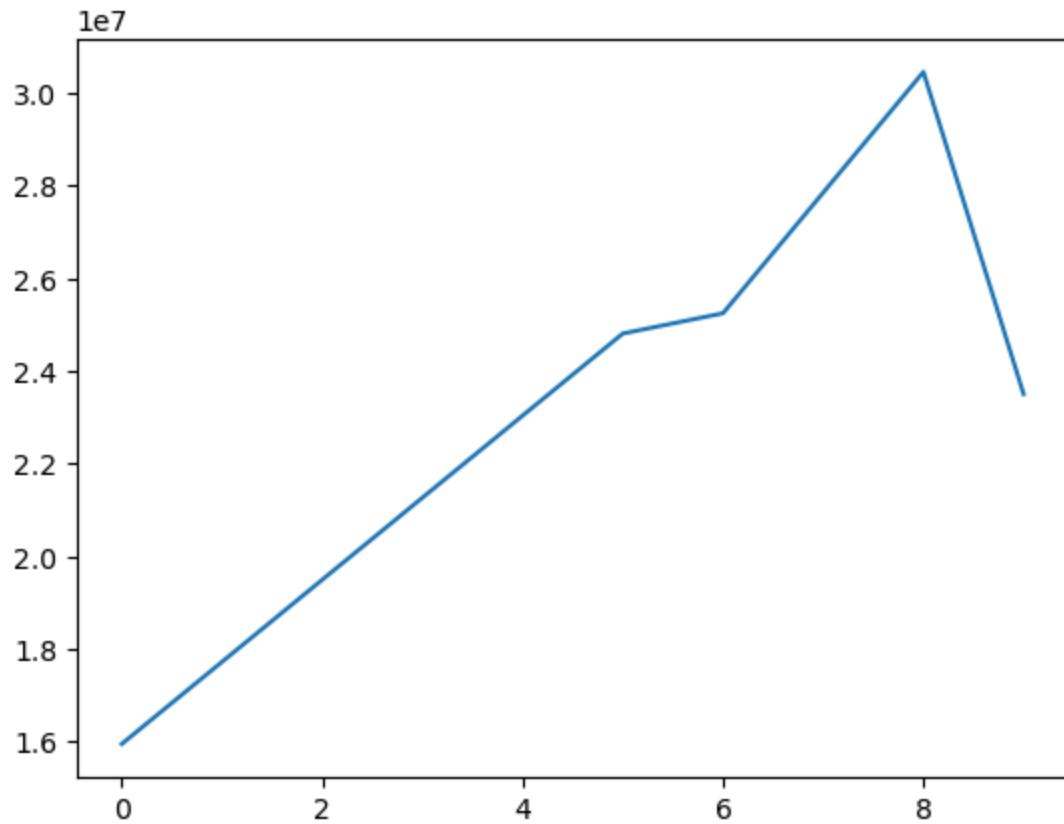
```
In [20]: import matplotlib.pyplot as plt
```

```
In [21]: Salary[0]
```

```
Out[21]: array([15946875, 17718750, 19490625, 21262500, 23034375, 24806250,  
25244493, 27849149, 30453805, 23500000])
```

