

# 3/11/25

## IPL match data analysis project

In [126...]

```

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, 30518750, 34041250, 37580000, 41125000, 44768750, 48412500, 52162500, 55820000, 59468750, 63245000, 66875000, 70518750, 74162500, 7779912, 81412500, 85062500, 88718750, 92368750, 95912500, 99468750, 102912500, 106468750, 110012500, 113568750, 117162500, 120718750, 124262500, 127812500, 131362500, 134912500, 138462500, 141912500, 145462500, 148912500, 152412500, 155912500, 159412500, 162912500, 166412500, 170012500, 173518750, 177012500, 180518750, 184012500, 187518750, 191012500, 194518750, 198012500, 201518750, 205012500, 208518750, 212012500, 215518750, 219012500, 222518750, 226012500, 229518750, 233012500, 236518750, 240012500, 243518750, 247012500, 250518750, 254012500, 257518750, 261012500, 264518750, 268012500, 271518750, 275012500, 278518750, 282012500, 285518750, 289012500, 292518750, 296012500, 299518750, 303012500, 306518750, 310012500, 313518750, 317012500, 320518750, 324012500, 327518750, 331012500, 334518750, 338012500, 341518750, 345012500, 348518750, 352012500, 355518750, 359012500, 362518750, 366012500, 369518750, 373012500, 376518750, 380012500, 383518750, 387012500, 390518750, 394012500, 397518750, 401012500, 404518750, 408012500, 411518750, 415012500, 418518750, 422012500, 425518750, 429012500, 432518750, 436012500, 439518750, 443012500, 446518750, 450012500, 453518750, 457012500, 460518750, 464012500, 467518750, 471012500, 474518750, 478012500, 481518750, 485012500, 488518750, 492012500, 495518750, 499012500, 502518750, 506012500, 509518750, 513012500, 516518750, 520012500, 523518750, 527012500, 530518750, 534012500, 537518750, 541012500, 544518750, 548012500, 551518750, 555012500, 558518750, 562012500, 565518750, 569012500, 572518750, 576012500, 580518750, 584012500, 587518750, 591012500, 594518750, 598012500, 601518750, 605012500, 608518750, 612012500, 615518750, 619012500, 622518750, 626012500, 629518750, 633012500, 636518750, 640012500, 643518750, 647012500, 650518750, 654012500, 657518750, 661012500, 664518750, 668012500, 671518750, 675012500, 678518750, 682012500, 685518750, 689012500, 692518750, 696012500, 699518750, 703012500, 706518750, 710012500, 713518750, 717012500, 720518750, 724012500, 727518750, 731012500, 734518750, 738012500, 741518750, 745012500, 748518750, 752012500, 755518750, 759012500, 762518750, 766012500, 769518750, 773012500, 776518750, 780012500, 783518750, 787012500, 790518750, 794012500, 797518750, 801012500, 804518750, 808012500, 811518750, 815012500, 818518750, 822012500, 825518750, 829012500, 832518750, 836012500, 839518750, 843012500, 846518750, 850012500, 853518750, 857012500, 860518750, 864012500, 867518750, 871012500, 874518750, 878012500, 881518750, 885012500, 888518750, 892012500, 895518750, 899012500, 902518750, 906012500, 909518750, 913012500, 916518750, 920012500, 923518750, 927012500, 930518750, 934012500, 937518750, 941012500, 944518750, 948012500, 951518750, 955012500, 958518750, 962012500, 965518750, 969012500, 972518750, 976012500, 979518750, 983012500, 986518750, 990012500, 993518750, 997012500, 1000012500]

#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]

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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 [128...]

Salary

```
Out[128... 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 [130...]

Games

```
Out[130... 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 [132...]

Points

```
Out[132... 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 [134...]

Sdict

```
Out[134... {'2015': 0,
 '2016': 1,
 '2017': 2,
 '2018': 3,
 '2019': 4,
 '2020': 5,
 '2021': 6,
 '2022': 7,
 '2023': 8,
 '2024': 9}
```

In [136... Pdict

```
Out[136... {'Sachin': 0,
 'Rahul': 1,
 'Smith': 2,
 'Sami': 3,
 'Pollard': 4,
 'Morris': 5,
 'Samson': 6,
 'Dhoni': 7,
 'Kohli': 8,
 'Sky': 9}
```

In [138... Games[5]

```
Out[138... array([70, 69, 67, 77, 70, 77, 57, 74, 79, 44])
```

In [140... Games[5,3]

```
Out[140... 77
```

In [142... Salary

```
Out[142... 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 [144... Salary[0]

Out[144... array([15946875, 17718750, 19490625, 21262500, 23034375, 24806250, 25244493, 27849149, 30453805, 23500000])

In [146... Games[0]

Out[146... array([80, 77, 82, 82, 73, 82, 58, 78, 6, 35])

In [148... Salary[0] / Games[0] # salary of 1 match

Out[148... array([ 199335.9375 , 230113.63636364, 237690.54878049, 259298.7804878 , 315539.38356164, 302515.24390244, 435249.87931034, 357040.37179487, 5075634.16666667, 671428.57142857])

In [150... np.round(Salary[0] / Games[0])

Out[150... array([ 199336., 230114., 237691., 259299., 315539., 302515., 435250., 357040., 5075634., 671429.])

## visualize the data

In [153... #to ignore os unwanted error write the code as ignore all  
import warnings  
warnings.filterwarnings('ignore')

In [155... import matplotlib.pyplot as plt

In [157... Salary[0]

Out[157... array([15946875, 17718750, 19490625, 21262500, 23034375, 24806250, 25244493, 27849149, 30453805, 23500000])

In [159... plt.plot(Salary[0])

Out[159... [`<matplotlib.lines.Line2D at 0x2227b2440e0>`]

In [161... plt.plot(Salary[0],color='k') #k-black

Out[161... [`<matplotlib.lines.Line2D at 0x2227b25d430>`]

In [163... plt.plot(Salary[0],color='k',linestyle='--')

Out[163... [`<matplotlib.lines.Line2D at 0x2227b1f1c10>`]

In [164... plt.plot(Salary[0],color='k',linestyle='--',marker='o')

Out[164... [`<matplotlib.lines.Line2D at 0x2227b1f2f30>`]

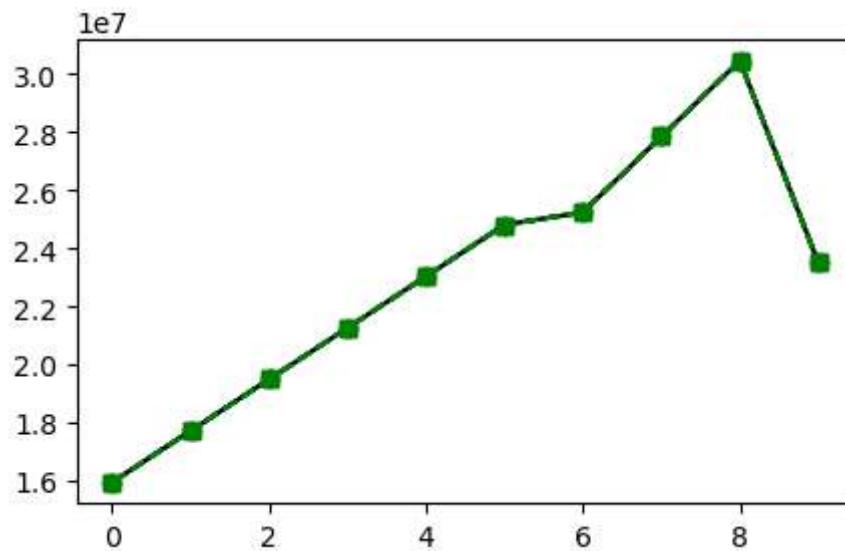
In [165... plt.plot(Salary[0],color='g',linestyle='--',marker='s')

```
Out[165... [<matplotlib.lines.Line2D at 0x2227b25ccb0>]
```

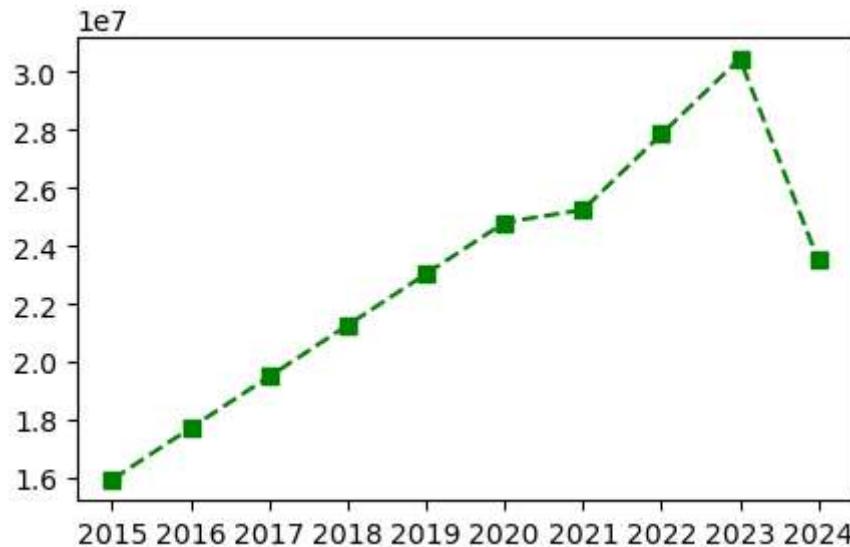
```
In [166... %matplotlib inline
```

```
In [167... plt.rcParams['figure.figsize']=5,3
```

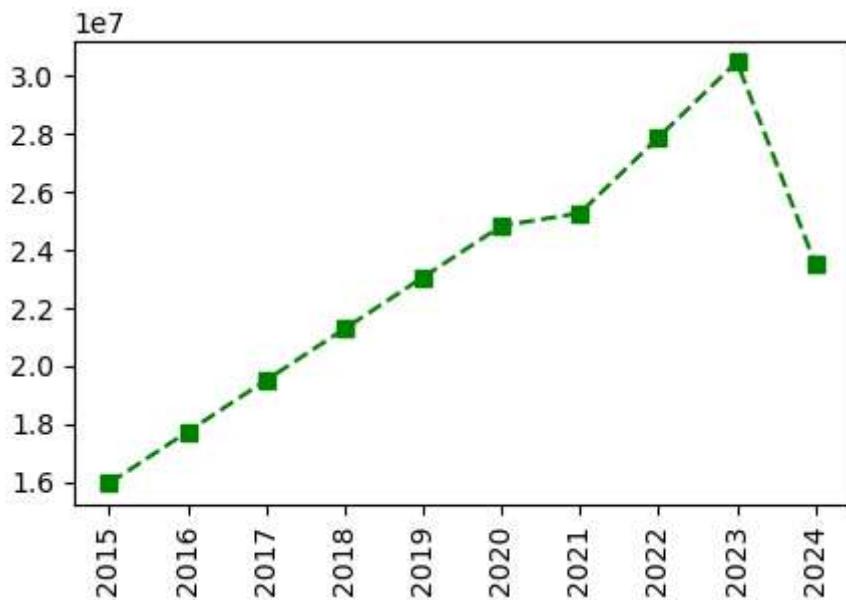
```
In [168... plt.plot(Salary[0],color='g',linestyle='--',marker='s')
plt.show()
```



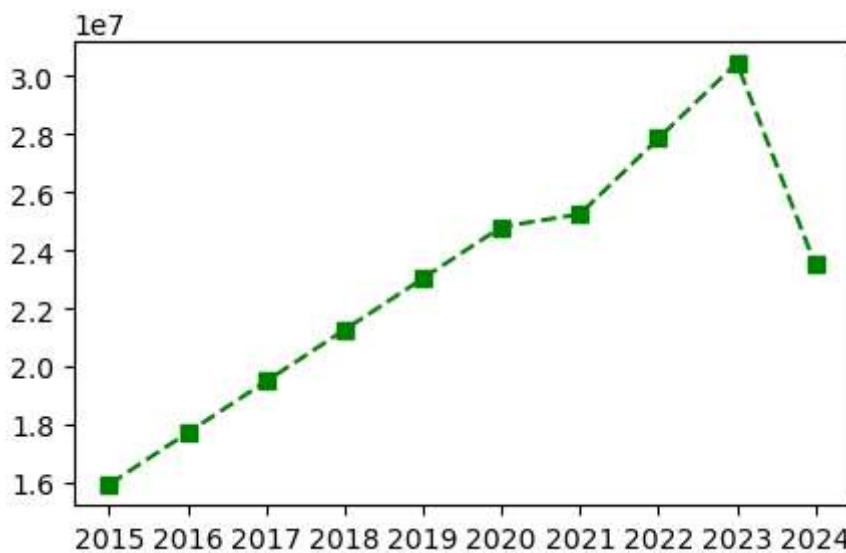
```
In [171... plt.plot(Salary[0],color='g',linestyle='--',marker='s')
plt.xticks(list(range(0,10)),Seasons)
plt.show()
```



```
In [176... plt.plot(Salary[0],color='g',linestyle='--',marker='s')
plt.xticks(list(range(0,10)),Seasons,rotation='vertical')
plt.show()
```



```
In [179]: plt.plot(Salary[0], color='g', linestyle='--', marker='s')
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, 23500000])
```

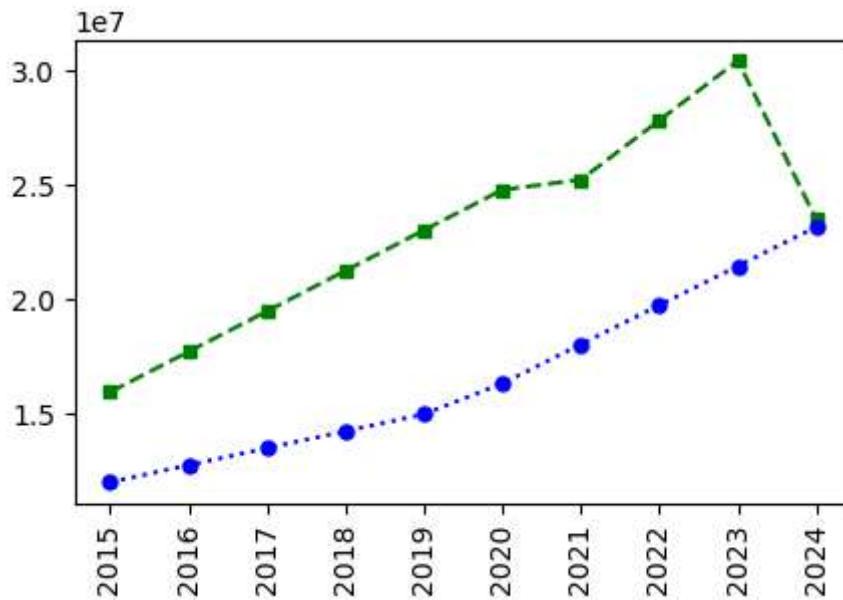
```
In [183]: Salary[1]
```

```
Out[183]: array([12000000, 12744189, 13488377, 14232567, 14976754, 16324500,
18038573, 19752645, 21466718, 23180790])
```

```
In [185]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 5, label = Players[0])
plt.plot(Salary[1], c='Blue', ls = ':', marker = 'o', ms = 5, label = Players[1] )

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

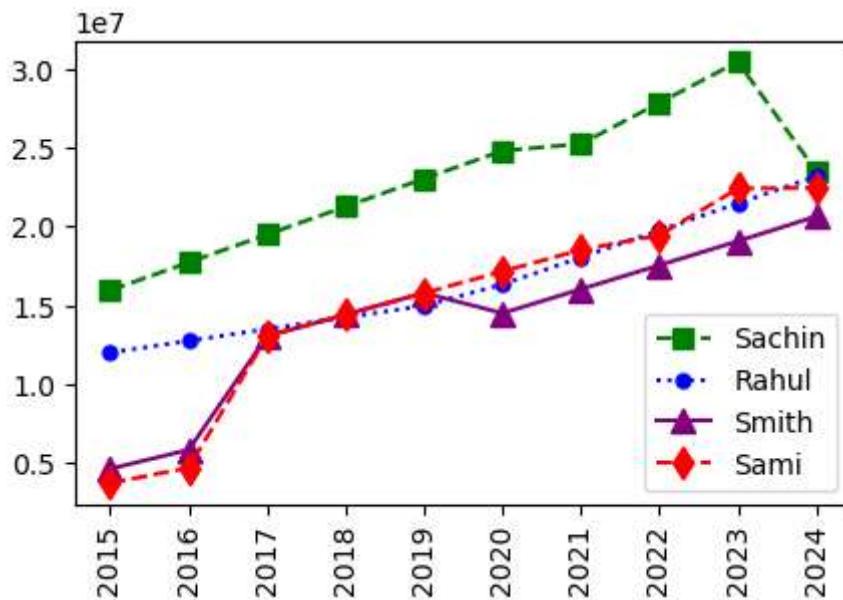
```
plt.show()
```



In [187...]: # how to add legend 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')

plt.show()
```

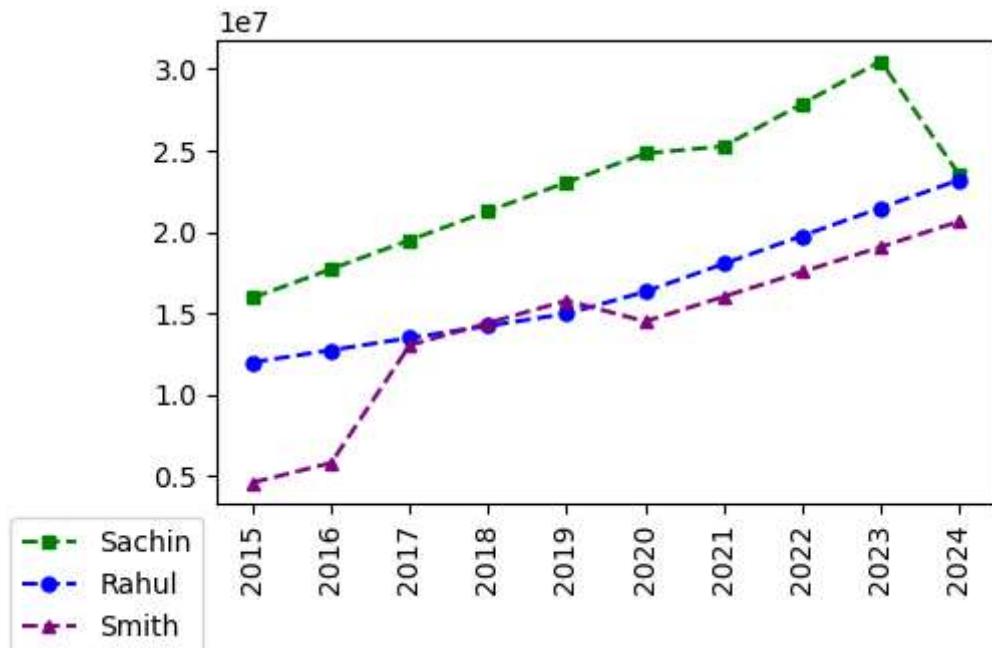


In [188...]:

```
plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 5, 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 = 5, label = Players[2])
```

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

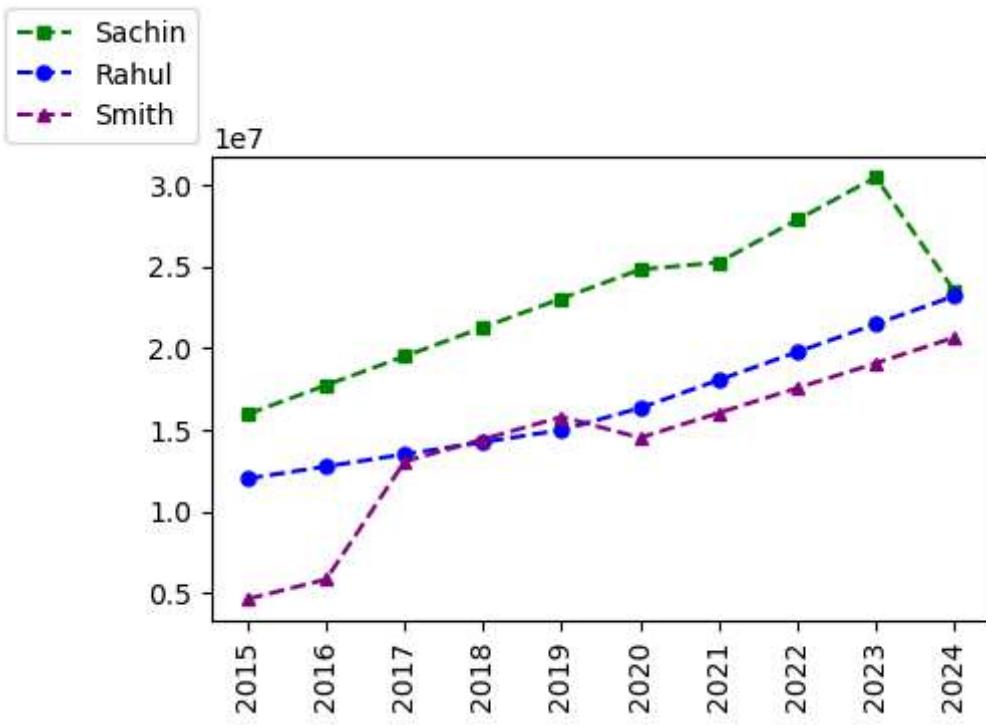
plt.show()
```



```
In [113...]: plt.plot(Salary[0], c='Green', ls = '--', marker = 's', ms = 5, 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 = 5, label = Players[2])

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

plt.show()
```

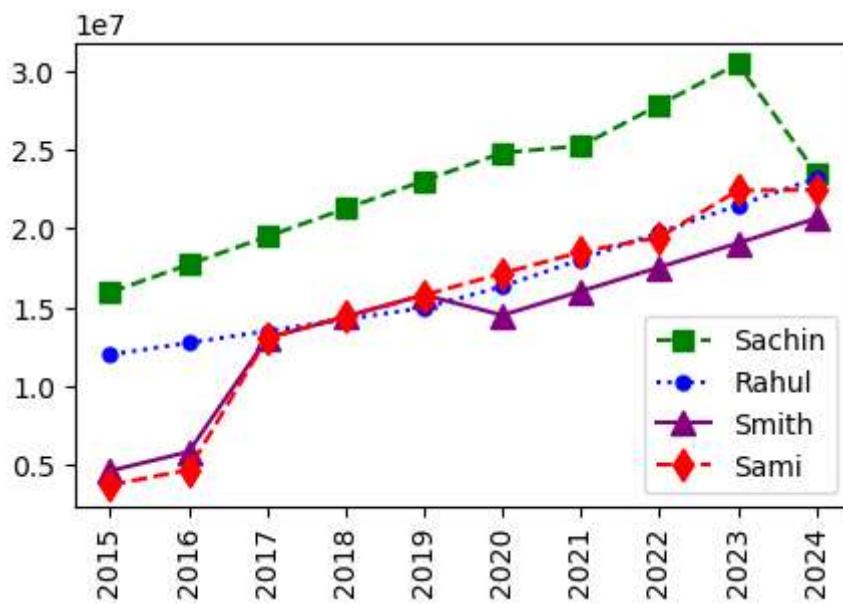


In [119...]

```
# how to add Legend 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')

plt.show()
```



In [114...]

```
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])
```

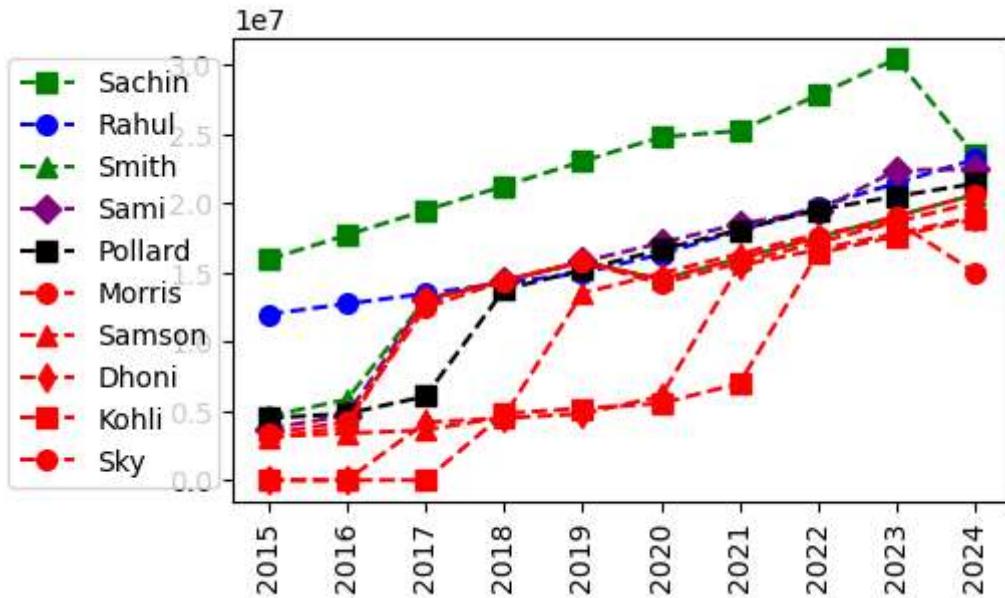
```

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

plt.show()

```



In [116...]

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

plt.show()

```

