```python
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}

#Play  Run cell (Ctrl+Enter)
Playe  cell executed since last change  Smith","Sami","Pollard","Morris","Samson","Dhoni","Kohli","Sky"]
Pdict                                  ,"Smith":2,"Sami":3,"Pollard":4,"Morris":5,"Samson":6,"Dhoni":7,"Kohli":8,"Sky":9}
       executed by bilkis sayyad
       9:40 PM (0 minutes ago)
#Sala  executed in 0.514s
Sachin_Salary = [15946875,17718750,19490625,21262500,23034375,24806250,25244493,27849149,30453805,23500000]
Rahul_Salary = [12000000,12744189,13488377,14232567,14976754,16324500,18038573,19752645,21466718,23180790]
Smith_Salary = [4621800,5828090,13041250,14410581,15779912,14500000,16022500,17545000,19067500,20644400]
Sami_Salary = [3713640,4694041,13041250,14410581,15779912,17149243,18518574,19450000,22407474,22458000]
Pollard_Salary = [4493160,4806720,6061274,13758000,15202590,16647180,18091770,19536360,20513178,21436271]
Morris_Salary = [3348000,4235220,12455000,14410581,15779912,14500000,16022500,17545000,19067500,20644400]
Samson_Salary = [3144240,3380160,3615960,4574189,13520500,14940153,16359805,17779458,18668431,20068563]
Dhoni_Salary = [0,0,4171200,4484040,4796880,6053663,15506632,16669630,17832627,18995624]
Kohli_Salary = [0,0,0,4822800,5184480,5546160,6993708,16402500,17632688,18862875]
Sky_Salary = [3031920,3841443,13041250,14410581,15779912,14200000,15691000,17182000,18673000,15000000]
#Matrix
Salary = np.array([Sachin_Salary, Rahul_Salary, Smith_Salary, Sami_Salary, Pollard_Salary, Morris_Salary, Samson_Salary, Dhoni_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])


Salary
```

```
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]])
```

```
Games
```

```
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]])
```

Point

```
Run cell (Ctrl+Enter)
cell executed since last change
                          , 2201, 1970, 2078, 1616, 2133,   83,  782],
executed by bilkis sayyad , 1688, 1619, 1312, 1129, 1170, 1245, 1154],
9:40 PM (0 minutes ago)   , 2304, 2258, 2111, 1683, 2036, 2089, 1743],
executed in 0.514s        , 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]])
```

Games[5]

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

Games[0:5]

```
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]])
```

Games[0,5]

```
np.int64(82)
```

Salary

```
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]])
```

Games[1]

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

Salary/Games

```
<ipython-input-12-f32b113131f8>:1: RuntimeWarning: divide by zero encountered in divide
  Salary/Games
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],
       [          ,         52815.        ,     45199.5        ,
                    ,       300455.55555556,   186751.9125    ,
                    ,       253992.25714286,   301103.72580645,
                    ],
       [          ,             0.        ,     52140.        ,
          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]])
```

```
np.round(Salary/Games)
```

```
<ipython-input-13-c0cc7840a886>:1: RuntimeWarning: divide by zero encountered in divide
  np.round(Salary/Games)
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.]])
```

```
import warnings
warnings.filterwarnings('ignore')
```

first visualization

```
import matplotlib.pyplot as plt
```

```
Salary
```

```
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]])
```
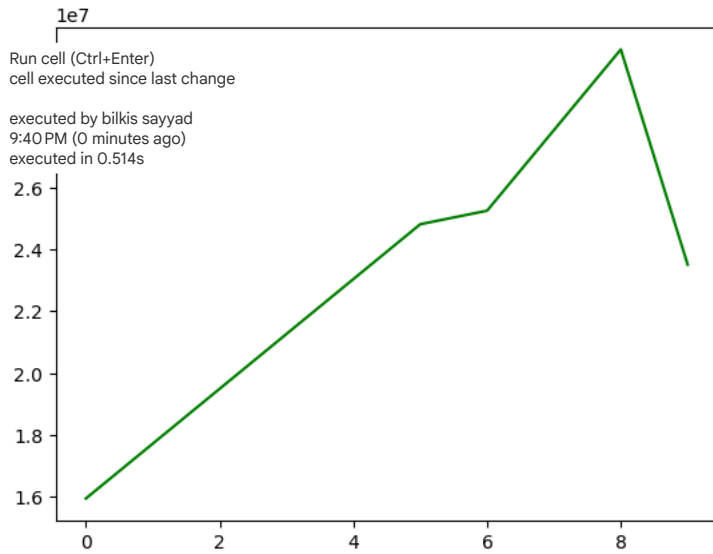
```
Salary[0]
```

```
array([15946875, 17718750, 19490625, 21262500, 23034375, 24806250,
       25244493, 27849149, 30453805, 23500000])
```
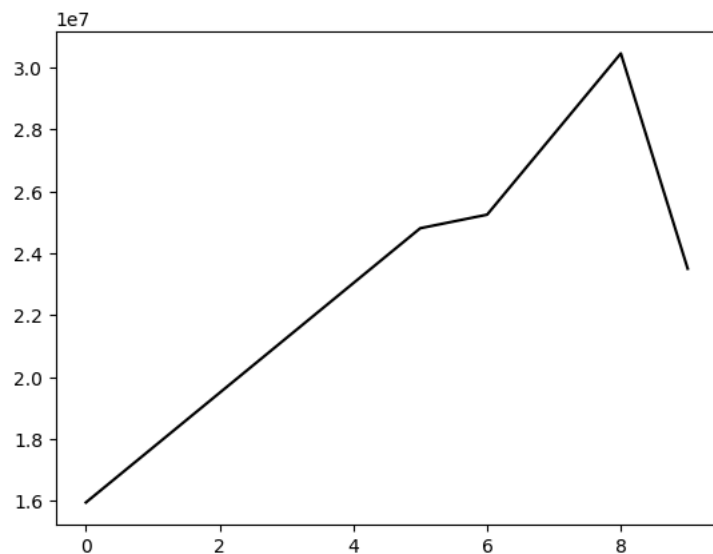
```
import matplotlib.pyplot as plt
plt.plot(Salary[0],c='g')
plt.show()
```

Run cell (Ctrl+Enter)
cell executed since last change

executed by bilkis sayyad
9:40 PM (0 minutes ago)
executed in 0.514s


```
plt.plot(Salary[0],c='k')
```
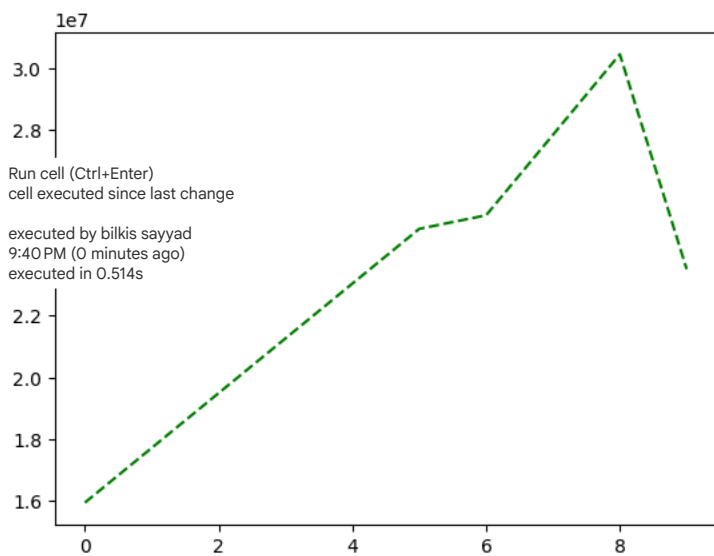
[<matplotlib.lines.Line2D at 0x7992b7cefc90>]
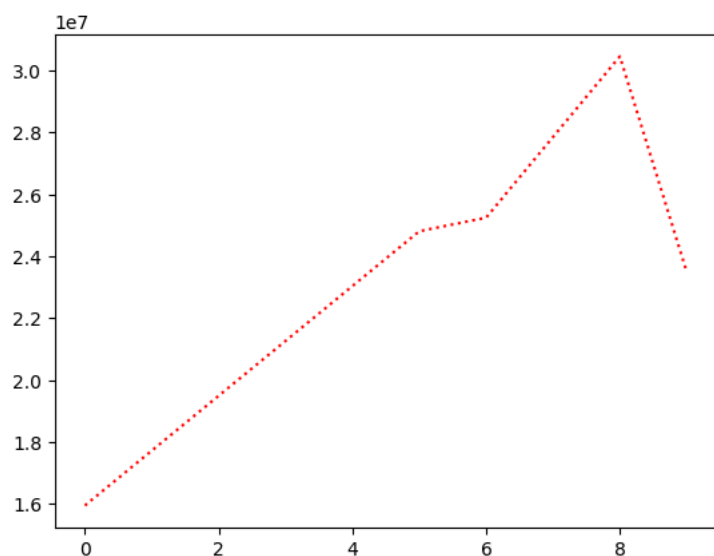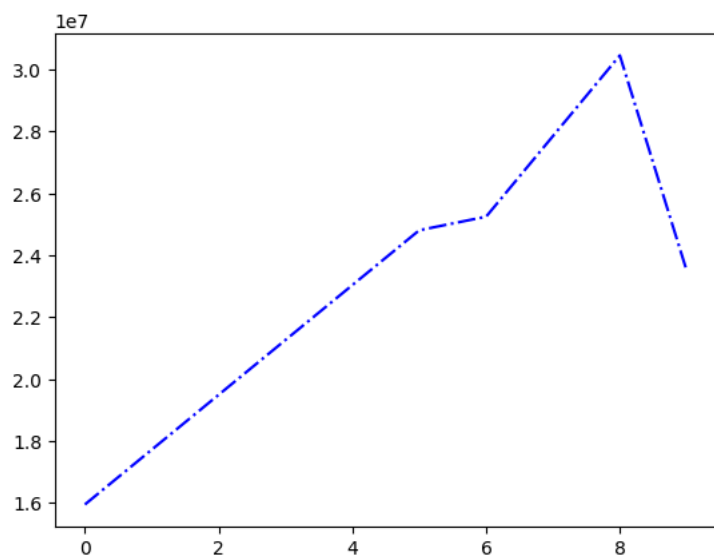


```
plt.plot(Salary[0],c='g',ls='--')
```

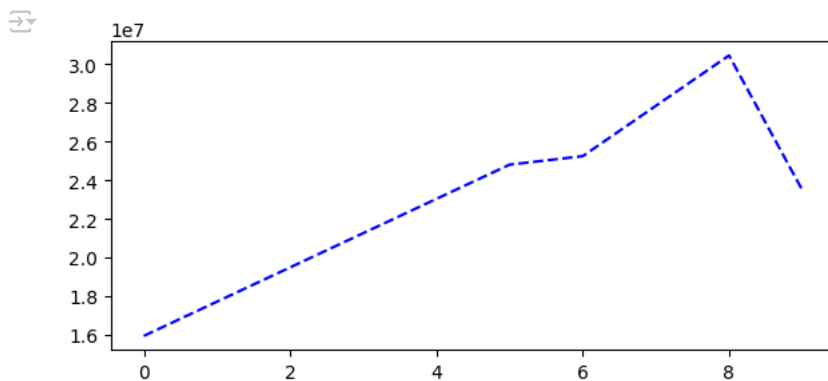[<matplotlib.lines.Line2D at 0x7992b7cbe8d0>]


```python
plt.plot(Salary[0],c='r',ls=':')
```

[<matplotlib.lines.Line2D at 0x7992b79b8a90>]


```python
plt.plot(Salary[0],c='b',ls='-.')
```

[<matplotlib.lines.Line2D at 0x7992b78e1d50>]


```python
plt.plot(Salary[0],c='purple',ls=':')
```

[<matplotlib.lines.Line2D at 0x7992b7984090>]

Run cell (Ctrl+Enter)
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executed in 0.514s

```python
import matplotlib.pyplot as plt
```
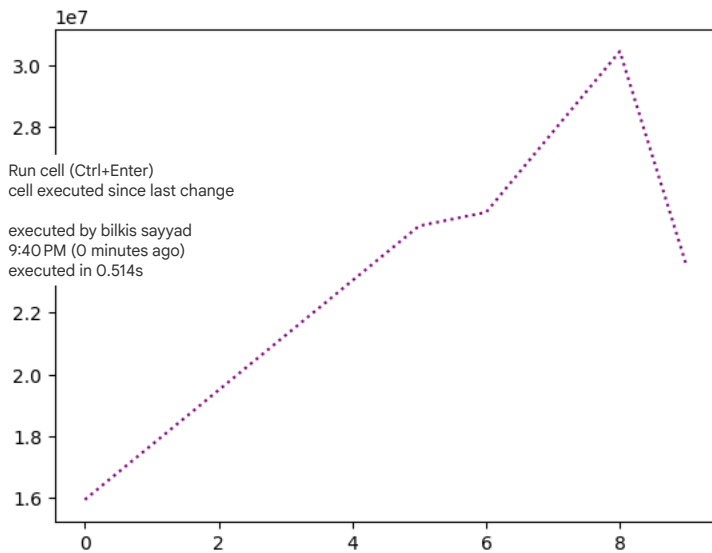
```python
%matplotlib inline
plt.rcParams['figure.figsize']=7,3
plt.plot(Salary[0],c='Blue',ls='--')
plt.show()
```



```python
plt.plot(Salary[0],c='g',ls='--',marker='o')
```

Show hidden output
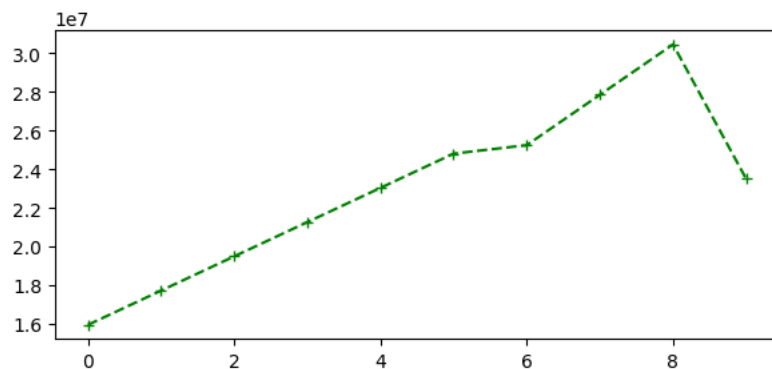
```python
plt.plot(Salary[0],c='black',ls='--',marker='d')
```

[<matplotlib.lines.Line2D at 0x7992b7606e50>]


```python
plt.plot(Salary[0],c='r',ls='--',marker='*')
```

```
[<matplotlib.lines.Line2D at 0x7992b7182910>]
```


Run cell (Ctrl+Enter)
cell executed since last change

executed by bilkis sayyad
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executed in 0.514s
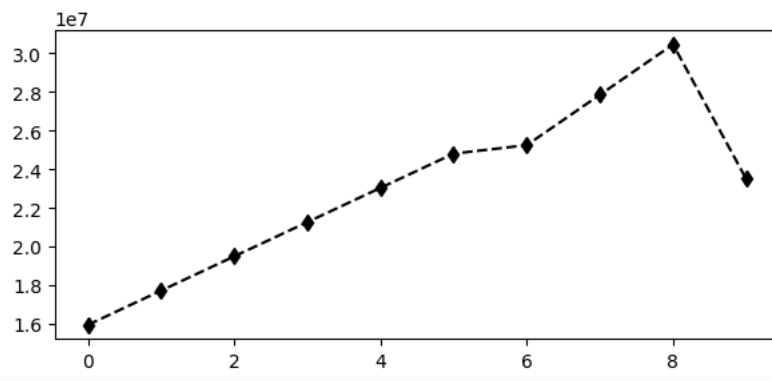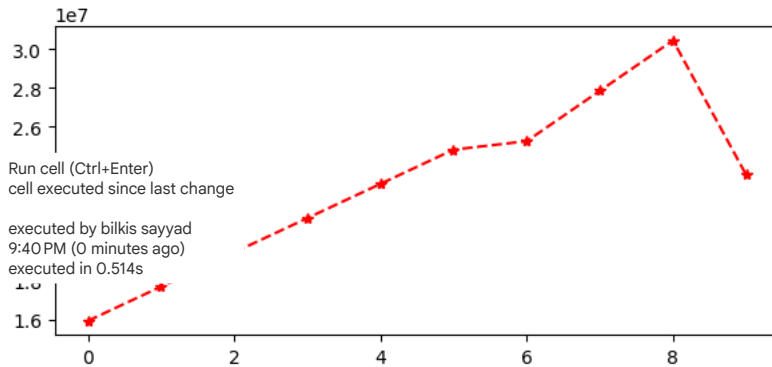
```
plt.plot(Salary[0],c='g',ls='--',marker='+')
```
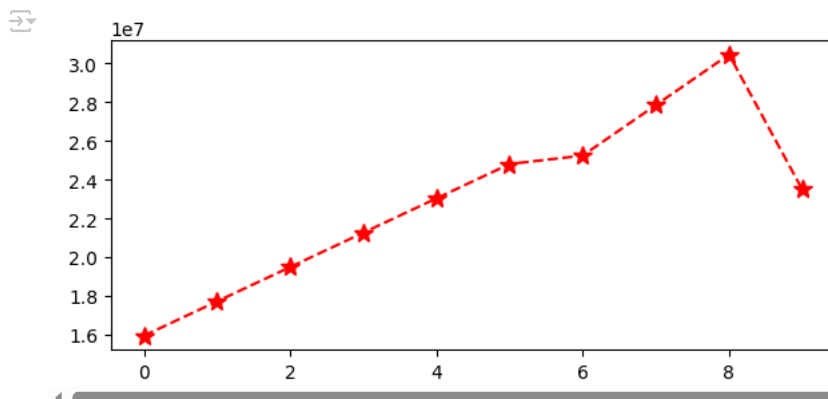
```
[<matplotlib.lines.Line2D at 0x7992b7739f10>]
```



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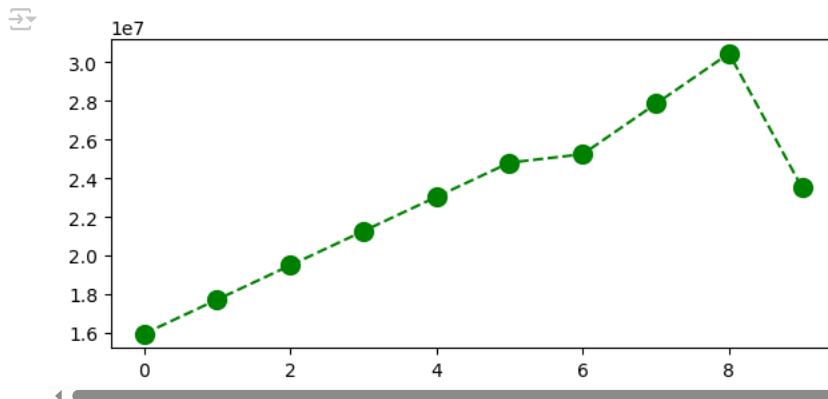


```
plt.plot(Salary[0],c='r',ls='--',marker='*', ms=10)
plt.show()
```
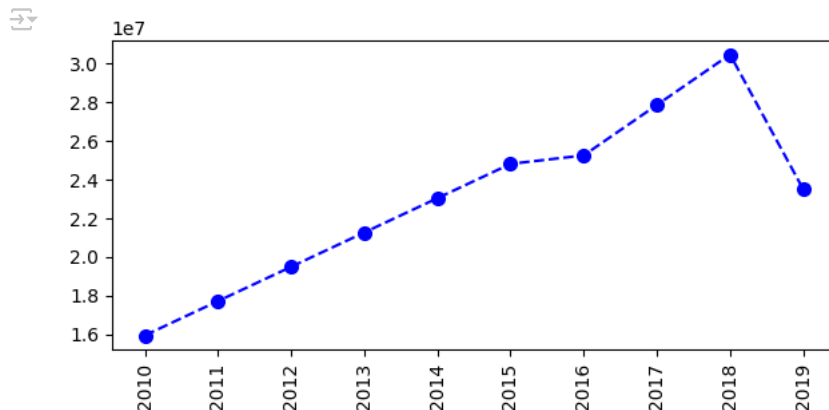


```
list(range(0,10))
```

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

Sdict

```
{'2010': 0,
 '2011': 1,
 '2012': 2,
 '2013': 3,
 '2014': 4,
 '2015': 5,
```

Run cell (Ctrl+Enter)
cell executed since last change

executed by bilkis sayyad
9:40 PM (0 minutes ago)
executed in 0.514s

```python
plt.plot(Salary[0],c='blue',ls='--',marker='o',ms='7')
plt.xticks(list(range(0,10)),Seasons,rotation='vertical')
plt.show()
```
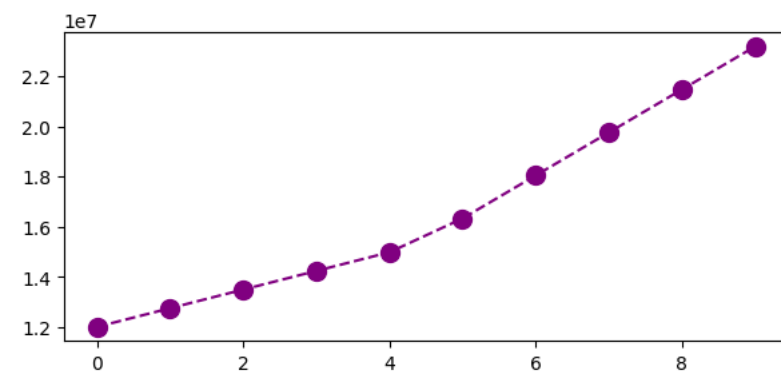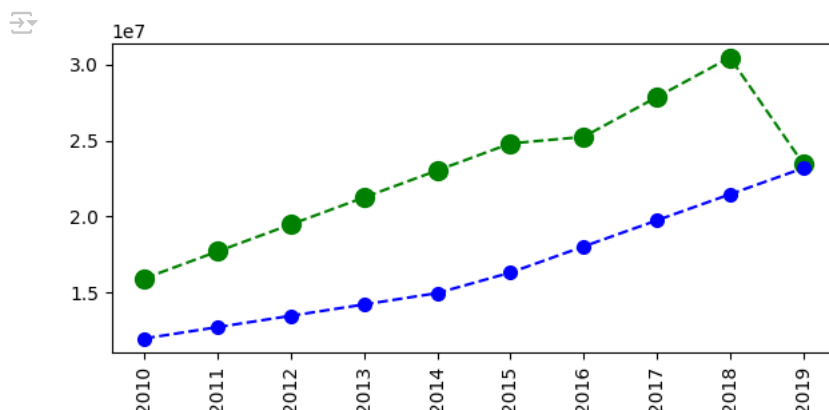

Salary[1]

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

```python
plt.plot(Salary[1],c='purple',ls='--',marker='o',ms='10',label=Players[1])
```

[<matplotlib.lines.Line2D at 0x7992b6bae910>]


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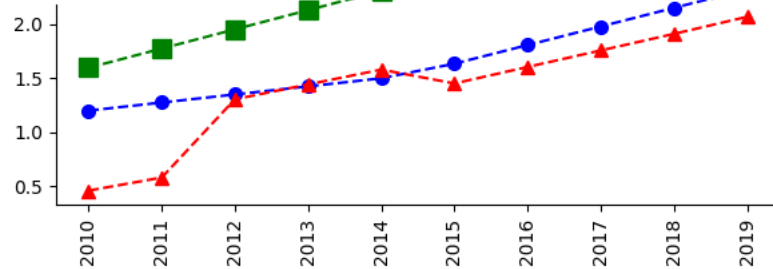
```
plt.plot(Salary[0],c='Green',ls='--',marker='s',ms='10',label=Players[1])
plt.plot(Salary[1],c='blue',ls='--',marker='o',ms='7',label=Players[1])
plt.plot(Salary[2],c='red',ls='--',marker='^',ms='7',label=Players[2])
plt.xticks(list(range(0,10)),Seasons,rotation='vertical')
plt.show()
```

Run cell (Ctrl+Enter)
cell executed since last change

executed by bilkis sayyad
9:40 PM (0 minutes ago)
executed in 0.514s


```
plt.plot(Salary[0],c='Green',ls='--',marker='s',ms='10',label=Players[0])
plt.plot(Salary[1],c='blue',ls='--',marker='o',ms='7',label=Players[1])
plt.plot(Salary[2],c='purple',ls='--',marker='^',ms='7',label=Players[2])
plt.plot(Salary[3],c='red',ls='--',marker='d',ms='7',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()
```