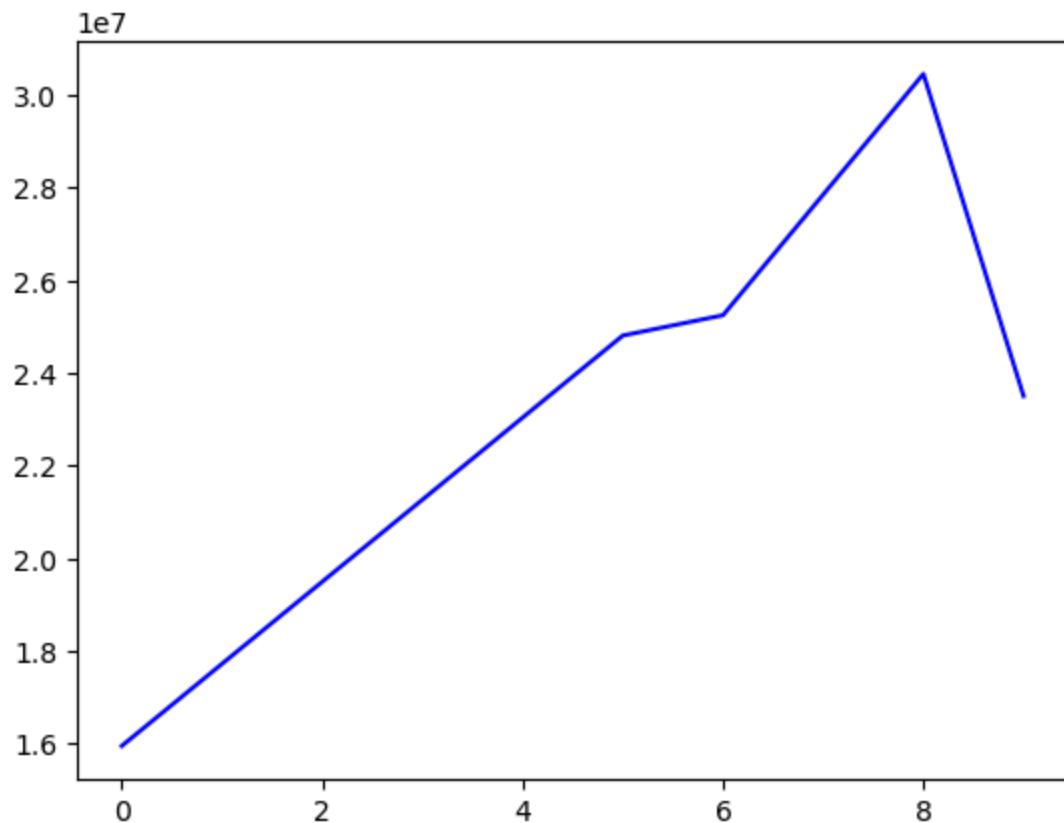
```
In [22]: plt.plot(Salary[0])
```

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



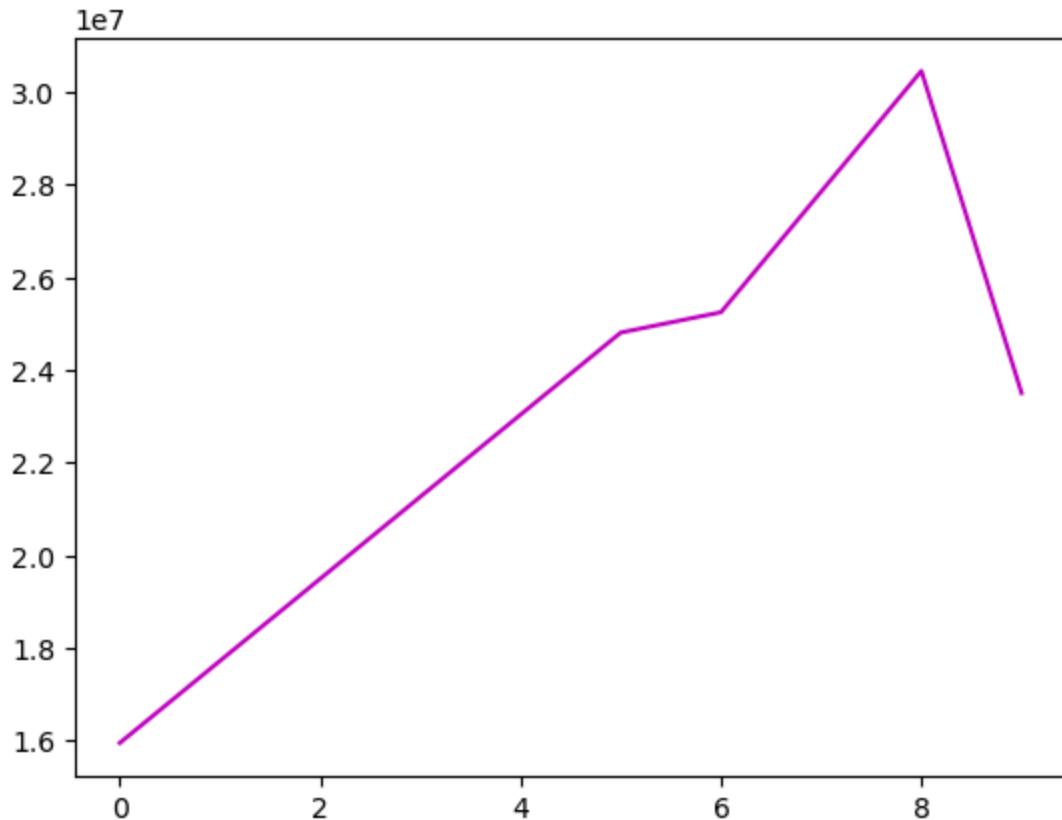
```
In [23]: plt.plot(Salary[0], color='blue')
```

```
Out[23]: [<matplotlib.lines.Line2D at 0x1fa036fb250>]
```



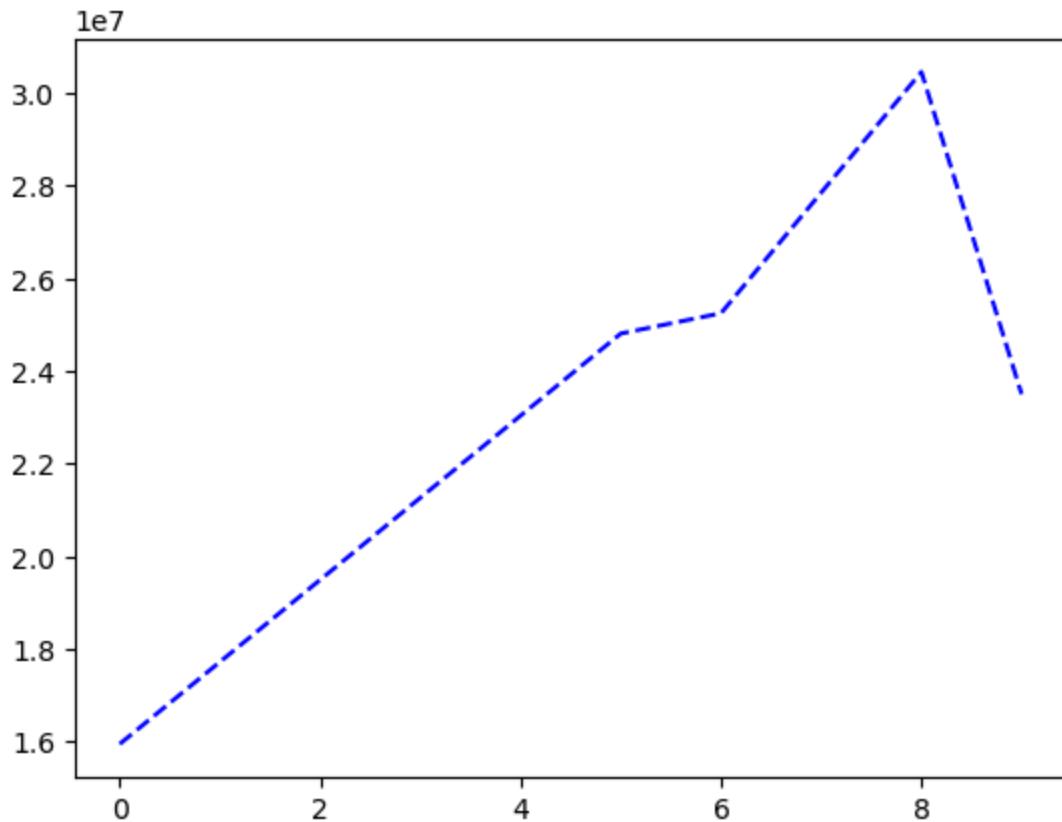
```
In [25]: plt.plot(Salary[0],color='m')  
#chnage the colour of graph
```

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



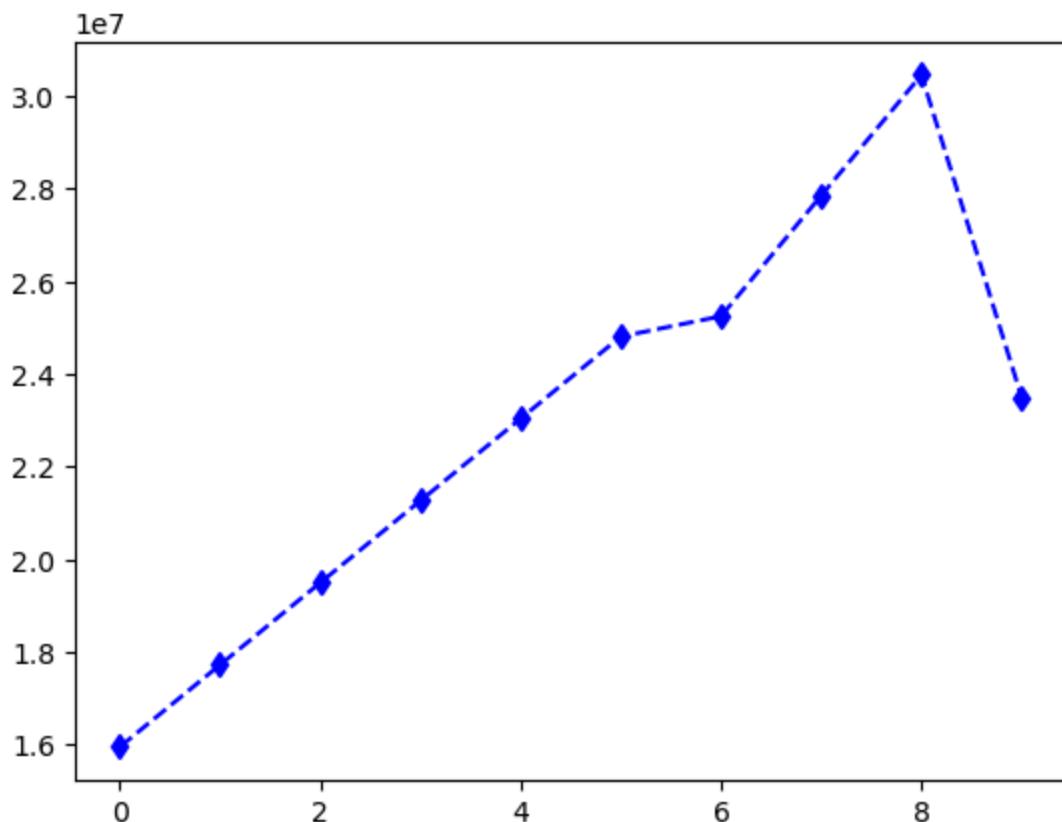
```
In [26]: plt.plot(Salary[0],color='blue',ls='--') #line pattern will be changed
```

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



```
In [28]: plt.plot(Salary[0], color='blue', ls='--', marker='d')  
#marker
```

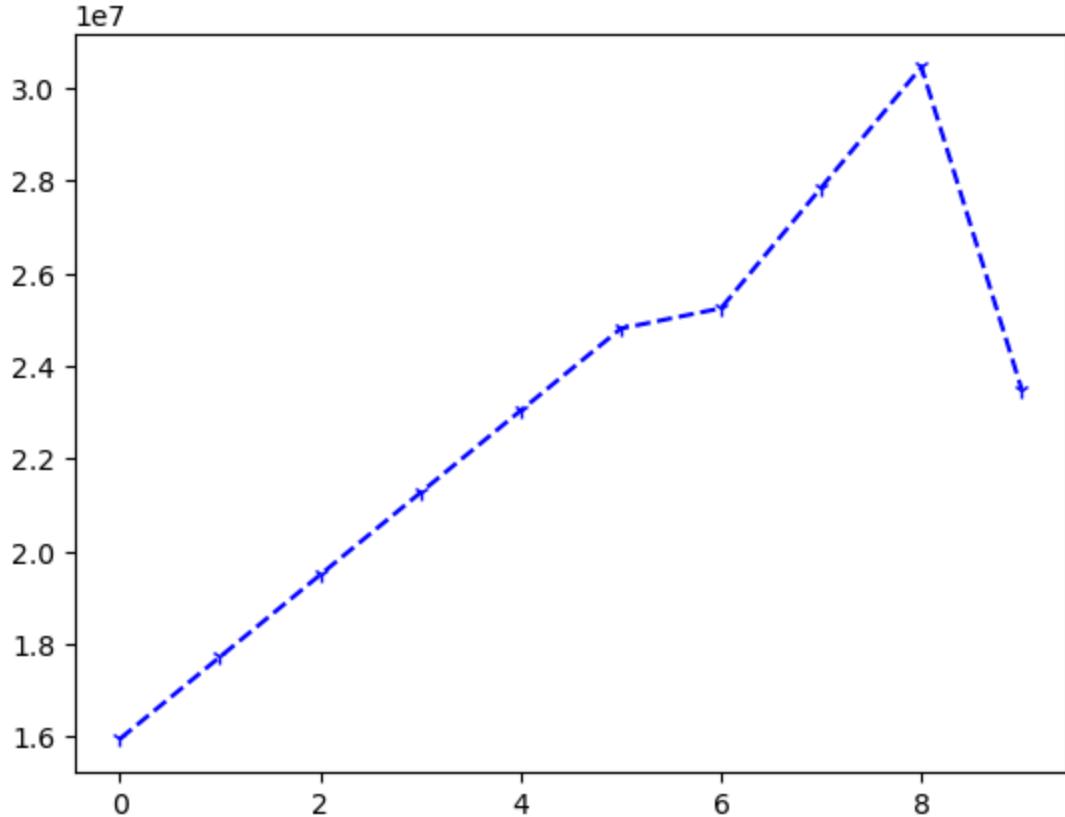
```
Out[28]: [<matplotlib.lines.Line2D at 0x272f50051d0>]
```



# 4TH NOV

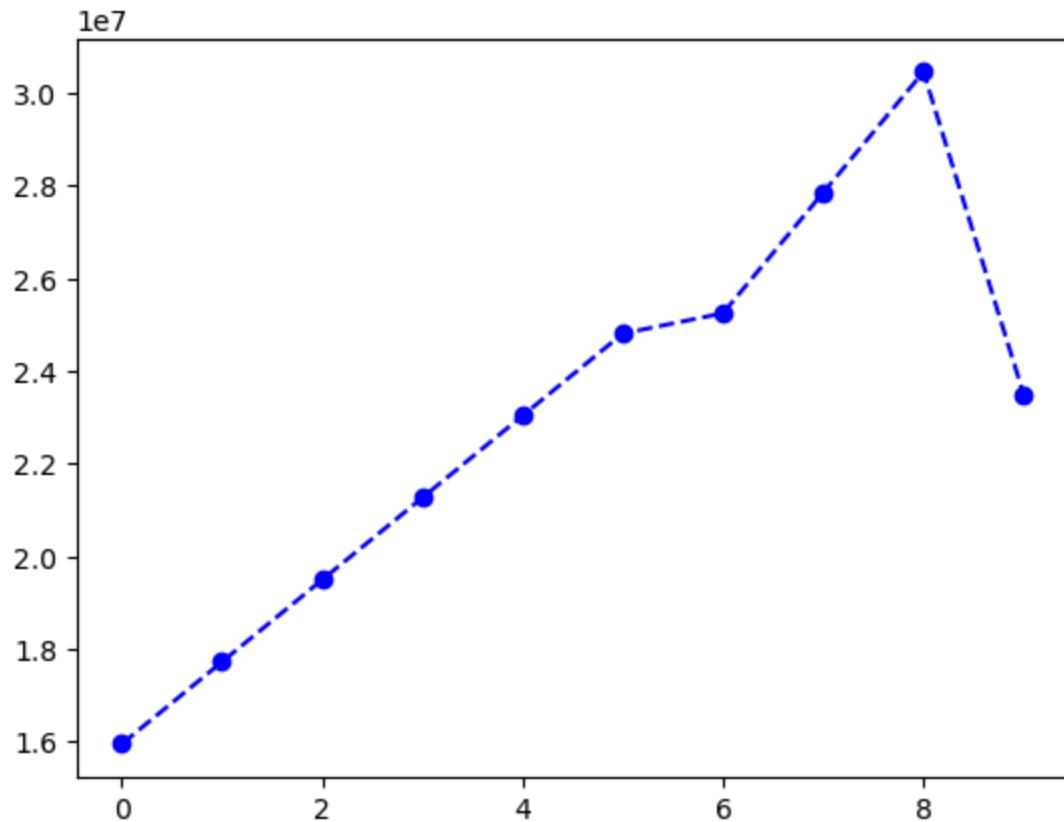
```
In [24]: plt.plot(Salary[0],color='blue',ls='--' ,marker='1')
```

```
Out[24]: [<matplotlib.lines.Line2D at 0x1fa05396d50>]
```



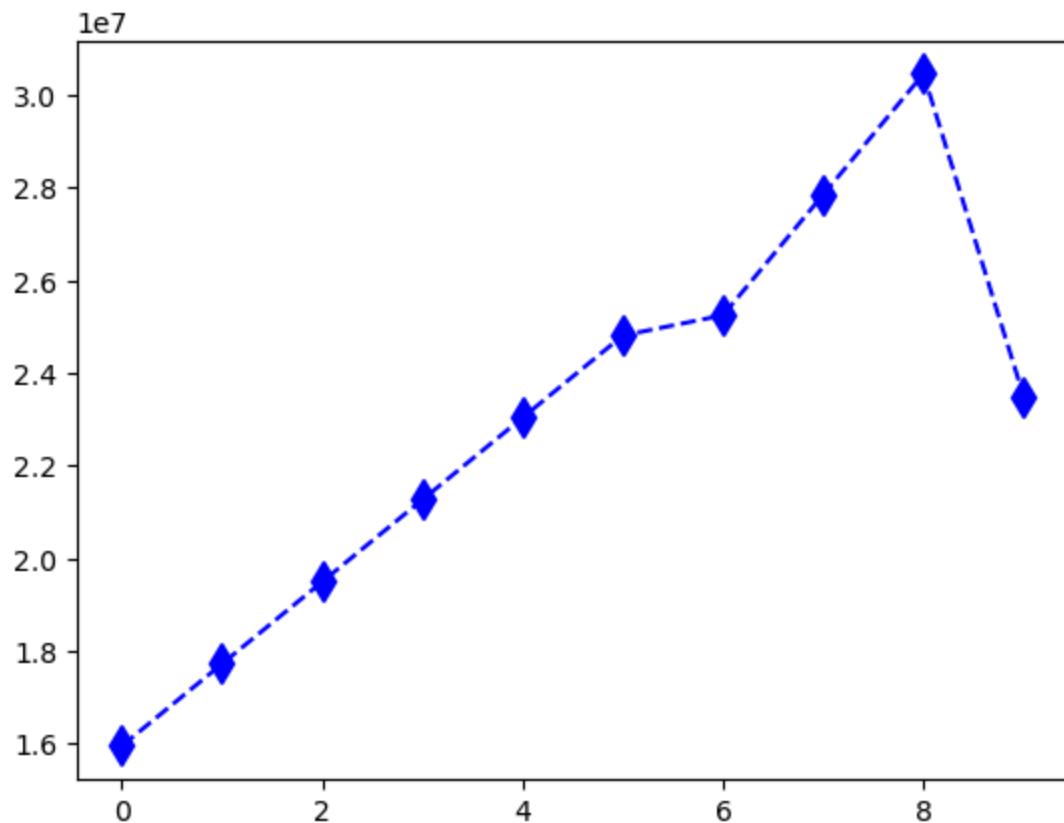
```
In [32]: plt.plot(Salary[0],color='blue',ls='--' ,marker='o')
```

```
Out[32]: [<matplotlib.lines.Line2D at 0x272fa9c5e50>]
```



```
In [25]: plt.plot(Salary[0], color='blue', ls='--', marker='d', ms=10)
```

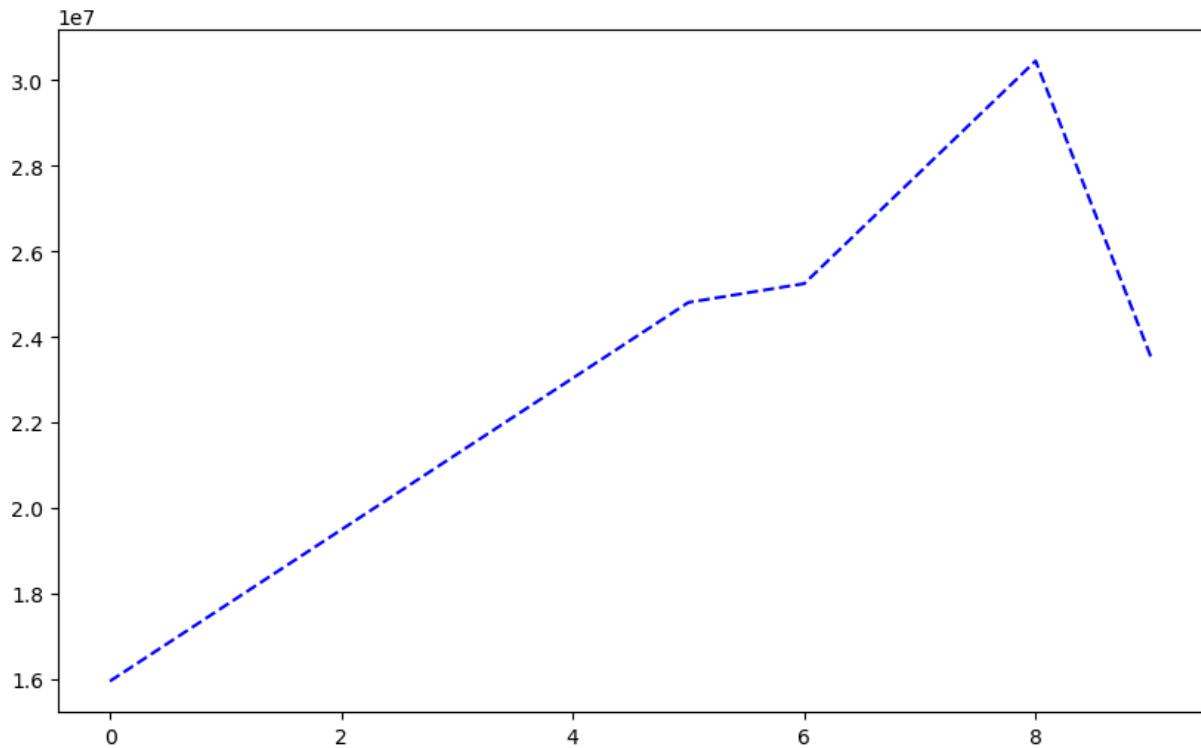
```
Out[25]: [<matplotlib.lines.Line2D at 0x1fa05ca9450>]
```



```
In [76]: plt.rcParams['figure.figsize'] = 5,5
```

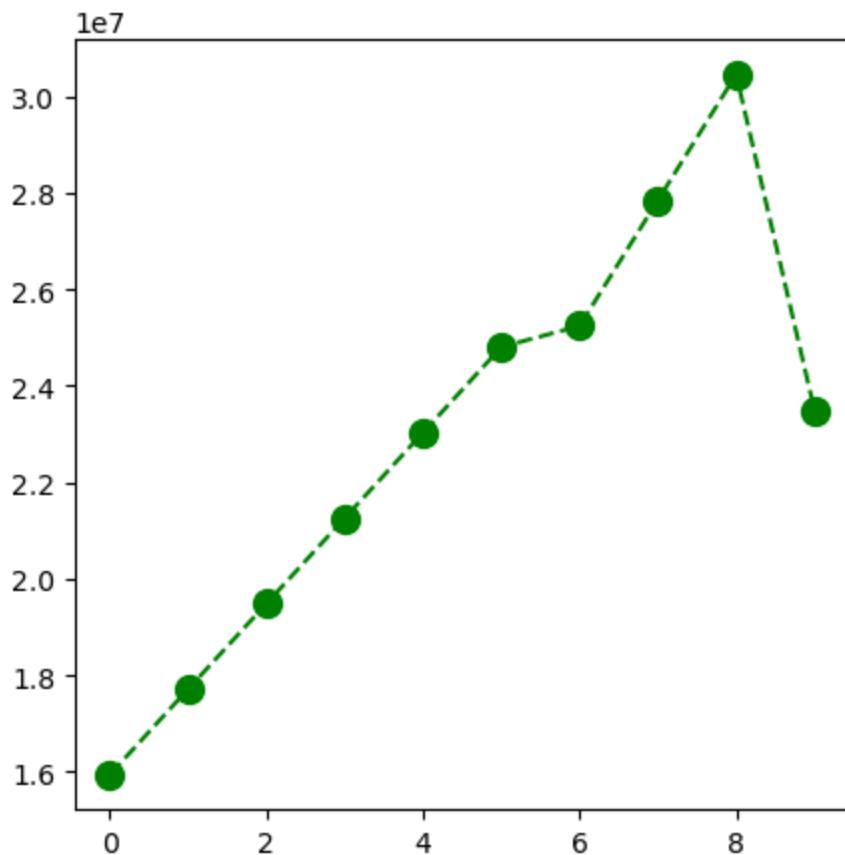
```
In [28]: plt.plot(Salary[0], c='Blue', ls = 'dashed')
```

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



```
In [36]: plt.rcParams['figure.figsize'] = 5,5
```

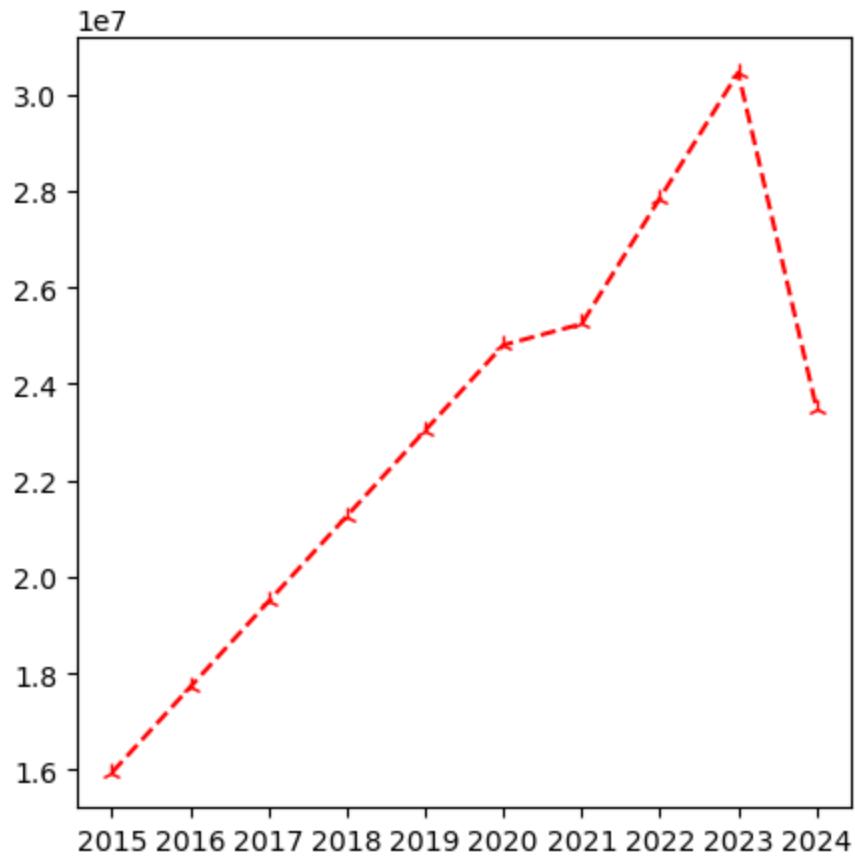
```
In [37]: plt.plot(Salary[0], c='Green', ls = '--', marker = 'o', ms = 10)  
plt.show()
```



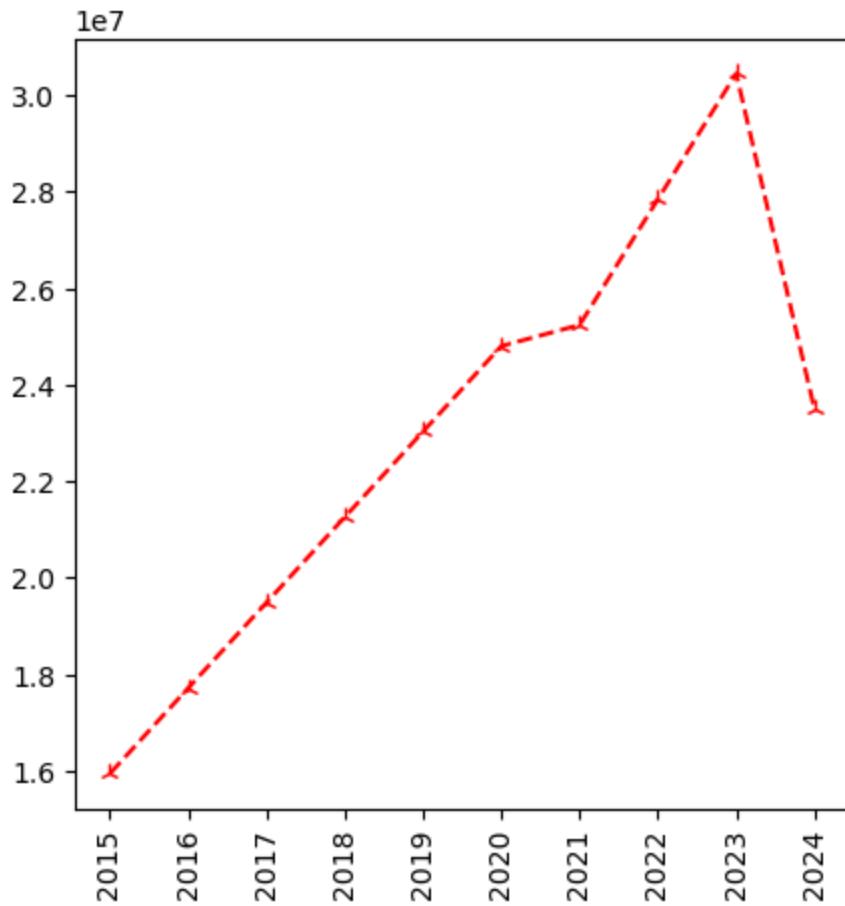
```
In [47]: Pdict
```

```
Out[47]: {'Sachin': 0,
'Rahul': 1,
'Smith': 2,
'Sami': 3,
'Pollard': 4,
'Morris': 5,
'Samson': 6,
'Dhoni': 7,
'Kohli': 8,
'Sky': 9}
```

```
In [49]: plt.plot(Salary[0],c='red',ls='--',marker='2',ms=7)
plt.xticks(list(range(0,10)), Seasons)
plt.show()
```

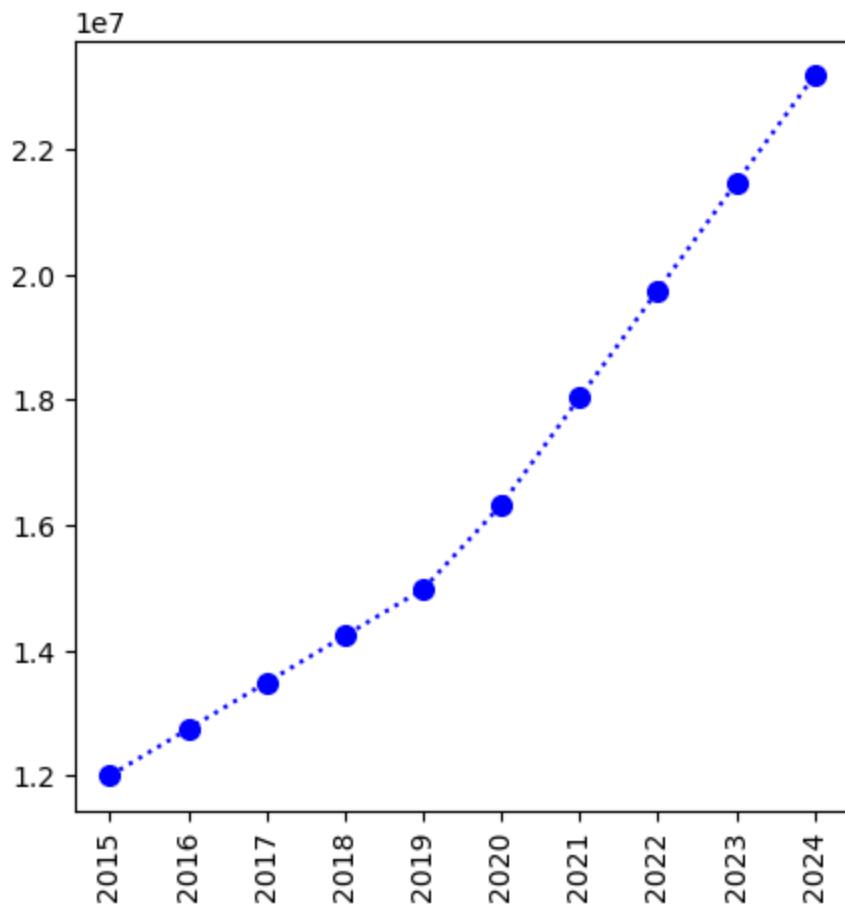


```
In [61]: plt.plot(Salary[0],c='red',ls='--',marker='2',ms=7,label=Players[0])
plt.xticks(list(range(0,10)),Seasons,rotation='vertical')
plt.show()
```

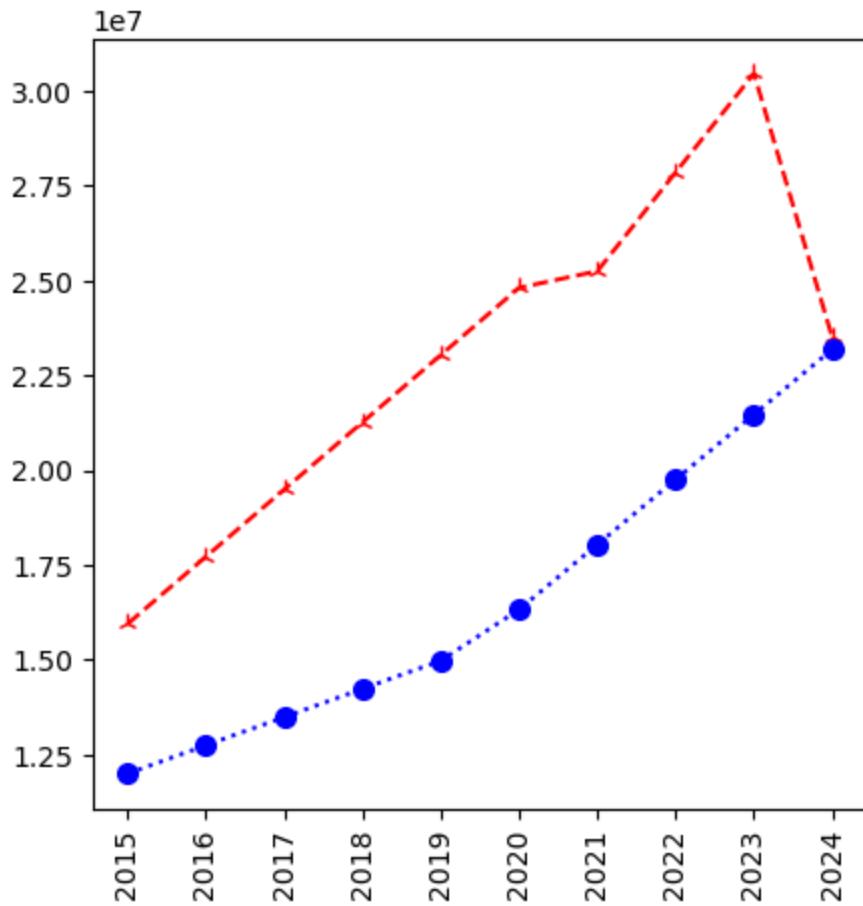


```
In [77]: plt.plot(Salary[1],c='blue',ls=':',marker='o',ms=7,label=Players[1])
plt.xticks(list(range(0,10)),Seasons,rotation='vertical')
plt.rcParams['figure.figsize'] = 5,3

plt.show()
```

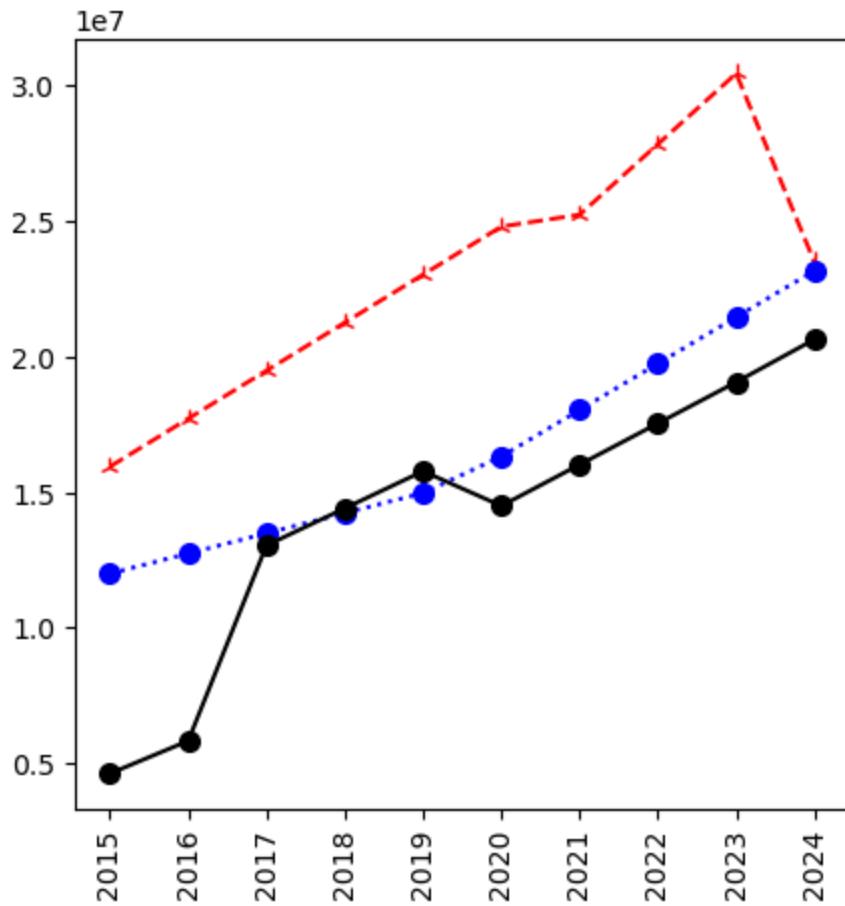


```
In [63]: plt.plot(Salary[0],c='red',ls='--',marker='2',ms=7,label=Players[0])
plt.plot(Salary[1],c='blue',ls=':',marker='o',ms=7,label=Players[1])
plt.xticks(list(range(0,10)),Seasons,rotation='vertical')
plt.show()
```



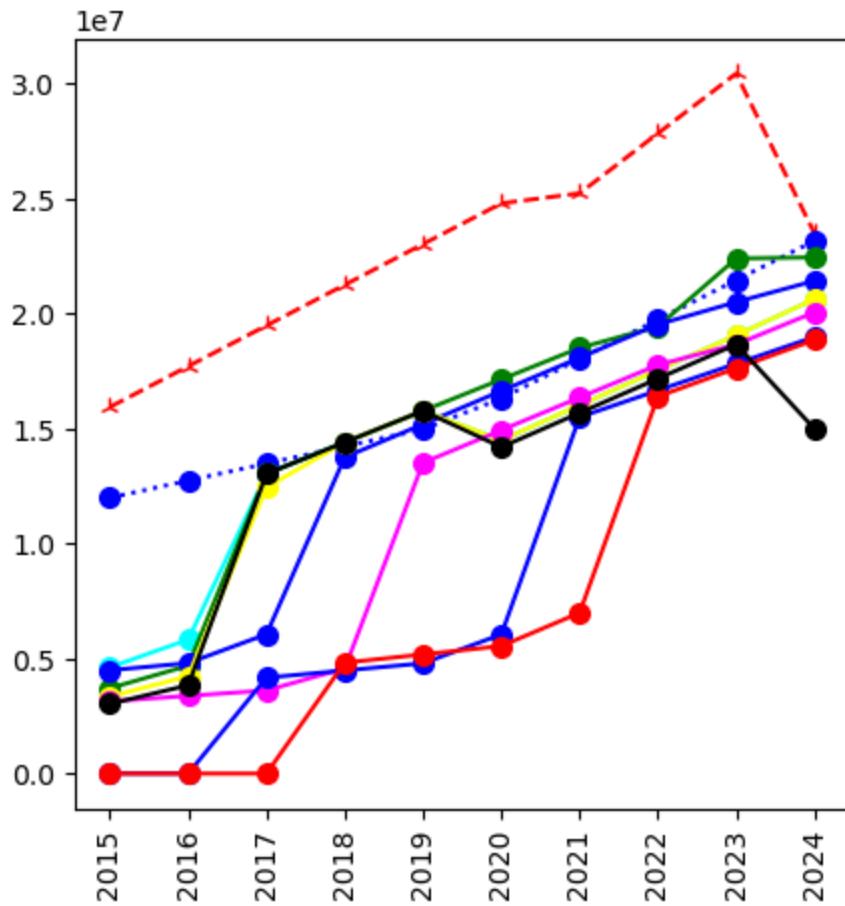
```
In [65]: plt.plot(Salary[0],c='red',ls='--',marker='2',ms=7,label=Players[0])
plt.plot(Salary[1],c='blue',ls=':',marker='o',ms=7,label=Players[1])
plt.plot(Salary[2],c='black',ls='-.',marker='o',ms=7,label=Players[2])

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



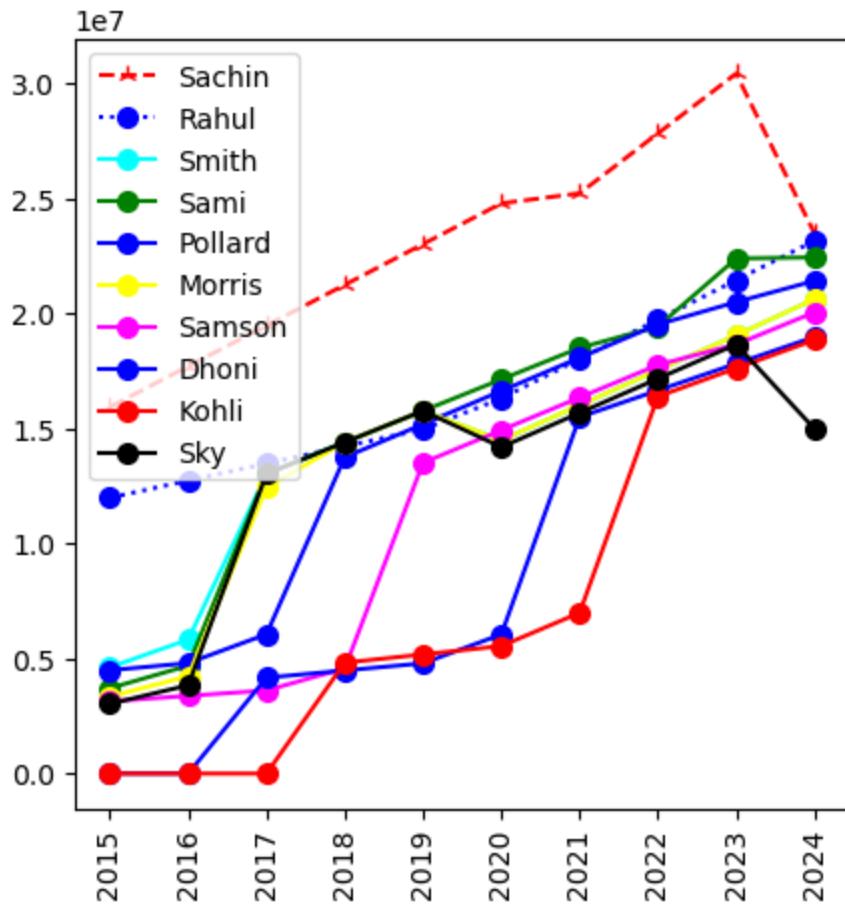
```
In [66]: plt.plot(Salary[0],c='red',ls='--',marker='2',ms=7,label=Players[0])
plt.plot(Salary[1],c='blue',ls=':',marker='o',ms=7,label=Players[1])
plt.plot(Salary[2],c='cyan',ls='-',marker='o',ms=7,label=Players[2])
plt.plot(Salary[3],c='green',ls='-',marker='o',ms=7,label=Players[3])
plt.plot(Salary[4],c='blue',ls='-',marker='o',ms=7,label=Players[4])
plt.plot(Salary[5],c='yellow',ls='-',marker='o',ms=7,label=Players[5])
plt.plot(Salary[6],c='magenta',ls='-',marker='o',ms=7,label=Players[6])
plt.plot(Salary[7],c='blue',ls='-',marker='o',ms=7,label=Players[7])
plt.plot(Salary[8],c='red',ls='-',marker='o',ms=7,label=Players[8])
plt.plot(Salary[9],c='black',ls='-',marker='o',ms=7,label=Players[9])

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



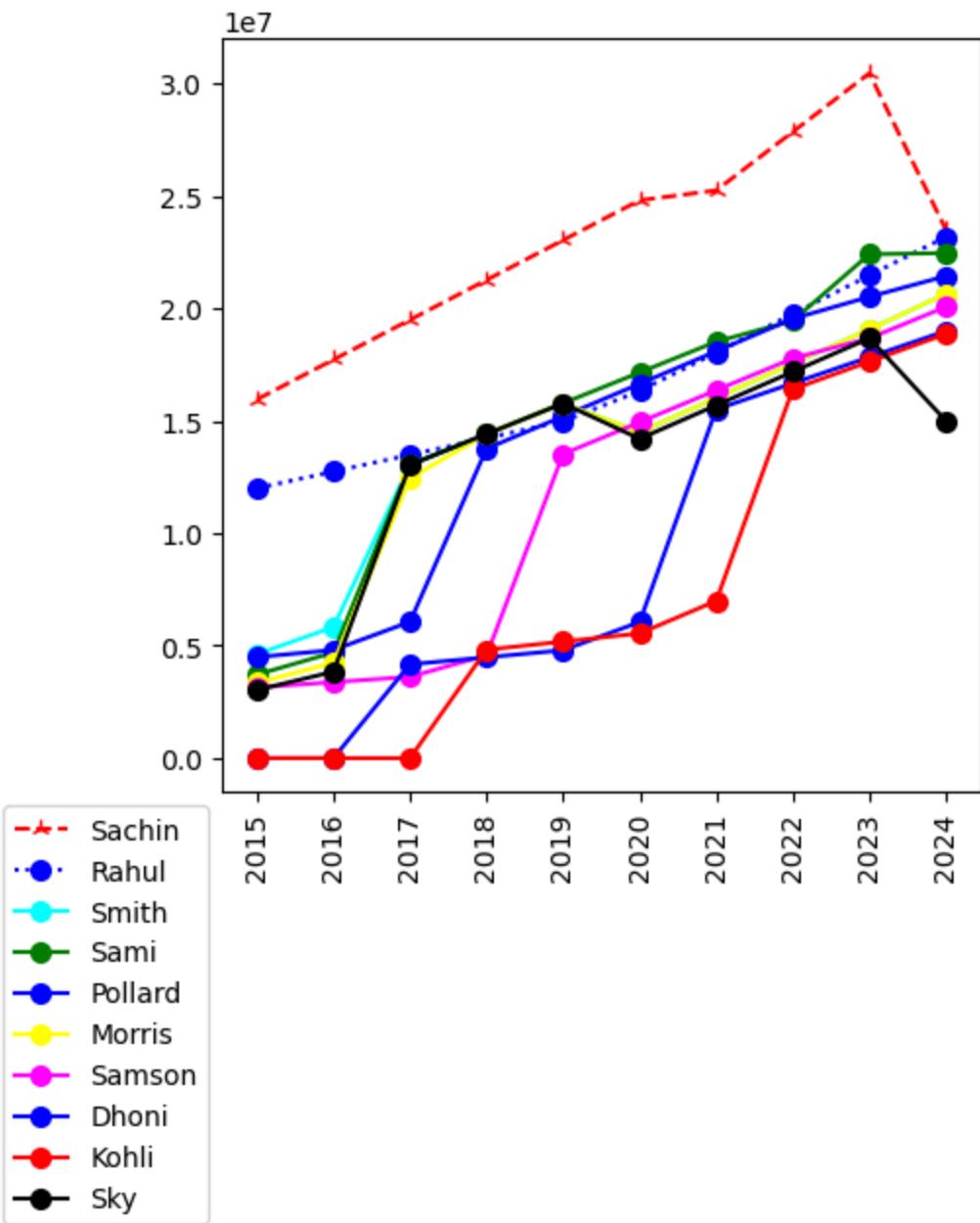
```
In [67]: plt.plot(Salary[0],c='red',ls='--',marker='2',ms=7,label=Players[0])
plt.plot(Salary[1],c='blue',ls=':',marker='o',ms=7,label=Players[1])
plt.plot(Salary[2],c='cyan',ls='-',marker='o',ms=7,label=Players[2])
plt.plot(Salary[3],c='green',ls='-',marker='o',ms=7,label=Players[3])
plt.plot(Salary[4],c='blue',ls='-',marker='o',ms=7,label=Players[4])
plt.plot(Salary[5],c='yellow',ls='-',marker='o',ms=7,label=Players[5])
plt.plot(Salary[6],c='magenta',ls='-',marker='o',ms=7,label=Players[6])
plt.plot(Salary[7],c='blue',ls='-',marker='o',ms=7,label=Players[7])
plt.plot(Salary[8],c='red',ls='-',marker='o',ms=7,label=Players[8])
plt.plot(Salary[9],c='black',ls='-',marker='o',ms=7,label=Players[9])
plt.legend()

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



```
In [75]: plt.plot(Salary[0],c='red',ls='--',marker='2',ms=7,label=Players[0])
plt.plot(Salary[1],c='blue',ls=':',marker='o',ms=7,label=Players[1])
plt.plot(Salary[2],c='cyan',ls='-',marker='o',ms=7,label=Players[2])
plt.plot(Salary[3],c='green',ls='-',marker='o',ms=7,label=Players[3])
plt.plot(Salary[4],c='blue',ls='--',marker='o',ms=7,label=Players[4])
plt.plot(Salary[5],c='yellow',ls='-',marker='o',ms=7,label=Players[5])
plt.plot(Salary[6],c='magenta',ls='--',marker='o',ms=7,label=Players[6])
plt.plot(Salary[7],c='blue',ls='--',marker='o',ms=7,label=Players[7])
plt.plot(Salary[8],c='red',ls='--',marker='o',ms=7,label=Players[8])
plt.plot(Salary[9],c='black',ls='--',marker='o',ms=7,label=Players[9])
plt.legend()
plt.legend(loc = 'best',bbox_to_anchor=(0,0) )

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



In [ ]: