

```
In [1]: #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", "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, 26000000, 27744189, 29488377, 31232567, 32976754, 346324500, 36038573, 371, 3821800, 39828090, 413041250, 424410581, 435779912, 441500000, 45022500, 46175, 47313640, 48694041, 493041250, 504410581, 515779912, 52149243, 538518574, 541945, 55493160, 56806720, 576061274, 58758000, 5915202590, 6016647180, 6118091770, 6219, 63348000, 64235220, 6512455000, 6614410581, 675779912, 6814500000, 6916022500, 70175, 713144240, 723380160, 733615960, 744574189, 7513520500, 7614940153, 7716359805, 781777, 791Dhoni_Salary = [0, 0, 4171200, 4484040, 4796880, 6053663, 15506632, 16669630, 17832627, 18862875, 19Kohli_Salary = [0, 0, 0, 4822800, 5184480, 5546160, 6993708, 16402500, 17632688, 18862875, 191Sky_Salary = [3031920, 3841443, 4613041250, 5414410581, 6215779912, 7014200000, 7815691000, 8617182, 94#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]: 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]: 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[1]

```
Out[5]: array([82, 57, 82, 79, 76, 72, 60, 72, 79, 80])
```

In [6]: Games[0:6]

```
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]]))
```

```
In [7]: Games[0,6]
```

```
Out[7]: 58
```

```
In [8]: Salary
```

```
Out[8]: 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 [9]: Games
```

```
Out[9]: 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 [10]: Salary / Games
```

```
C:\Users\Tharuni\AppData\Local\Temp\ipykernel_19668\1572766764.py:1: RuntimeWarning: divide by zero encountered in divide
    Salary / Games
```

```
Out[10]: 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 [11]: np.round(Salary//Games)
```

```
C:\Users\Tharuni\AppData\Local\Temp\ipykernel_19668\3663165759.py:1: RuntimeWarning: divide by zero encountered in floor_divide
np.round(Salary//Games)
```

```
Out[11]: 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 [12]: import warnings
warnings.filterwarnings('ignore') #to ignore unknown errors cause by OS monthly
```

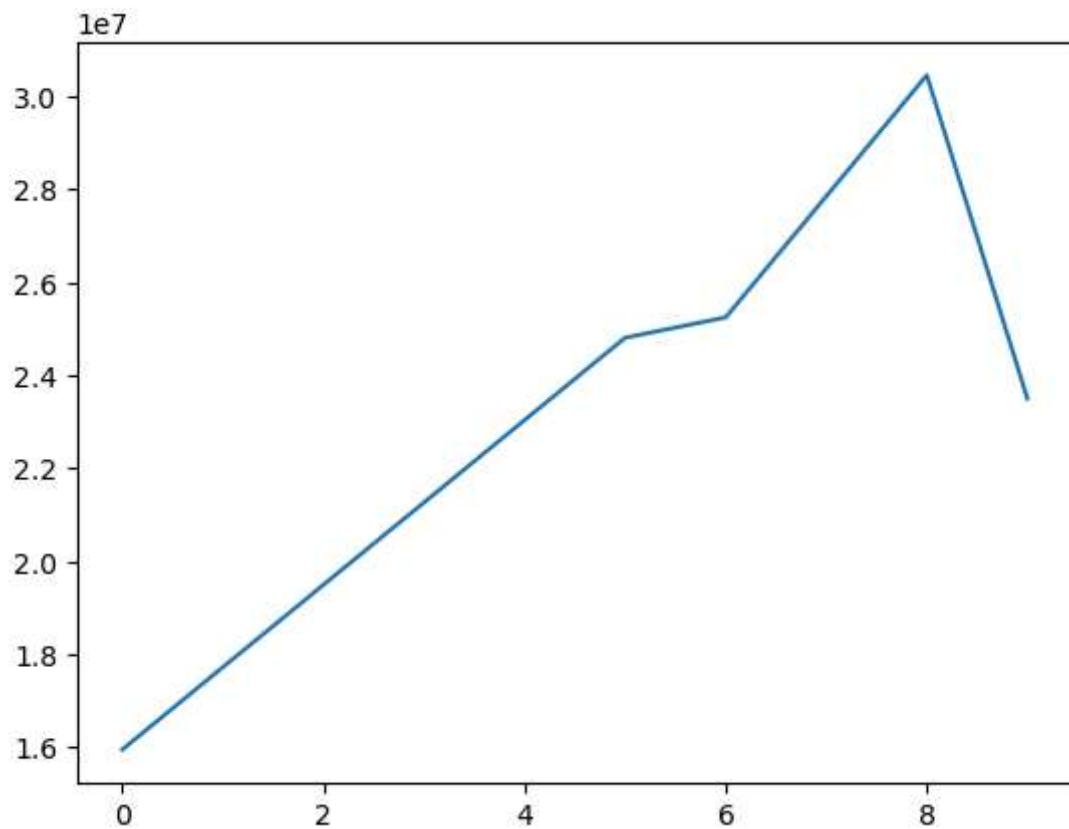
```
In [13]: import matplotlib.pyplot as plt
import numpy as np
```

```
In [14]: Salary[0]
```

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

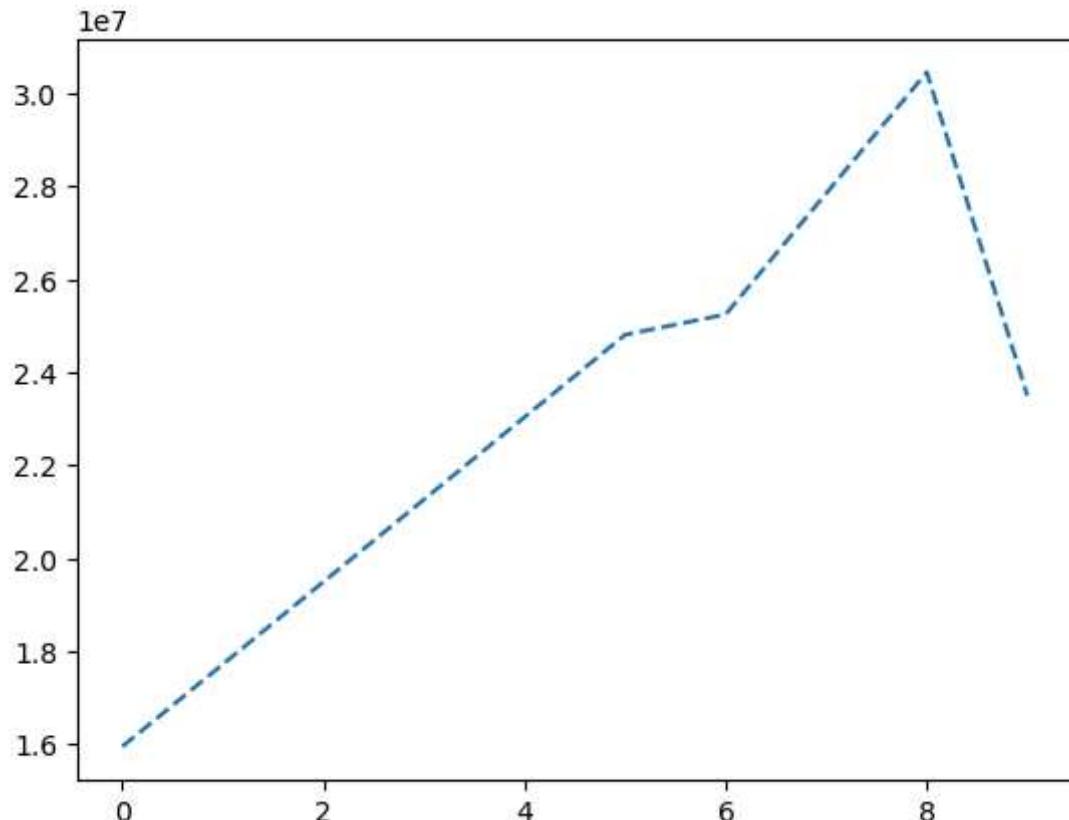
```
In [15]: plt.plot(Salary[0])
#plt.show()#any method works both plot and show works
```

```
Out[15]: [
```



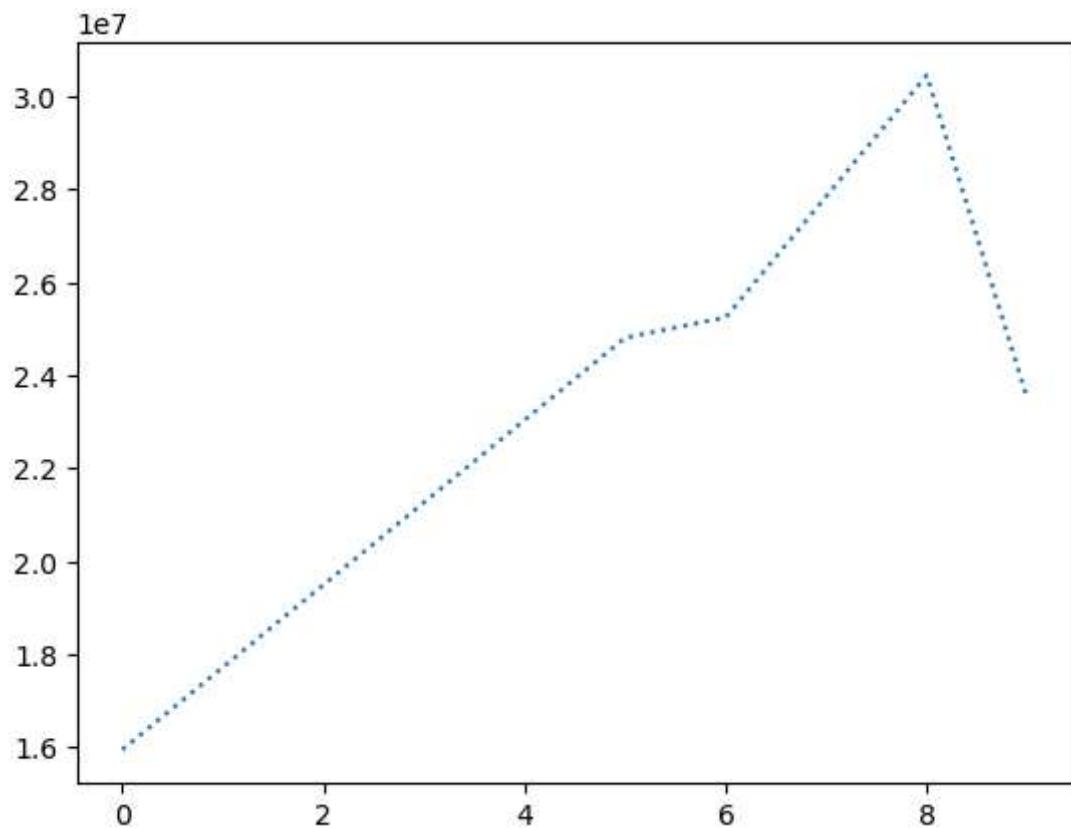
```
In [16]: plt.plot(Salary[0], ls = '--')
```

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



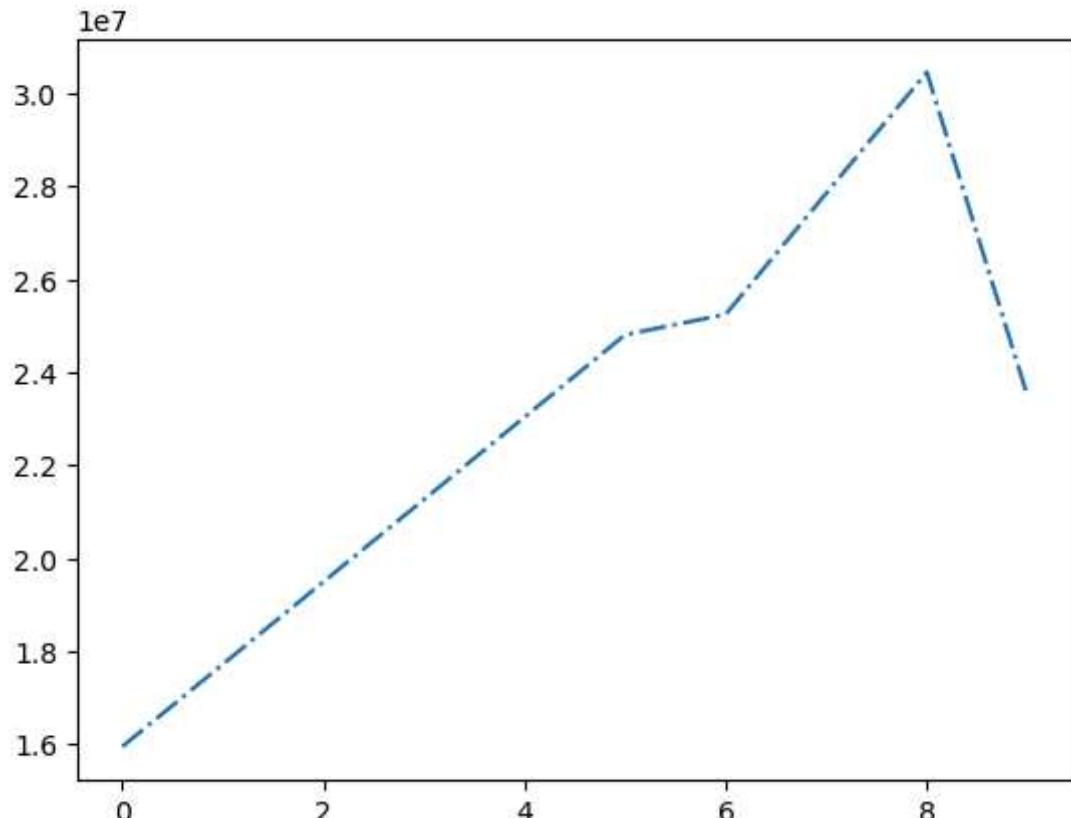
```
In [17]: plt.plot(Salary[0], ls = ':')
```

```
Out[17]: [
```



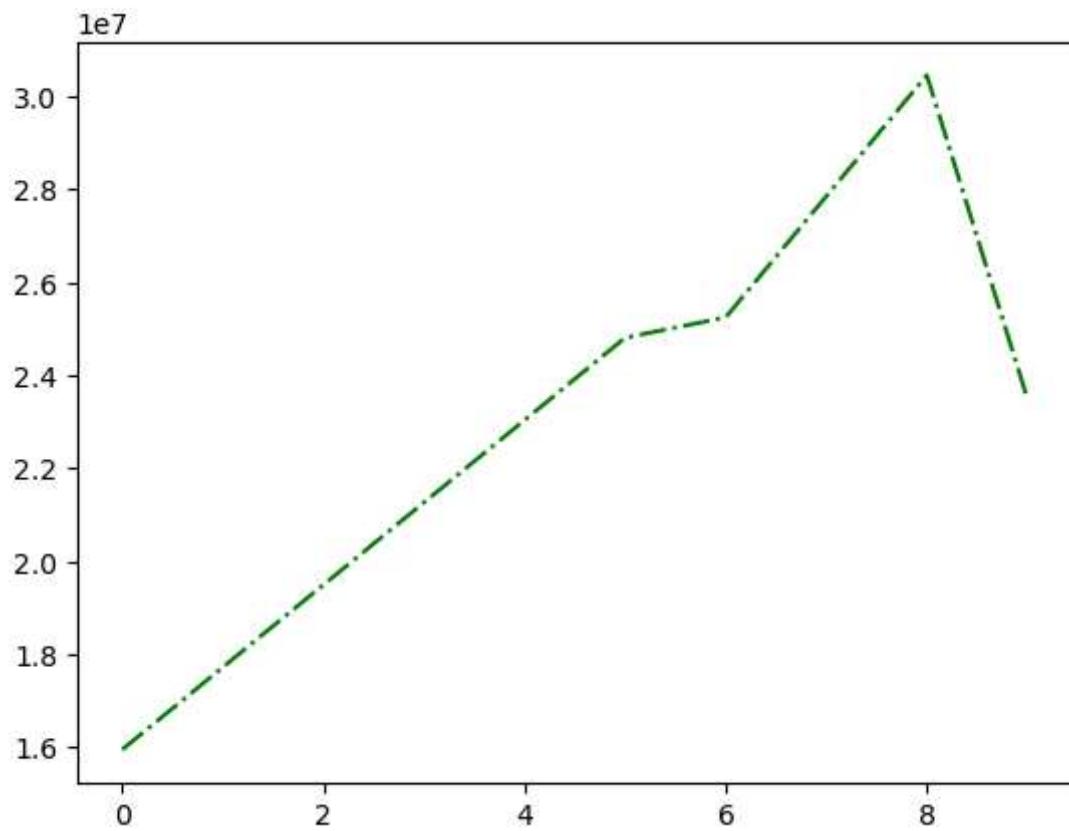
```
In [18]: plt.plot(Salary[0], ls = '-.')
```

```
Out[18]: [
```



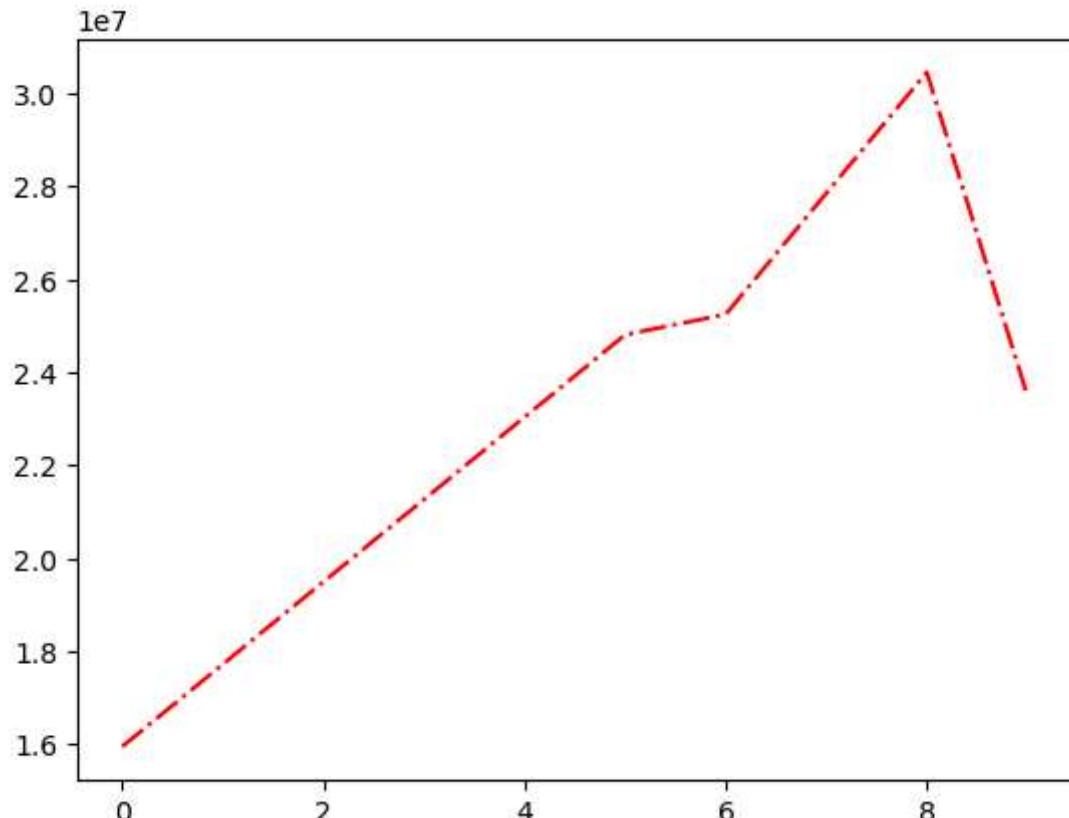
```
In [19]: plt.plot(Salary[0], ls = '-.', color = 'green')
```

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



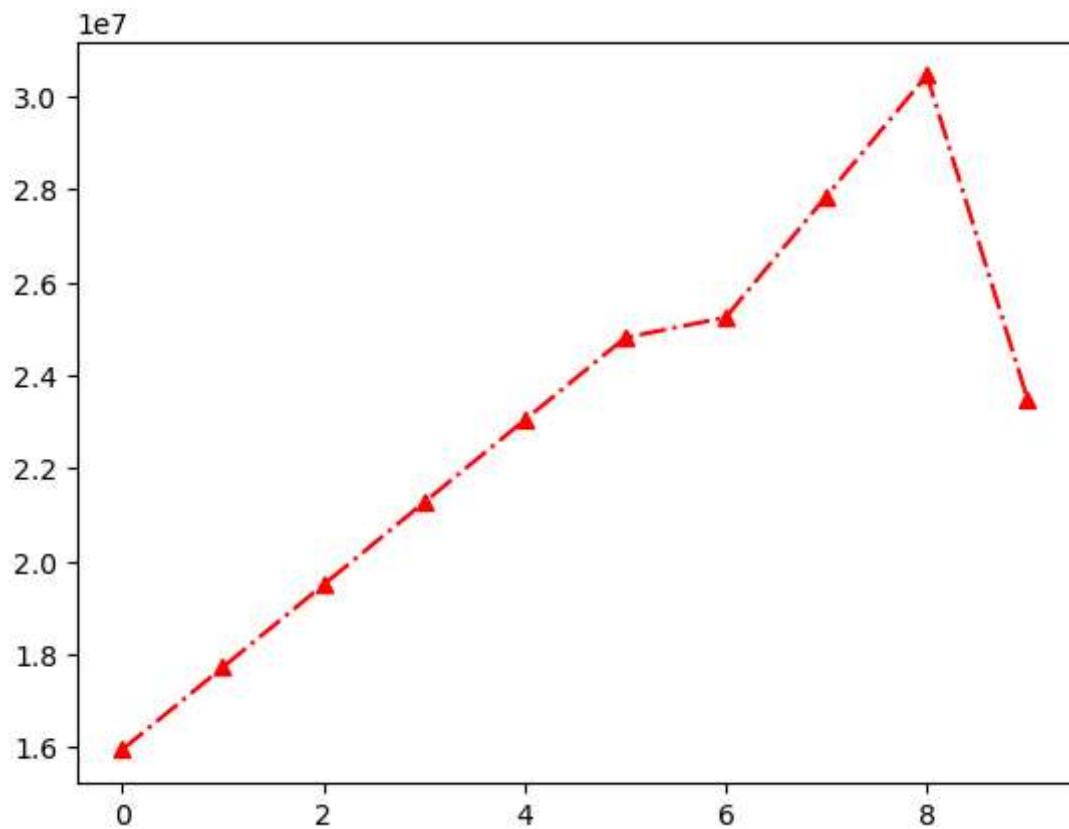
```
In [20]: plt.plot(Salary[0], ls = '-.', color='red')
```

```
Out[20]: [
```



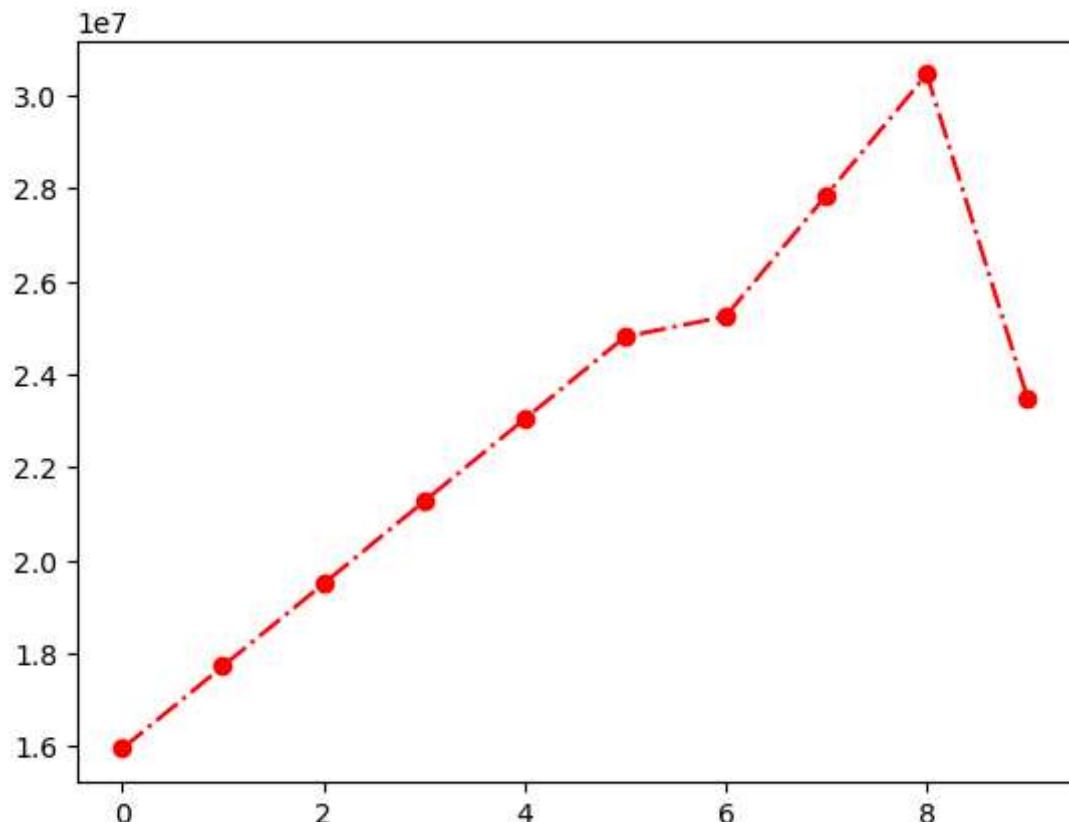
```
In [21]: plt.plot(Salary[0], ls = '-.', color='red', marker = '^')
```

```
Out[21]: [
```



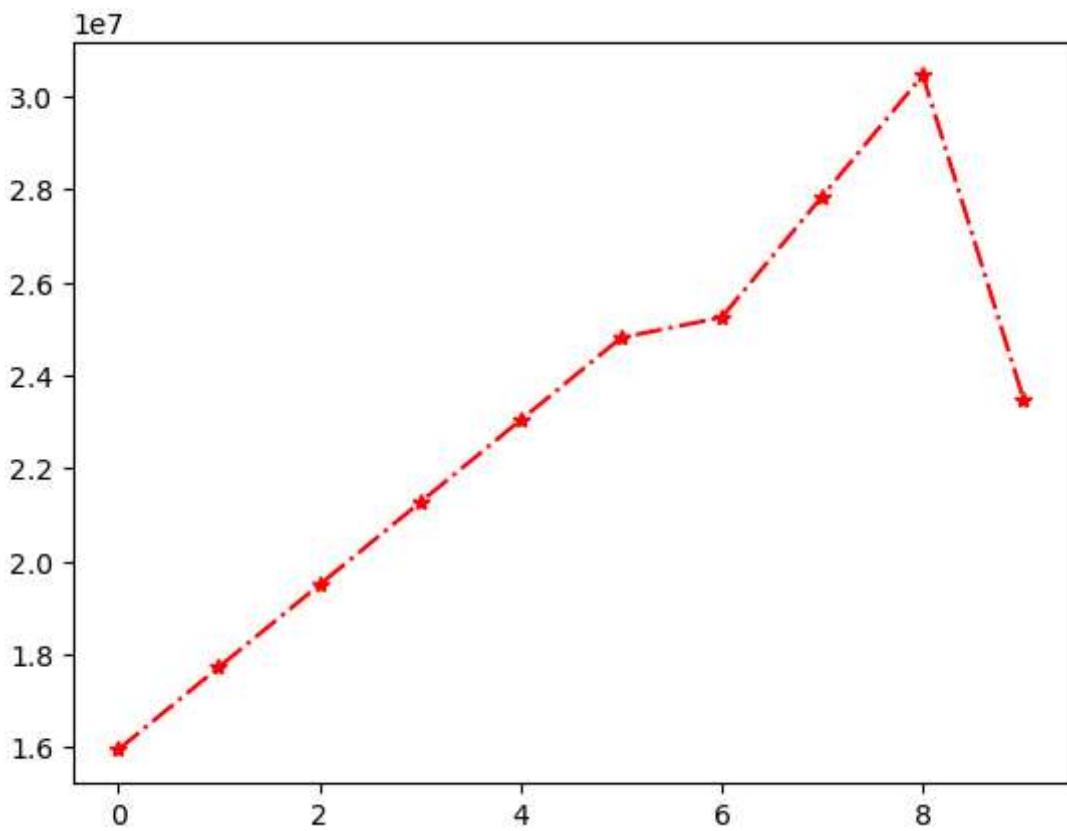
```
In [22]: plt.plot(Salary[0], ls = '-.', color='red', marker = 'o')
```

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



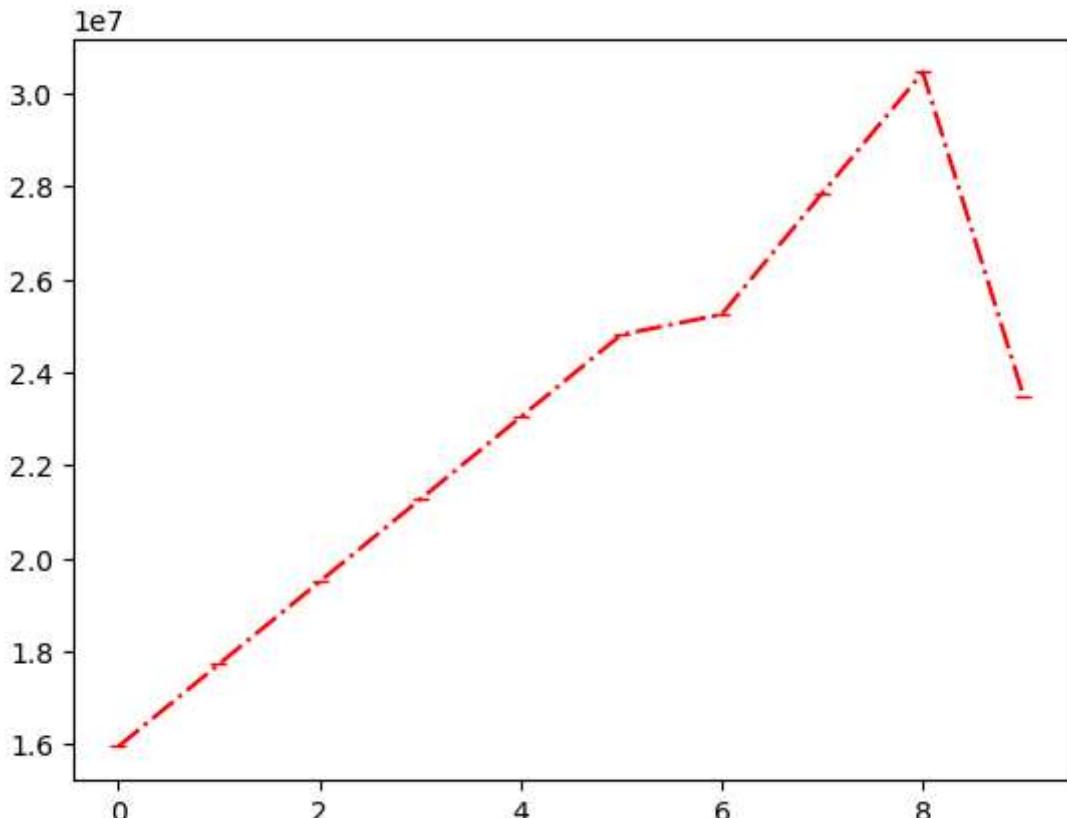
```
In [23]: plt.plot(Salary[0], ls = '-.', color='red', marker = '*')
```

```
Out[23]: [
```



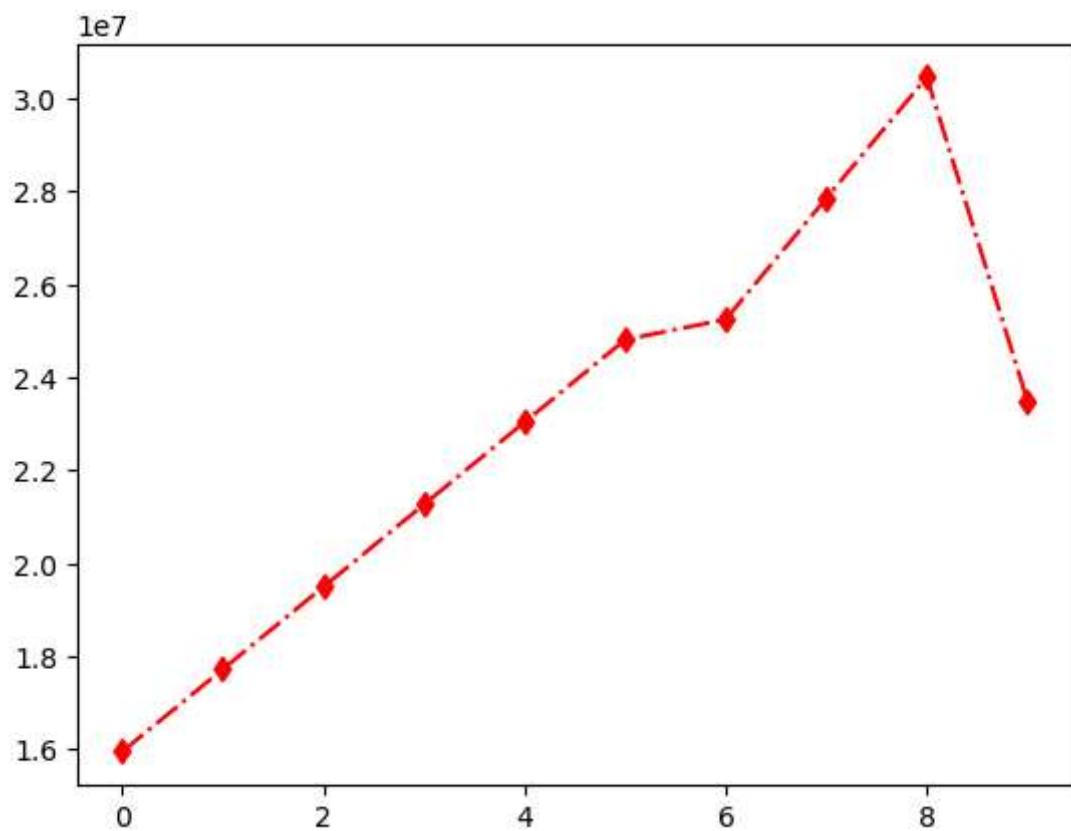
```
In [24]: plt.plot(Salary[0], ls = '-.', color='red', marker = '_')
```

```
Out[24]: []
```



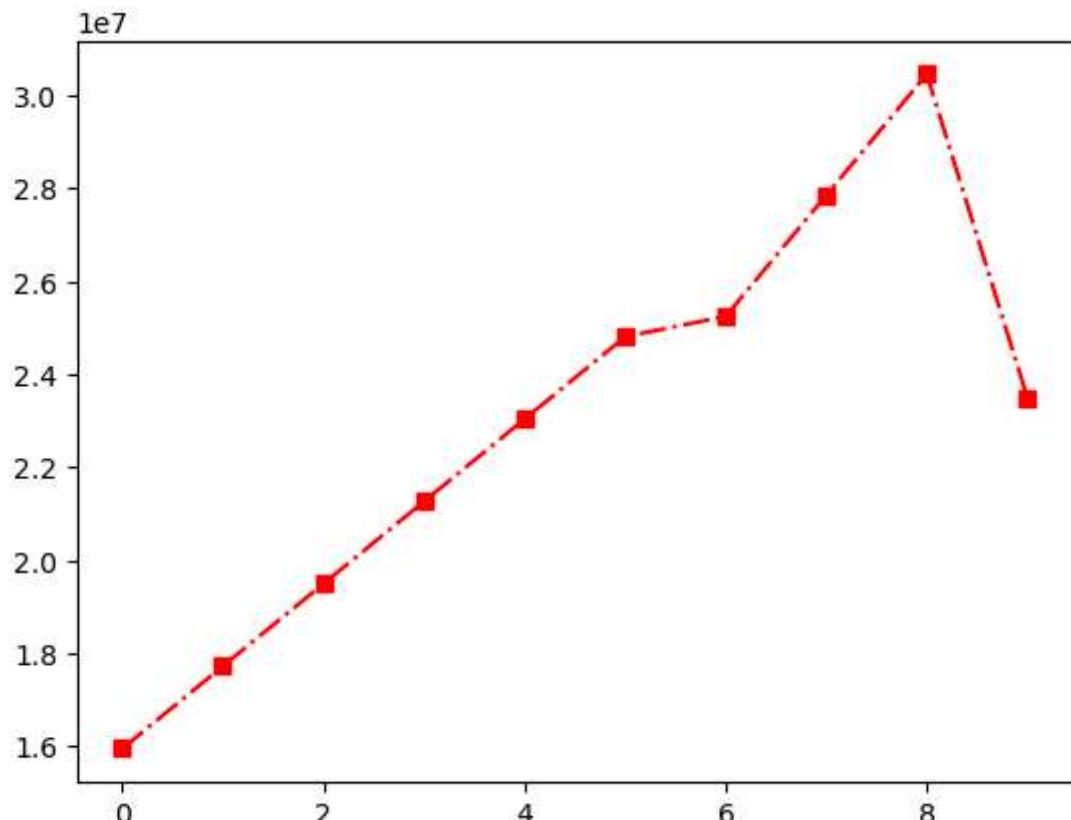
```
In [25]: plt.plot(Salary[0], ls = '-.', color='red', marker = 'd')
```

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



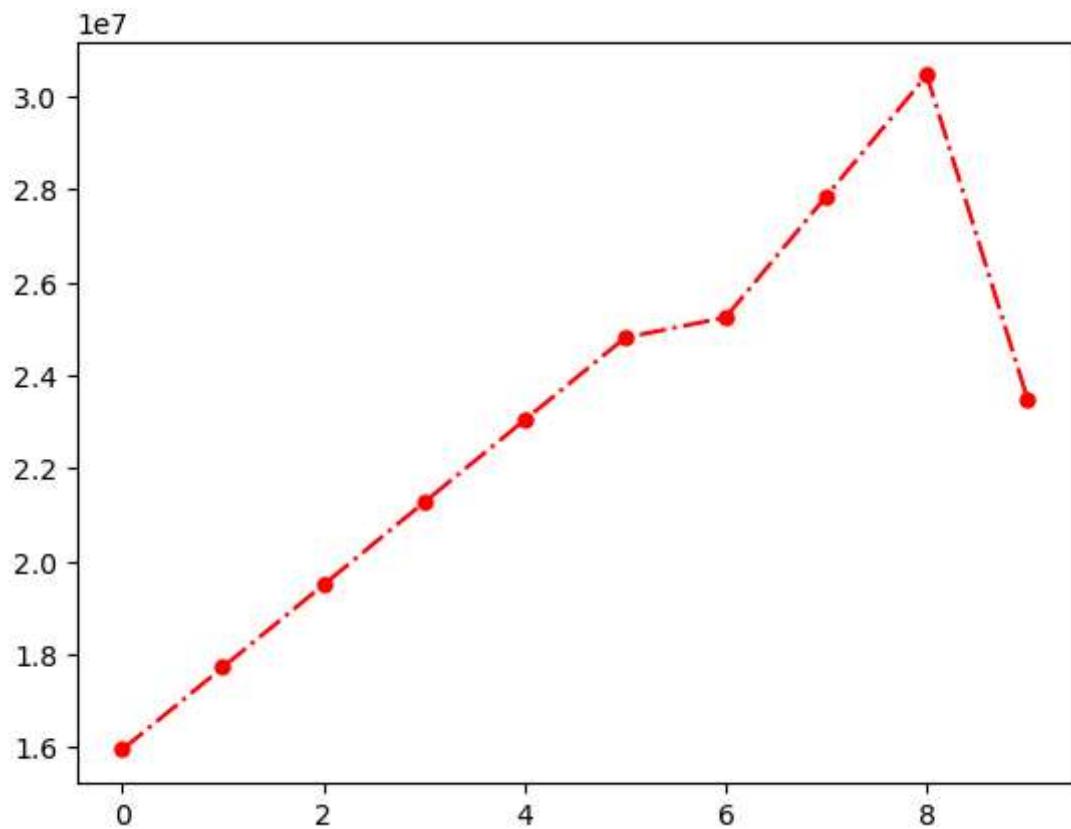
```
In [26]: plt.plot(Salary[0], ls = '-.', color='red', marker = 's')
```

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



```
In [27]: plt.plot(Salary[0], ls = '-.', color='red', marker = 'o', ms=5)#ms is marker size
```

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



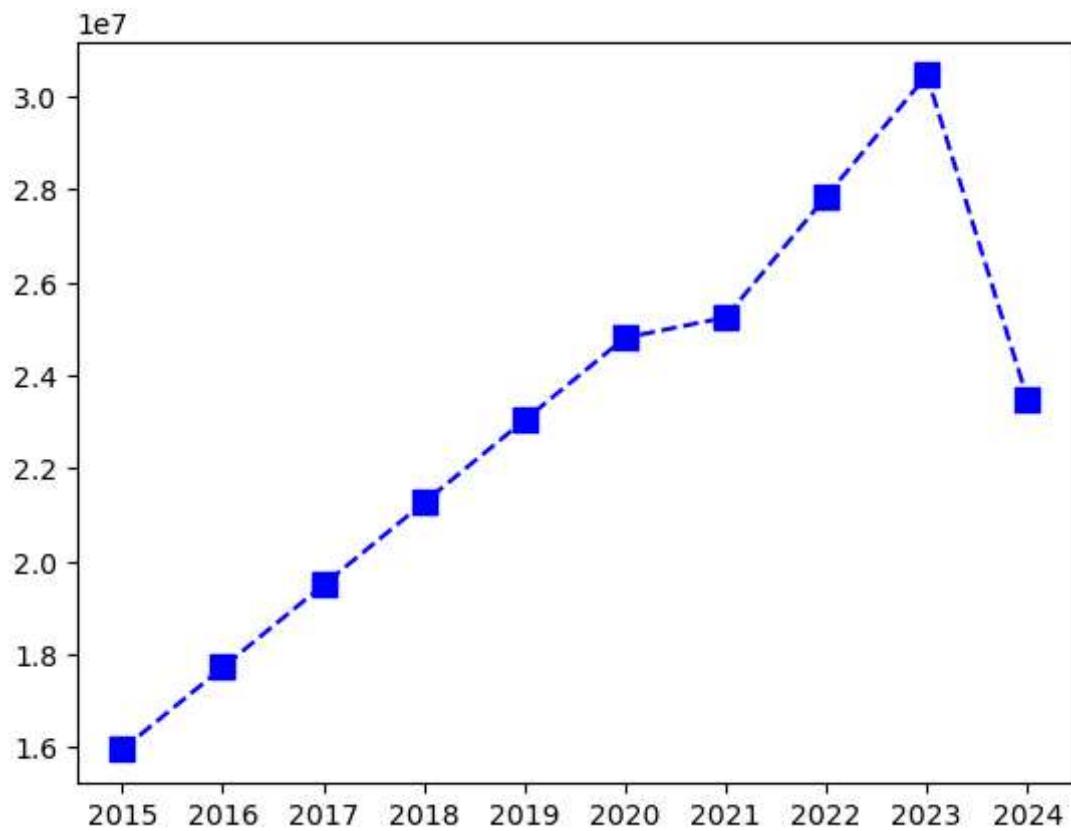
```
In [28]: Sdict
```

```
Out[28]: {'2015': 0,
           '2016': 1,
           '2017': 2,
           '2018': 3,
           '2019': 4,
           '2020': 5,
           '2021': 6,
           '2022': 7,
           '2023': 8,
           '2024': 9}
```

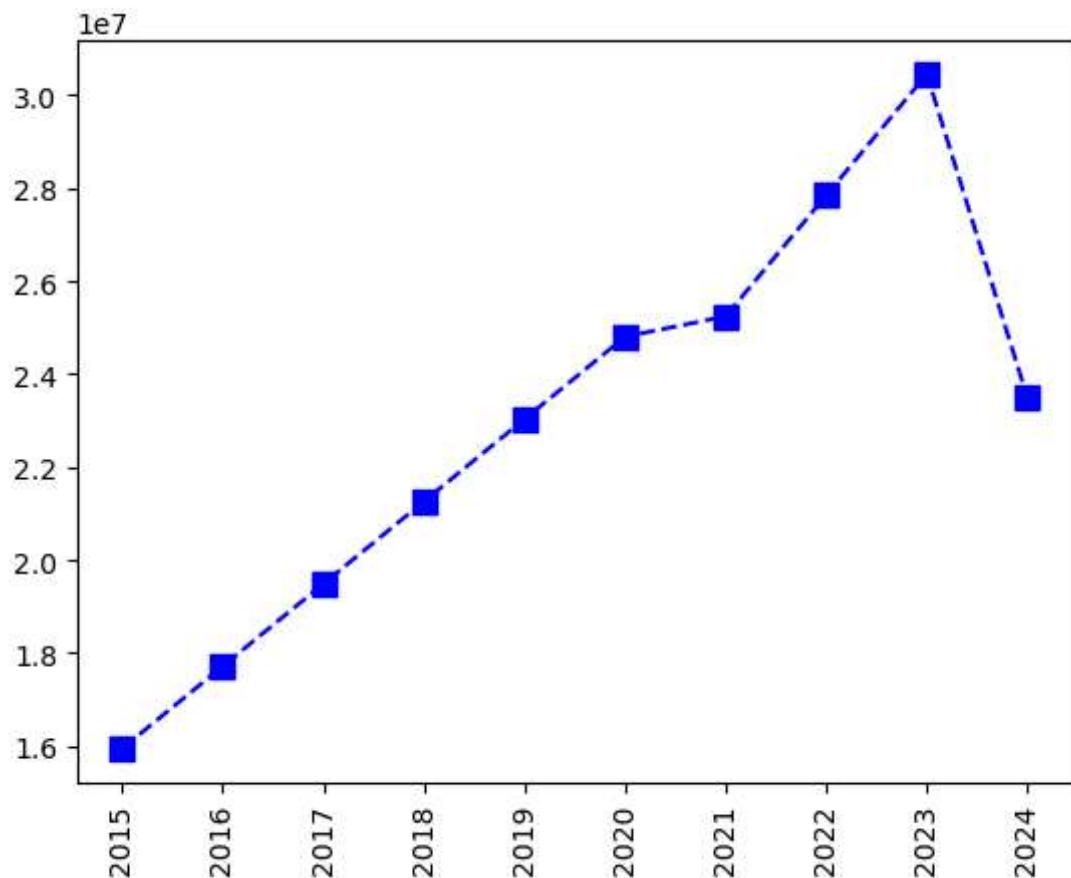
```
In [30]: Pdict
```

```
Out[30]: {'Sachin': 0,
           'Rahul': 1,
           'Smith': 2,
           'Sami': 3,
           'Pollard': 4,
           'Morris': 5,
           'Samson': 6,
           'Dhoni': 7,
           'Kohli': 8,
           'Sky': 9}
```

```
In [32]: plt.plot(Salary[0],c='blue',ls='--',marker='s',ms=8)
plt.xticks(list(range(0,10)),Seasons)
plt.show()
```



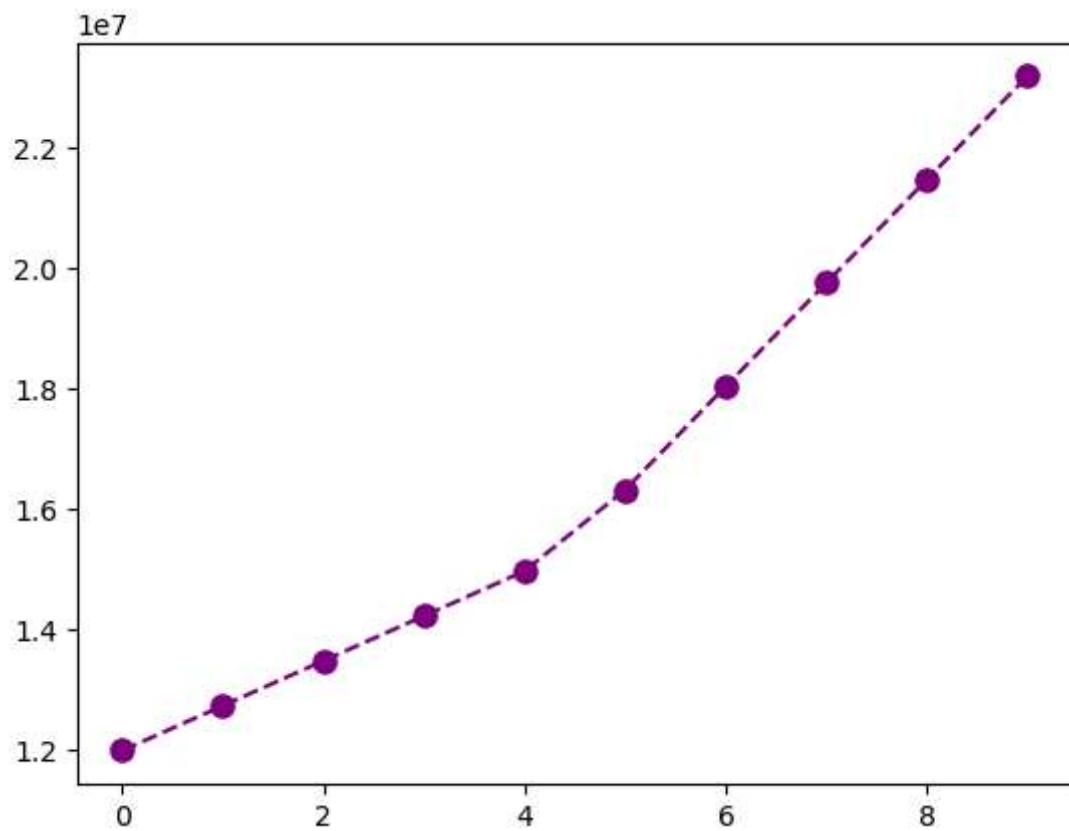
```
In [34]: plt.plot(Salary[0],c='blue',ls='--',marker='s',ms=8)  
plt.xticks(list(range(0,10)),Seasons,rotation='vertical')  
plt.show()
```



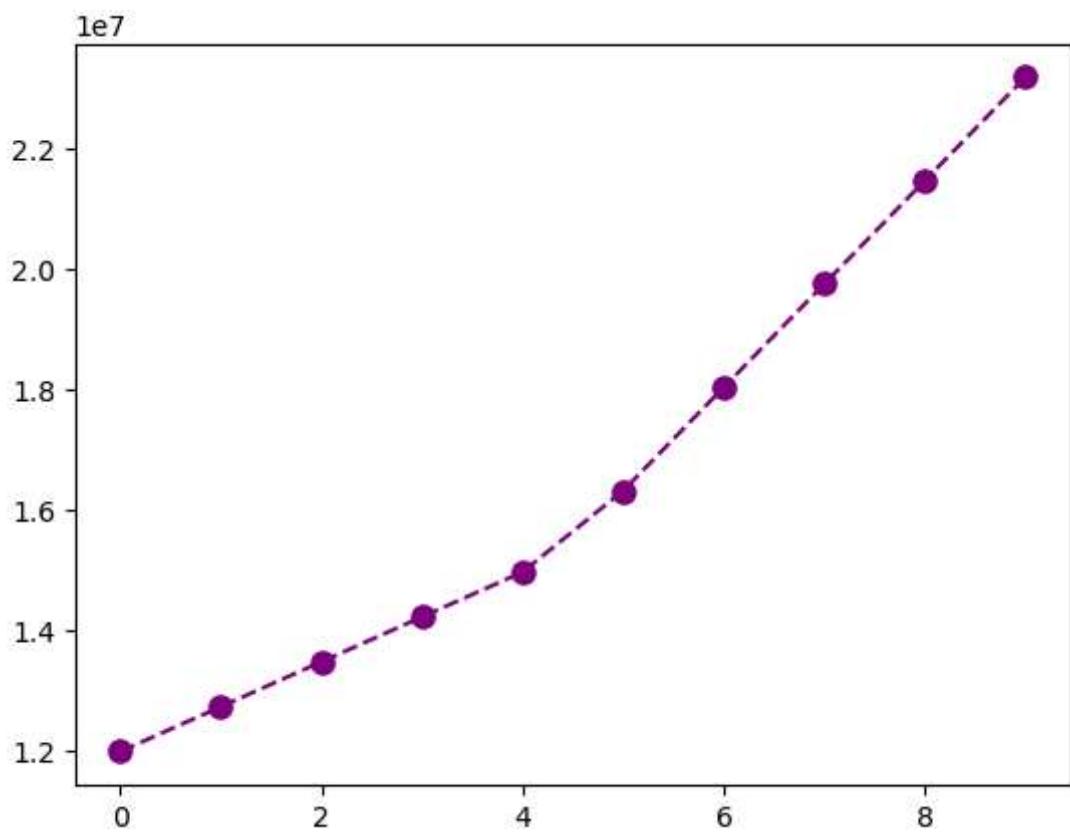
```
In [35]: Salary[1]
```

```
Out[35]: array([12000000, 12744189, 13488377, 14232567, 14976754, 16324500,
   18038573, 19752645, 21466718, 23180790])
```

```
In [37]: plt.plot(Salary[1],c='purple',ls='--',marker='o',ms=8)
plt.show()
```

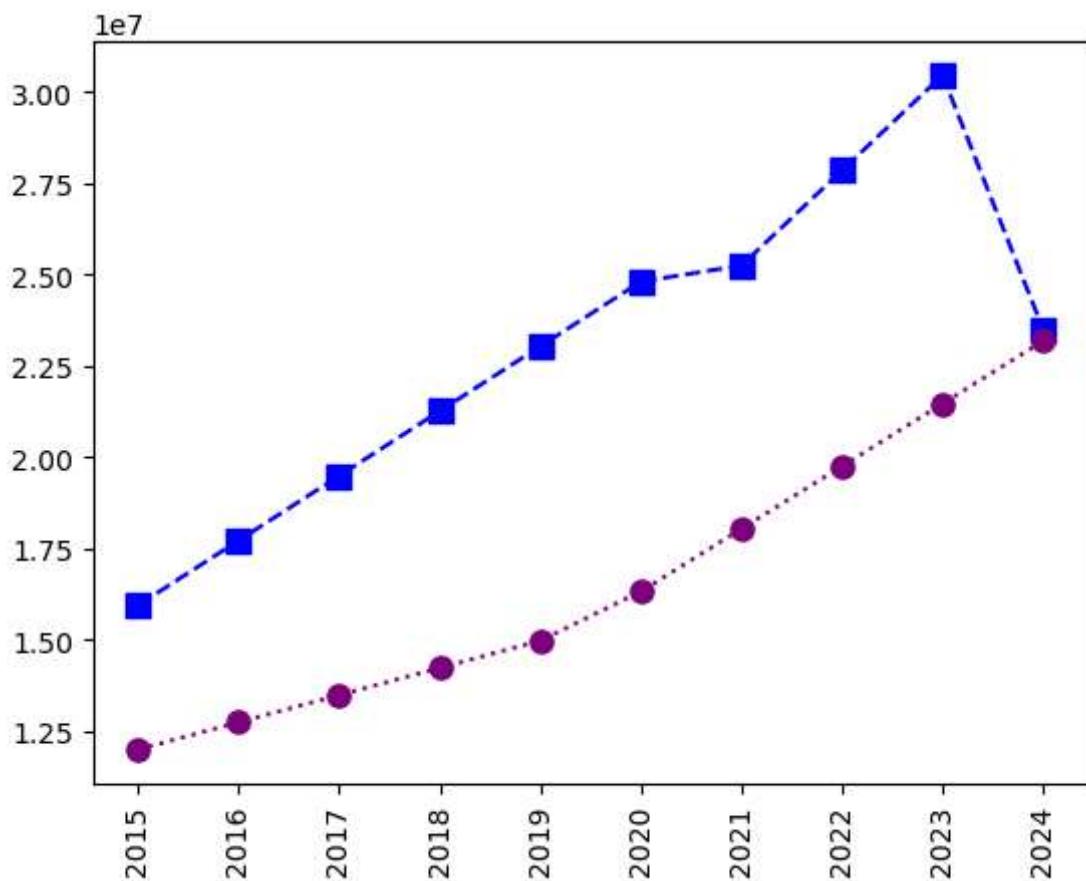


```
In [40]: plt.plot(Salary[1],c='purple',ls='--',marker='o',ms=8,label = Players[1])
plt.show()
```



```
In [43]: plt.plot(Salary[0],c='blue',ls='--',marker='s',ms=8,label = Players[0])
plt.plot(Salary[1],c='purple',ls=':',marker='o',ms=8,label = Players[1])

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

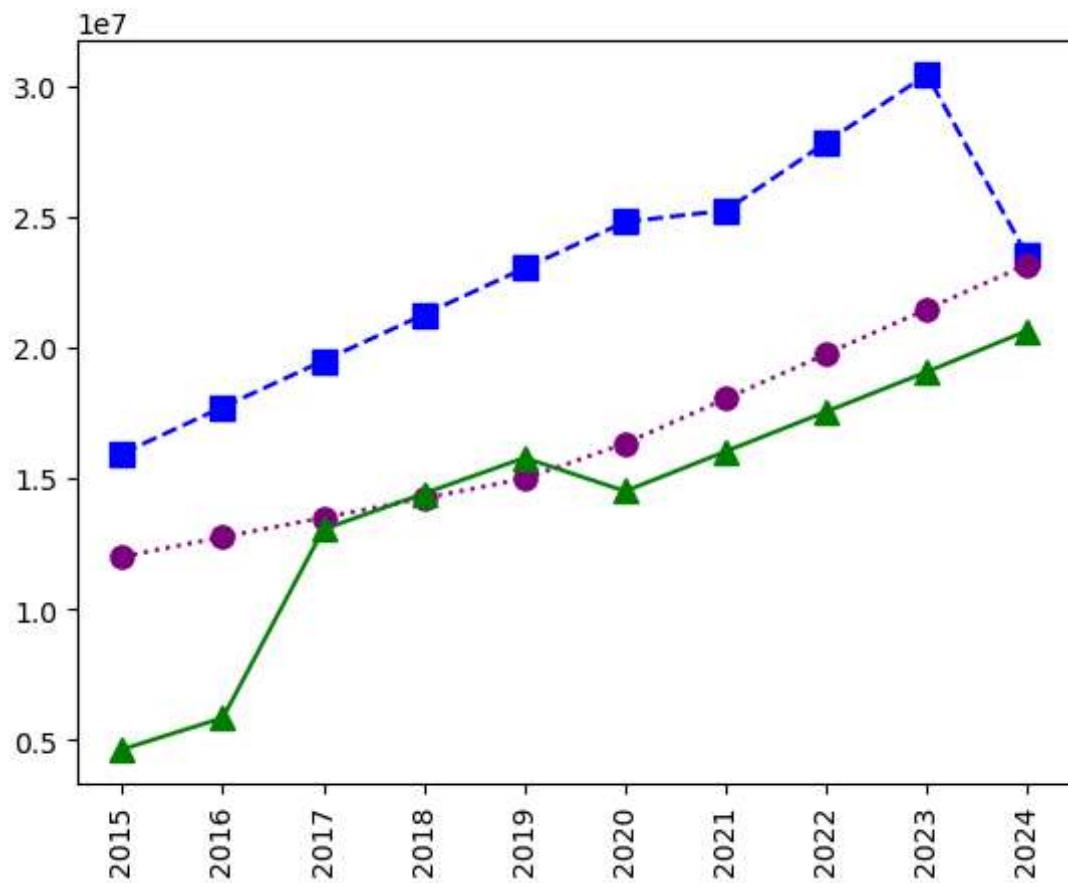


In [44]: Games

```
Out[44]: 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]])
```

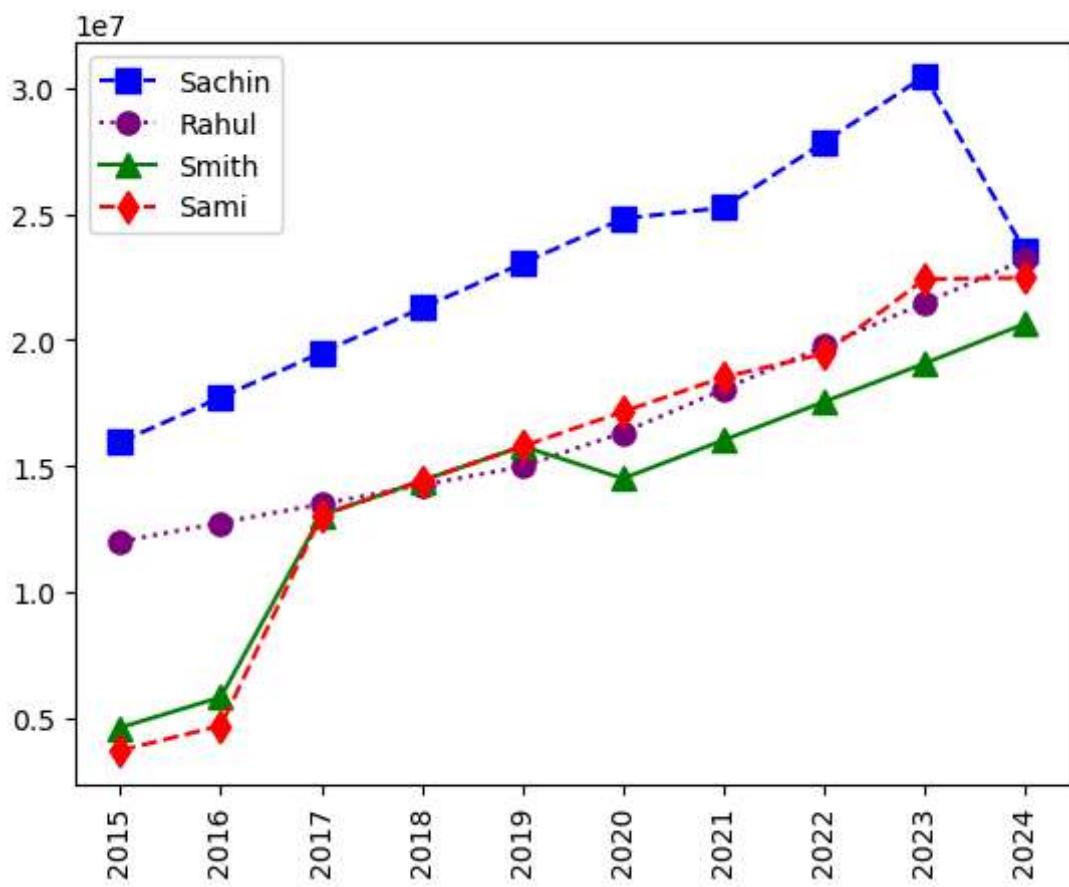
```
In [45]: plt.plot(Salary[0],c='blue',ls='--',marker='s',ms=8,label = Players[0])
plt.plot(Salary[1],c='purple',ls=':',marker='o',ms=8,label = Players[1])
plt.plot(Salary[2],c='green',ls='-',marker='^',ms=8,label = Players[2])

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



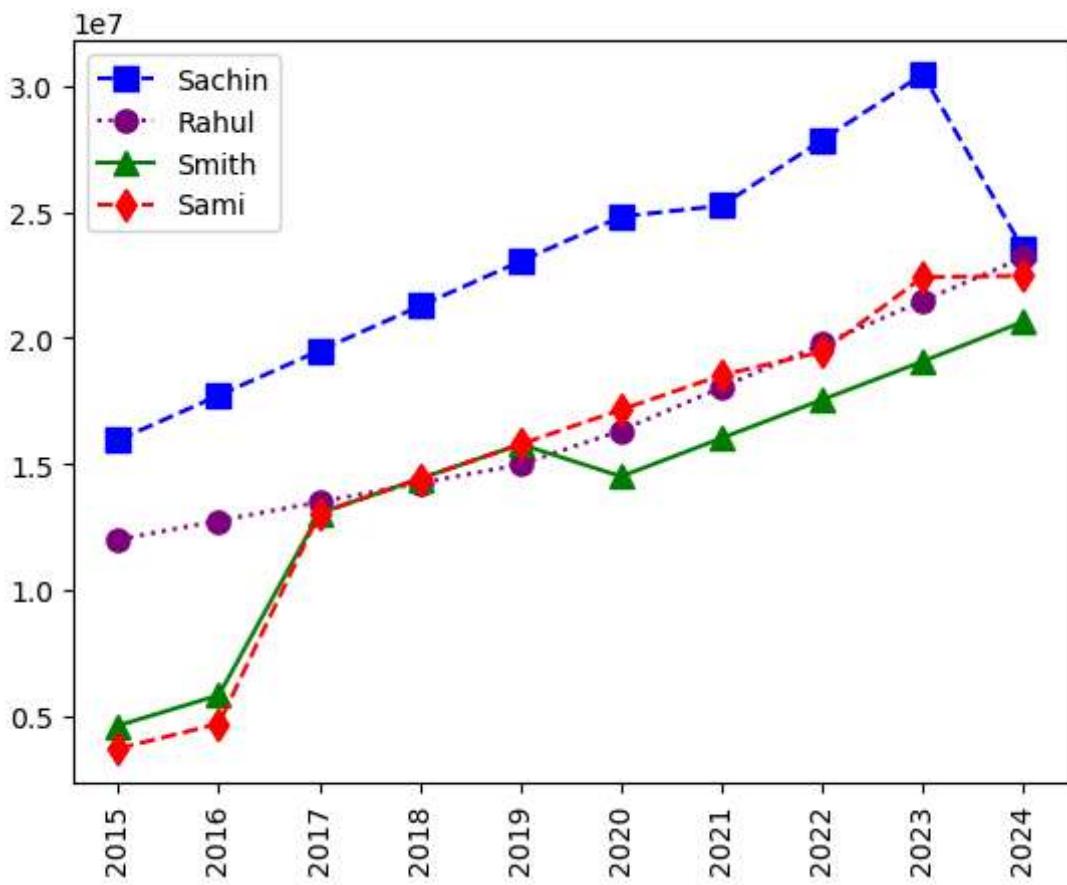
```
In [48]: plt.plot(Salary[0],c='blue',ls='--',marker='s',ms=8,label = Players[0])
plt.plot(Salary[1],c='purple',ls=':',marker='o',ms=8,label = Players[1])
plt.plot(Salary[2],c='green',ls='-',marker='^',ms=8,label = Players[2])
plt.plot(Salary[3],c='red',ls='--',marker='d',ms=8,label = Players[3])

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



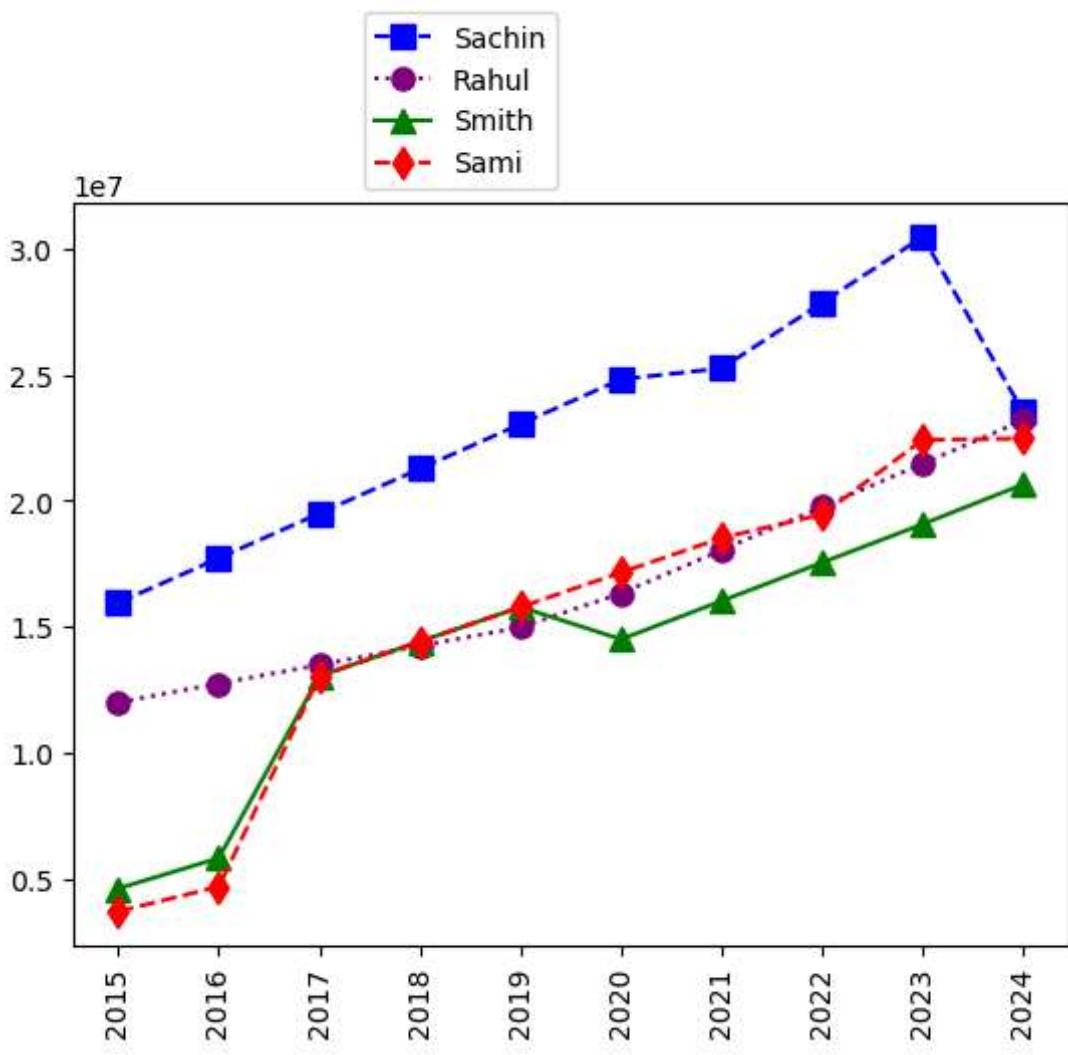
```
In [50]: plt.plot(Salary[0],c='blue',ls='--',marker='s',ms=8,label = Players[0])
plt.plot(Salary[1],c='purple',ls=':',marker='o',ms=8,label = Players[1])
plt.plot(Salary[2],c='green',ls='-',marker='^',ms=8,label = Players[2])
plt.plot(Salary[3],c='red',ls='--',marker='d',ms=8,label = Players[3])

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



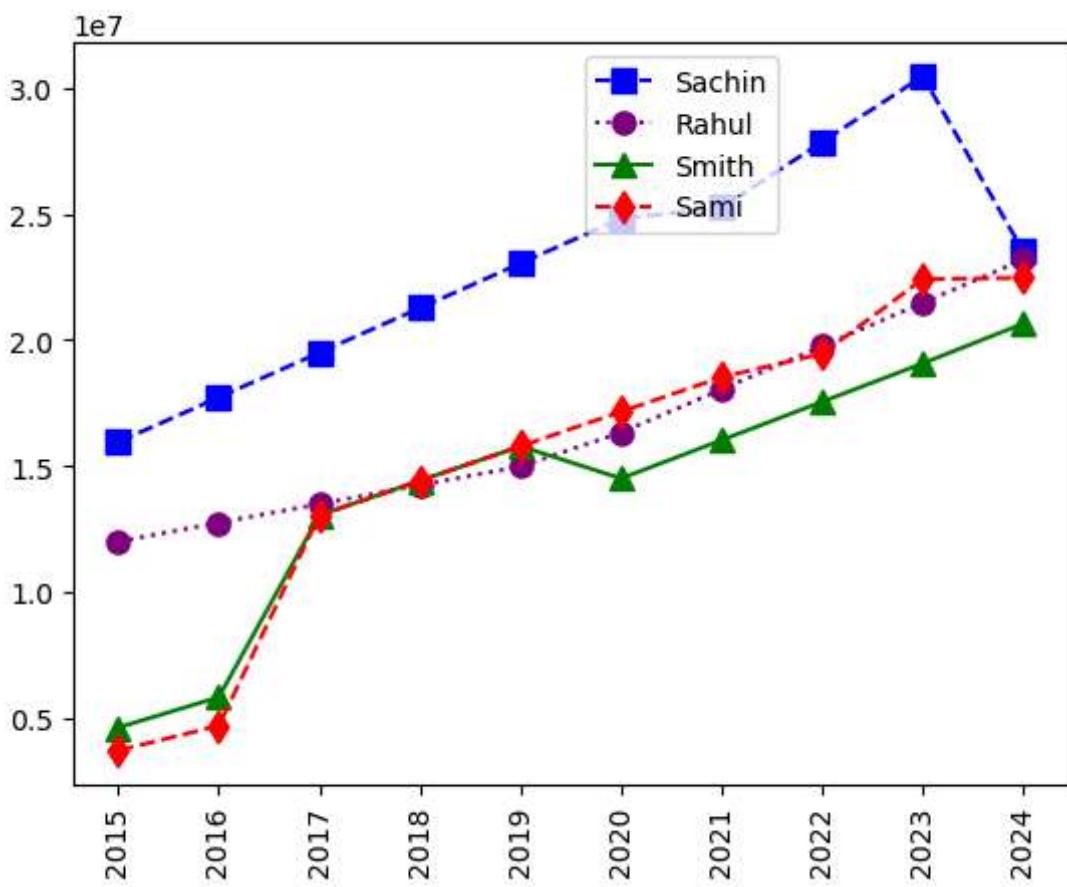
```
In [51]: plt.plot(Salary[0],c='blue',ls='--',marker='s',ms=8,label = Players[0])
plt.plot(Salary[1],c='purple',ls=':',marker='o',ms=8,label = Players[1])
plt.plot(Salary[2],c='green',ls='-',marker='^',ms=8,label = Players[2])
plt.plot(Salary[3],c='red',ls='--',marker='d',ms=8,label = Players[3])

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



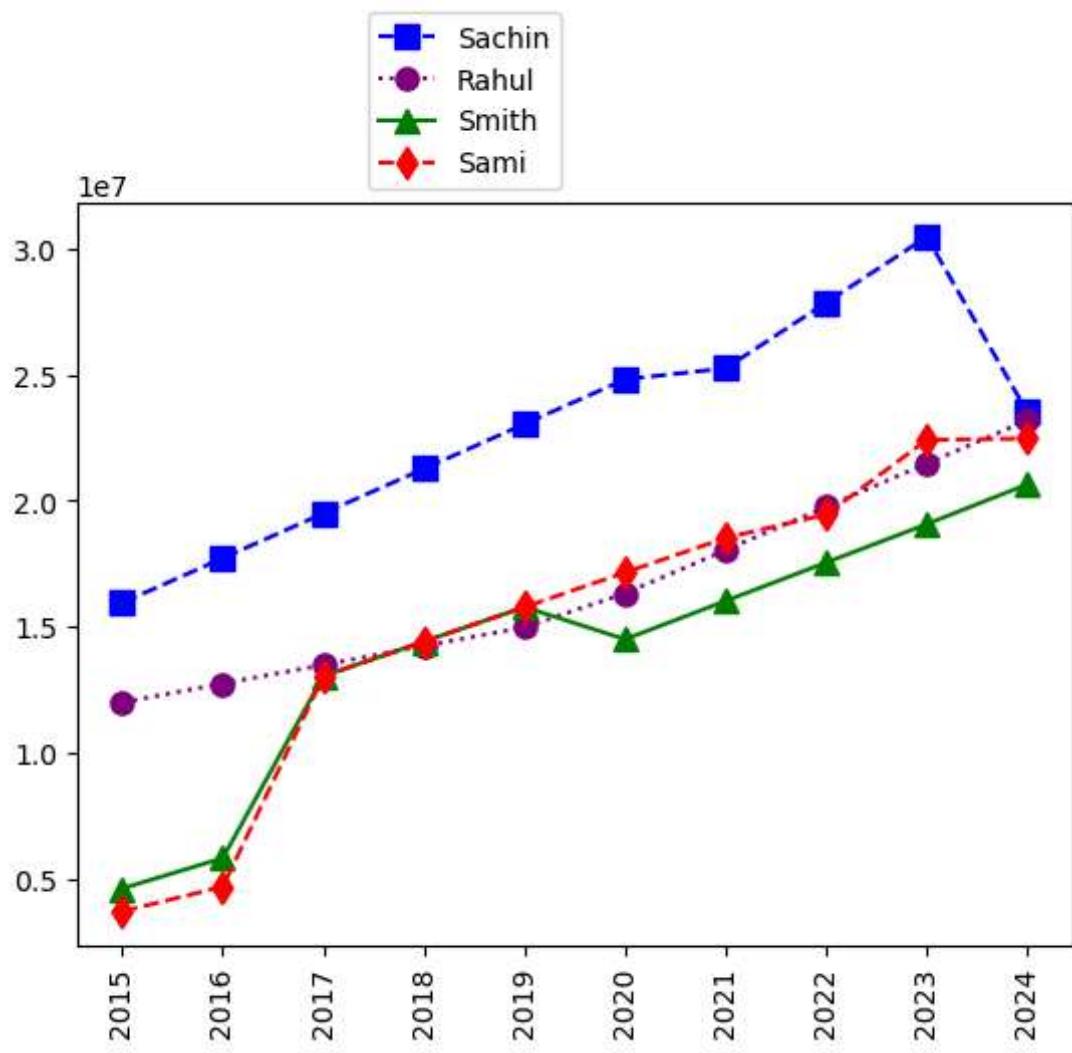
```
In [52]: plt.plot(Salary[0],c='blue',ls='--',marker='s',ms=8,label = Players[0])
plt.plot(Salary[1],c='purple',ls=':',marker='o',ms=8,label = Players[1])
plt.plot(Salary[2],c='green',ls='-.',marker='^',ms=8,label = Players[2])
plt.plot(Salary[3],c='red',ls='--',marker='d',ms=8,label = Players[3])

plt.legend(loc = 'upper left',bbox_to_anchor=(0.5,1))
plt.xticks(list(range(0,10)),Seasons,rotation='vertical')
plt.show()
```



```
In [53]: plt.plot(Salary[0],c='blue',ls='--',marker='s',ms=8,label = Players[0])
plt.plot(Salary[1],c='purple',ls=':',marker='o',ms=8,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')
plt.show()
```



In []: