In [1]:
```python
import numpy as np
```

In [2]:
```python
Years_Of_Cars = ['2000','2005','2010','2015','2020',]
cdict = {'2000':1,'2005':2,'2010':3,'2015':4,'2020':5,}
```

In [3]:
```python
Car_names = np.array(['Mahendra','Swift','Wolkswagan','Skoda','Toyota'])
Ca_dict={'Mahendra':1,'Swift':2,'Wolkswagan':3,'Skoda':4,'Toyota':5}
len(Ca_dict)
print(Car_names)
```

```
['Mahendra' 'Swift' 'Wolkswagan' 'Skoda' 'Toyota']
```

In [32]:
```python
# Rates of  Cars yearwise
Mahendra_Cost = [500000,800000,600000,1000000,1200000]
Swift_Cost = [400000,1000000,1500000,2000000,1000000]
Wolkswagan_Cost = [700000,1000000,150000,1900000,1000000]
Skoda_Cost = [1000000,1200000,900000,1300000,1000000]
Toyota_Cost = [900000,1000000,1200000,1100000,1400000]
```

In [33]:
```python
Car_Rate = np.array([Mahendra_Cost, Swift_Cost, Wolkswagan_Cost, Skoda_Cost, Toy
```

In [34]:
```python
Car_Rate
```

Out[34]:
```
array([[ 500000,  800000,  600000, 1000000, 1200000],
       [ 400000, 1000000, 1500000, 2000000, 1000000],
       [ 700000, 1000000,  150000, 1900000, 1000000],
       [1000000, 1200000,  900000, 1300000, 1000000],
       [ 900000, 1000000, 1200000, 1100000, 1400000]])
```

In [29]:
```python
Mah_sales = [10000,20000,25000,15000,20000]
Swi_sales = [9000,13000,25000,29000,40000]
Wolk_sales = [15000,25000,35000,45000,50000]
Sko_sales = [20000,30000,400000,500000,10000]
Toy_sales = [14000,50000,23000,67000,80000]
```

In [8]:
```python
Car_Sales = np.array([ Mah_sales,Swi_sales,Wolk_sales,Sko_sales,Toy_sales])
Car_Sales
```

Out[8]:
```
array([[ 10000,  20000,  25000,  15000,  20000],
       [  9000,  13000,  25000,  20000,  25000],
       [ 10000,  20000,  30000,  40000,  50000],
       [ 20000,  30000, 400000, 500000,  10000],
       [ 14000,  50000,  23000,  67000,  80000]])
```

In [9]:
```python
import matplotlib.pyplot as plt
```

In [10]:
```python
Car_Sales[0]
```

Out[10]:
```
array([10000, 20000, 25000, 15000, 20000])
```

In [11]:
```python
Car_Rate
```

```
Out[11]: array([[ 500000,   800000,   600000, 1000000, 1200000],
                [ 400000,   600000,   800000, 1300000, 12000000],
                [ 700000,   400000,   600000,  900000, 1000000],
                [1000000,  1200000,   900000, 1300000, 1000000],
                [ 900000,  1000000,  1200000, 1100000, 1400000]])
```

```
In [12]: Car_names
```

```
Out[12]: array(['Mahendra', 'Swift', 'Wolkswagan', 'Skoda', 'Toyota'], dtype='<U10')
```

```
In [13]: Car_Sales
```

```
Out[13]: array([[ 10000,   20000,   25000,   15000,   20000],
                [  9000,   13000,   25000,   20000,   25000],
                [ 10000,   20000,   30000,   40000,   50000],
                [ 20000,   30000,  400000,  500000,   10000],
                [ 14000,   50000,   23000,   67000,   80000]])
```

plotting with Matplotlib

Cars wise Sales Plotting
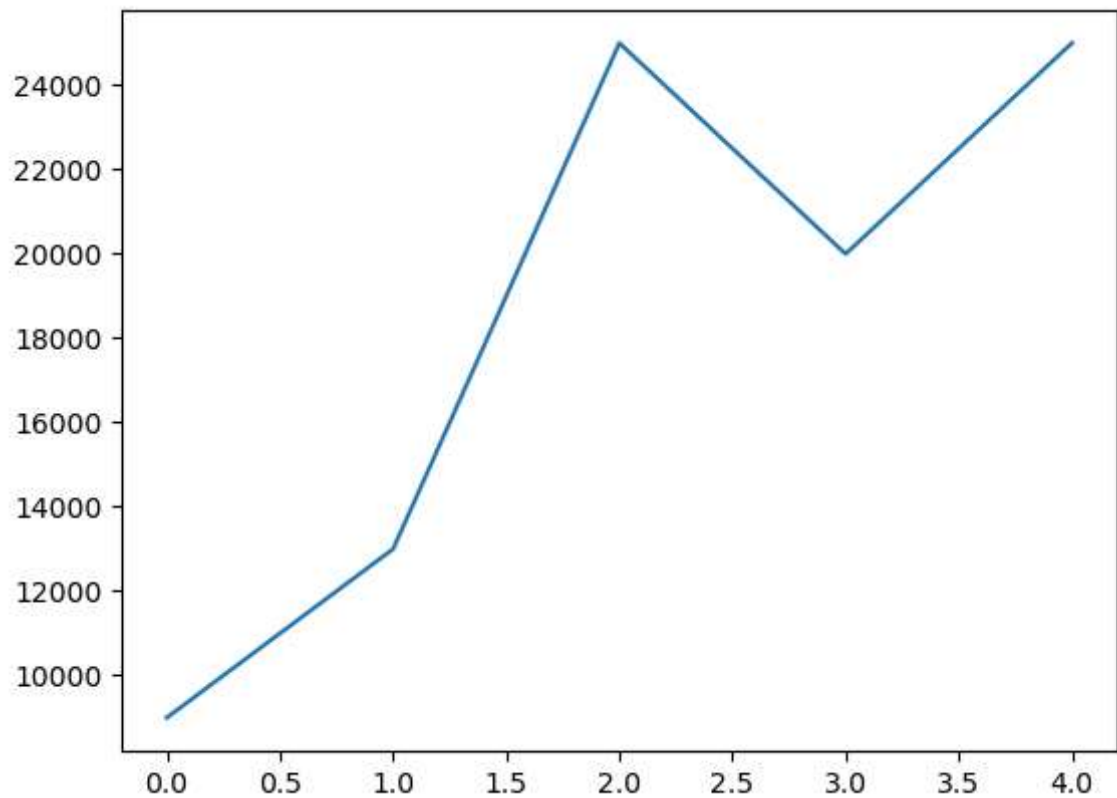
```
In [14]: plt.plot(Car_Sales[0])      # Mahendra car Sales year wise
```

```
Out[14]: [<matplotlib.lines.Line2D at 0x1eb7a90aa80>]
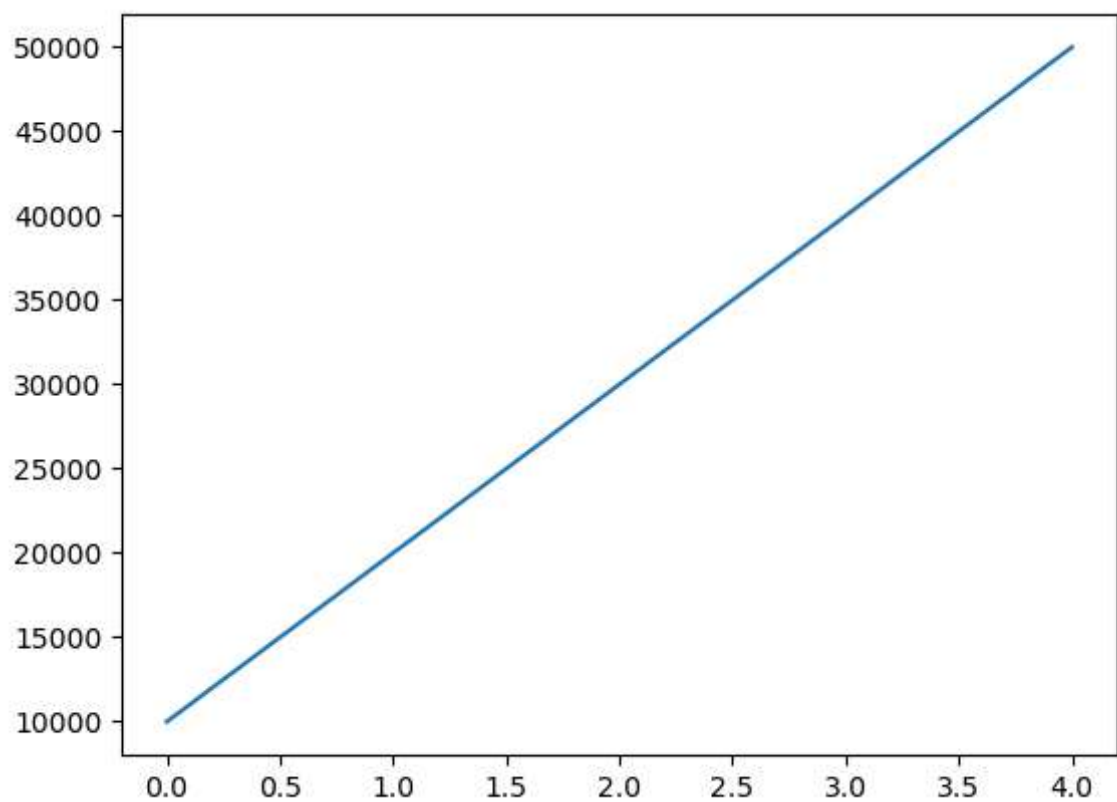```
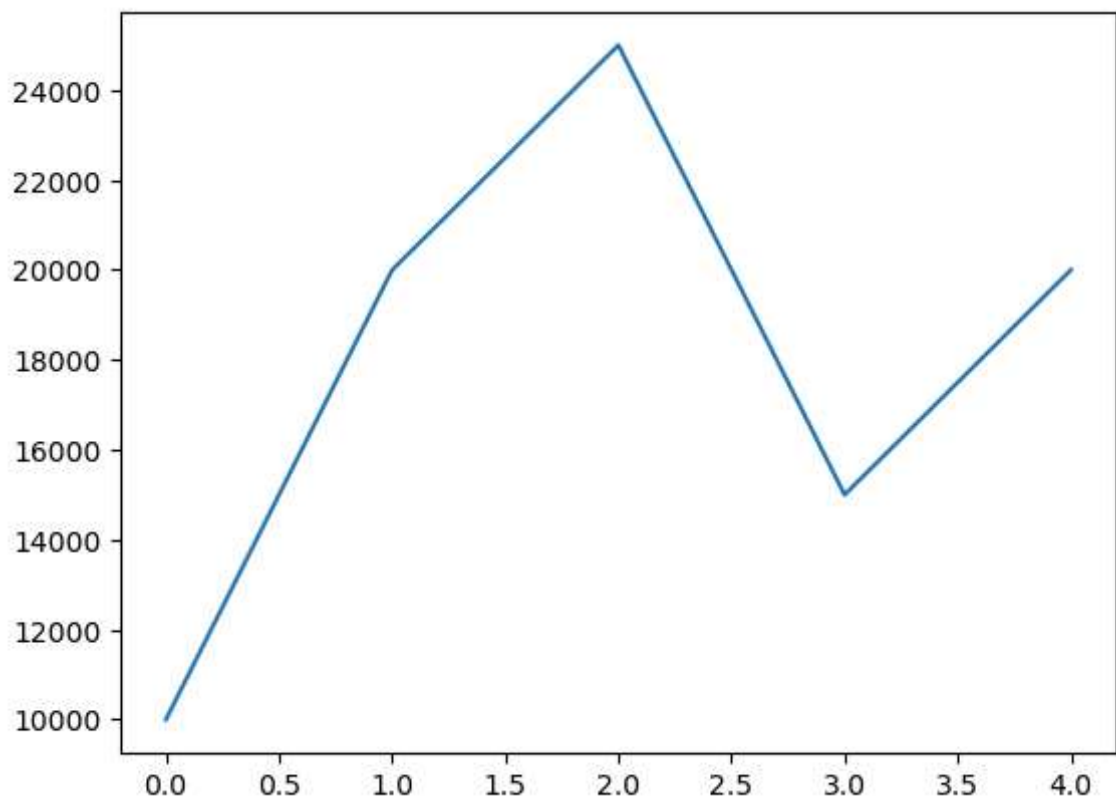


```
In [15]: plt.plot(Car_Sales[1])   #Swift Car Sales through years
```

```
Out[15]: [<matplotlib.lines.Line2D at 0x1eb7a975370>]
```

```
In [16]:   plt.plot(Car_Sales[2])      #  Wolkswagan Sales
```
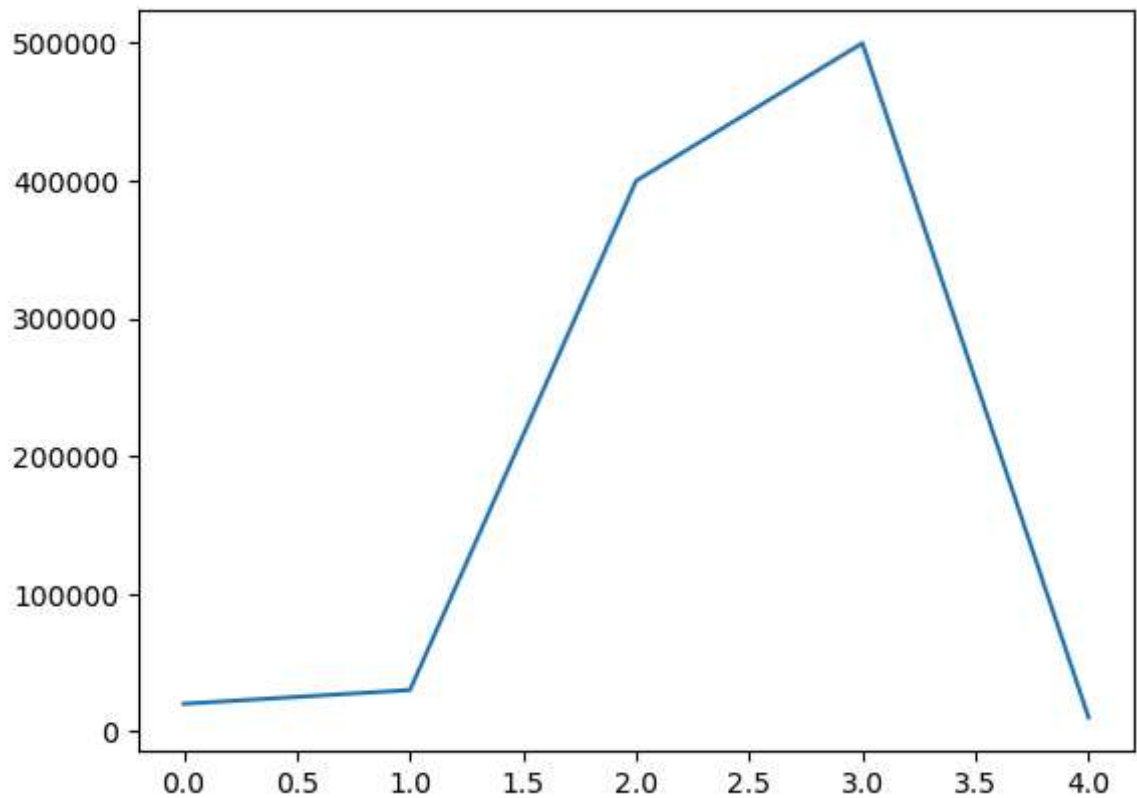
```
Out[16]:   [<matplotlib.lines.Line2D at 0x1eb7b26ede0>]
```



```
In [17]:   plt.plot(Car_Sales[3])      #Skoda Sales
```
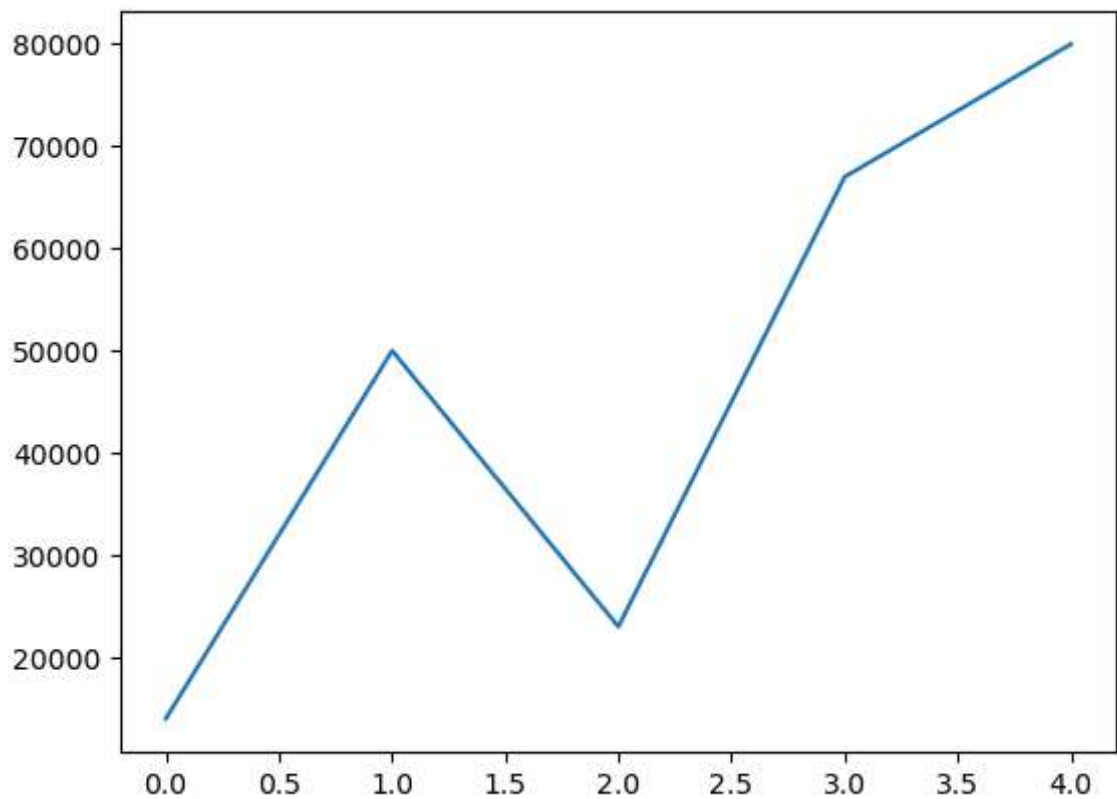
```
Out[17]:   [<matplotlib.lines.Line2D at 0x1eb7b299520>]
```
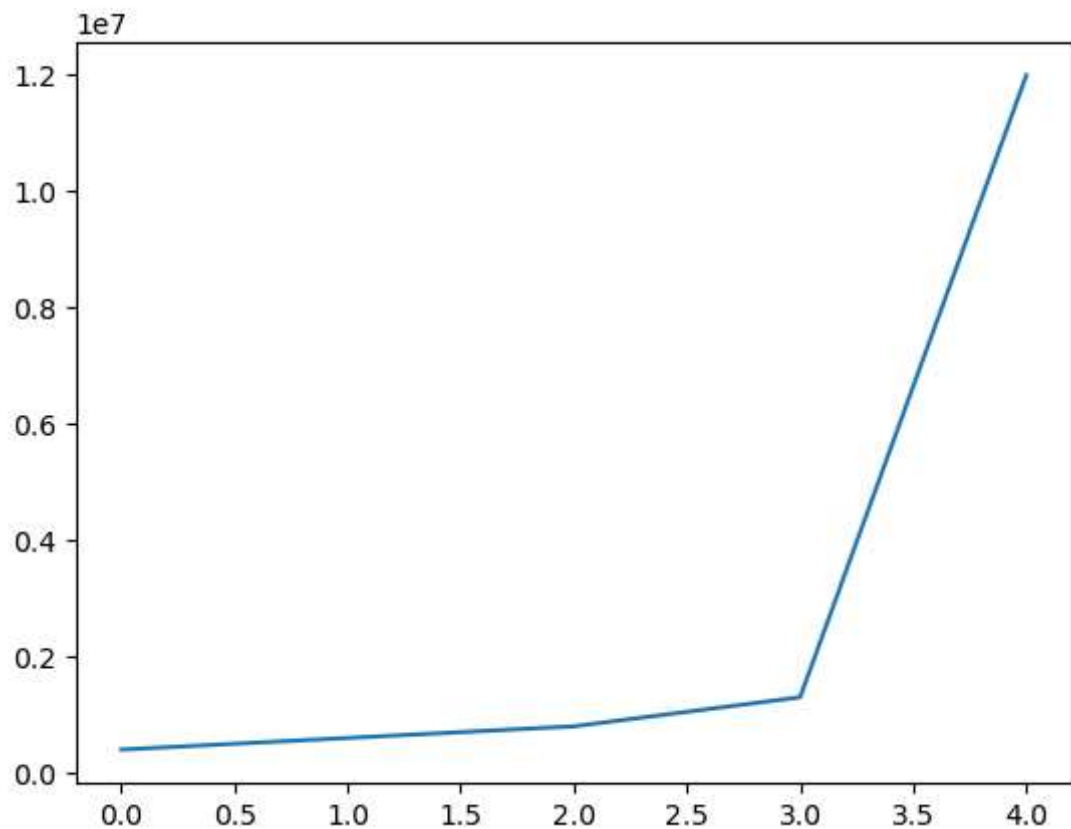
```
In [18]:  plt.plot(Car_Sales[4])      # Toyota sales
```

```
Out[18]:  [<matplotlib.lines.Line2D at 0x1eb7b35ddc0>]
```


plotting of Year Wise Cars rate
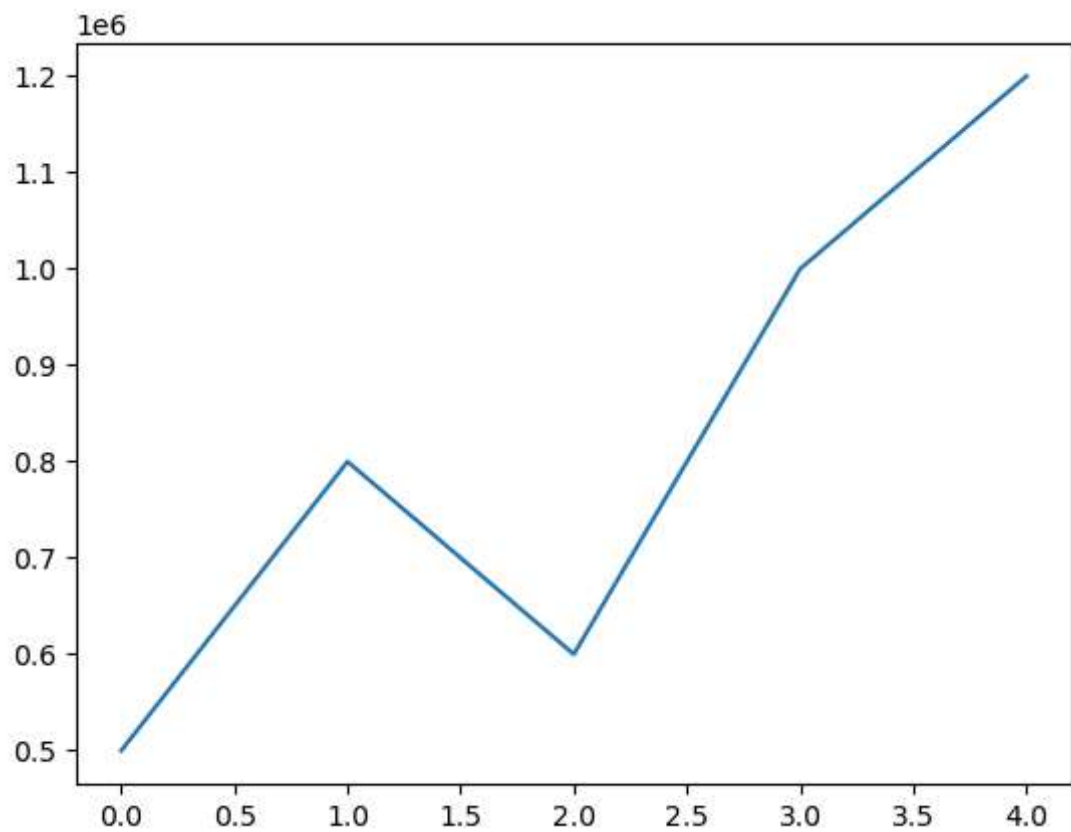
```
In [19]:  plt.plot(Car_Rate[1])      # Swift car cost year wise
```
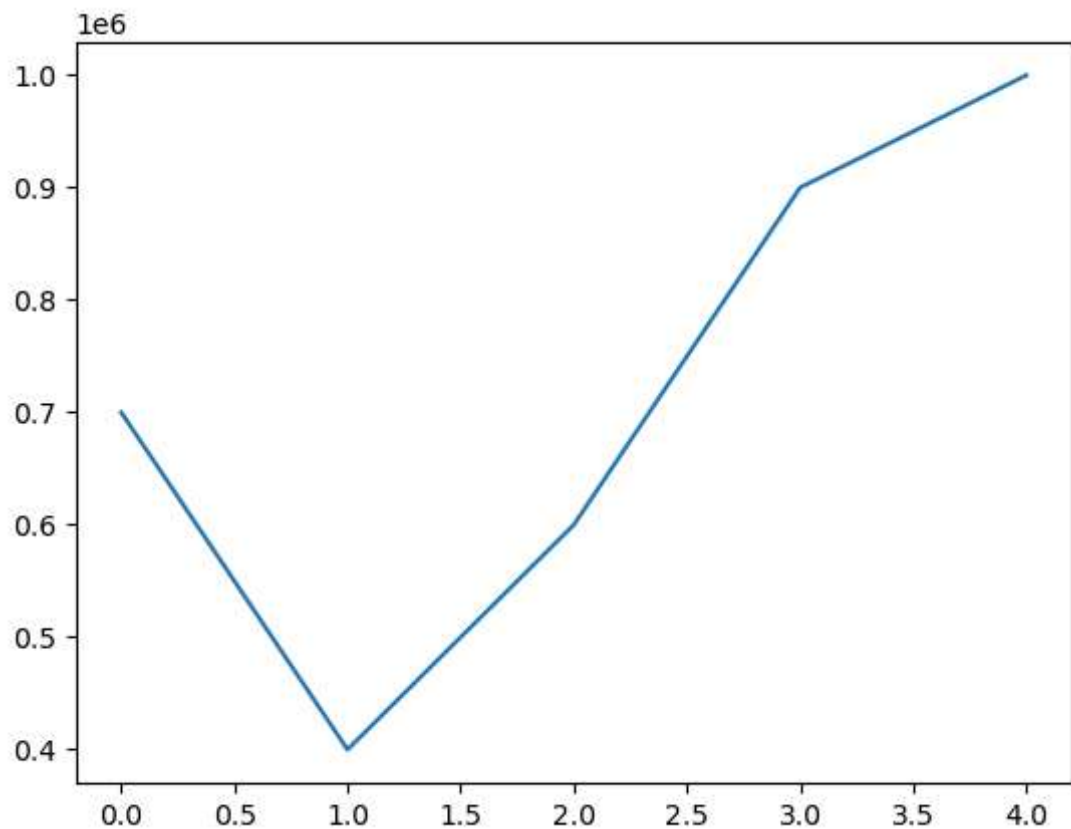
Out[19]: [<matplotlib.lines.Line2D at 0x1eb7b3c7950>]

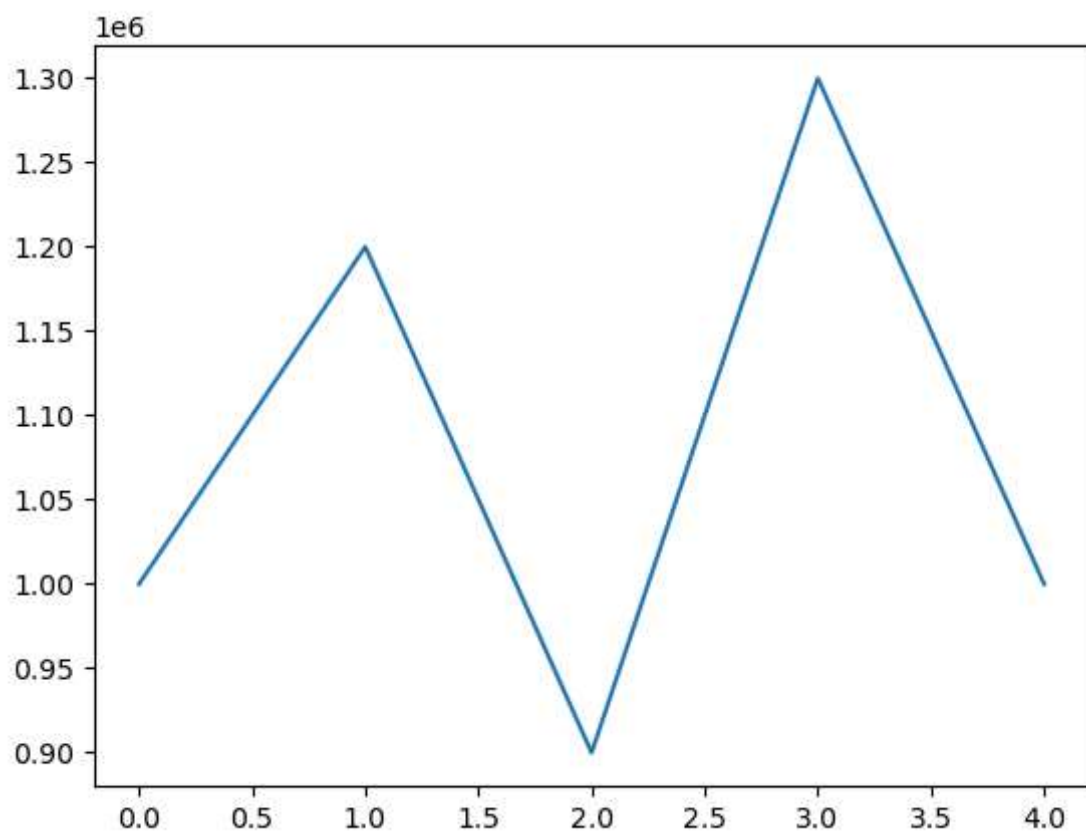In [20]: ```python
plt.plot(Car_Rate[0])   #mahendra cost
```

Out[20]: [<matplotlib.lines.Line2D at 0x1eb7c4366f0>]

In [21]: ```python
plt.plot(Car_Rate[2])   # Wolkswagan cost
```

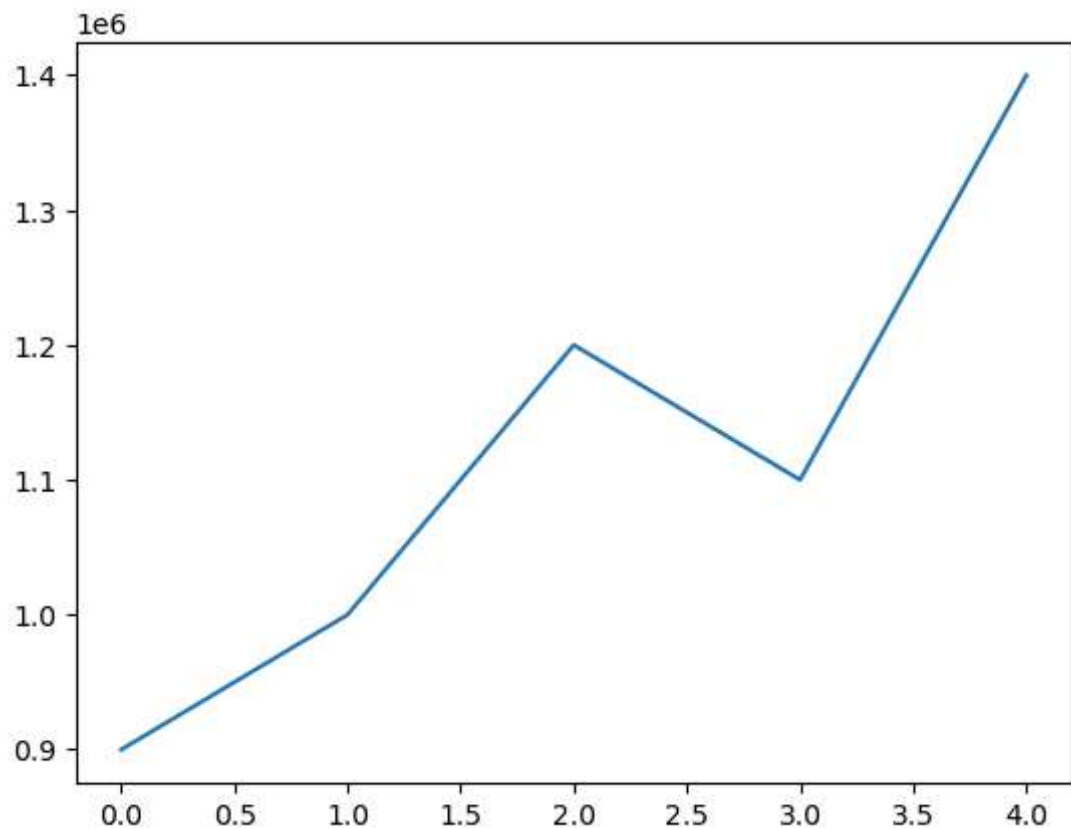Out[21]: [<matplotlib.lines.Line2D at 0x1eb7c4b1a60>]



```
In [22]: plt.plot(Car_Rate[3])    # Skoda cost
```

Out[22]: [<matplotlib.lines.Line2D at 0x1eb7c540260>]
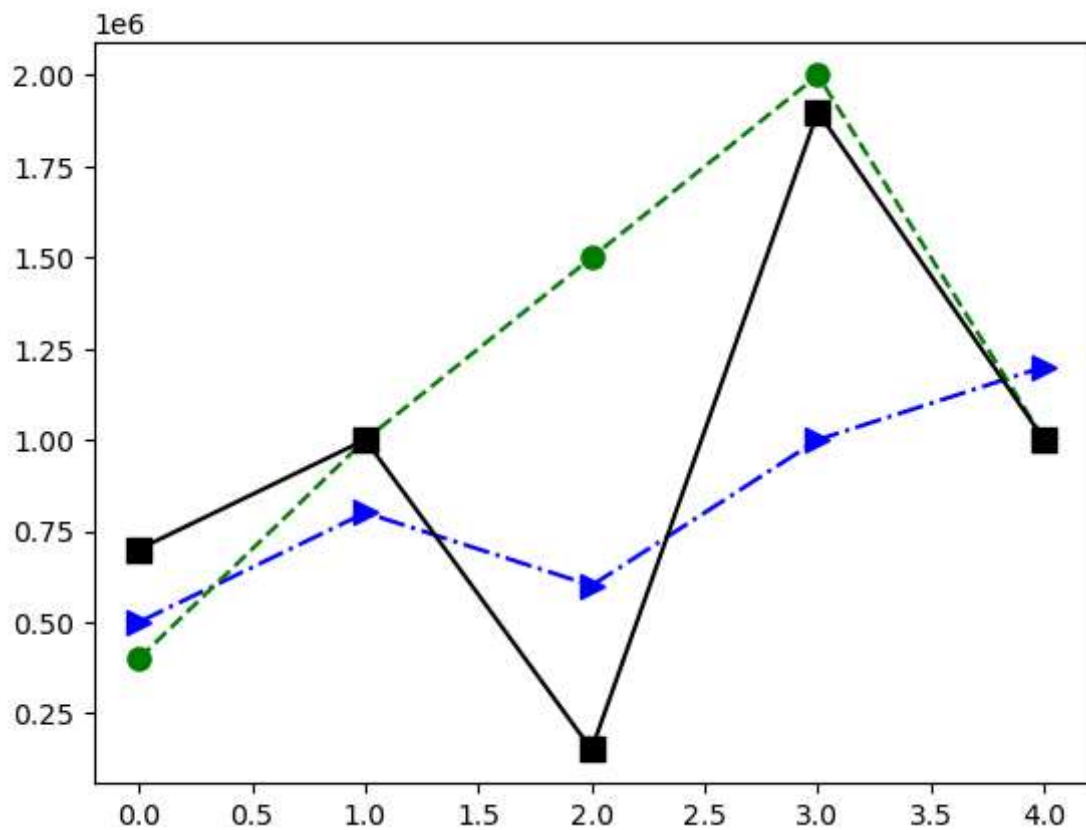


```
In [23]: plt.plot(Car_Rate[4])    # Toyota cost
```
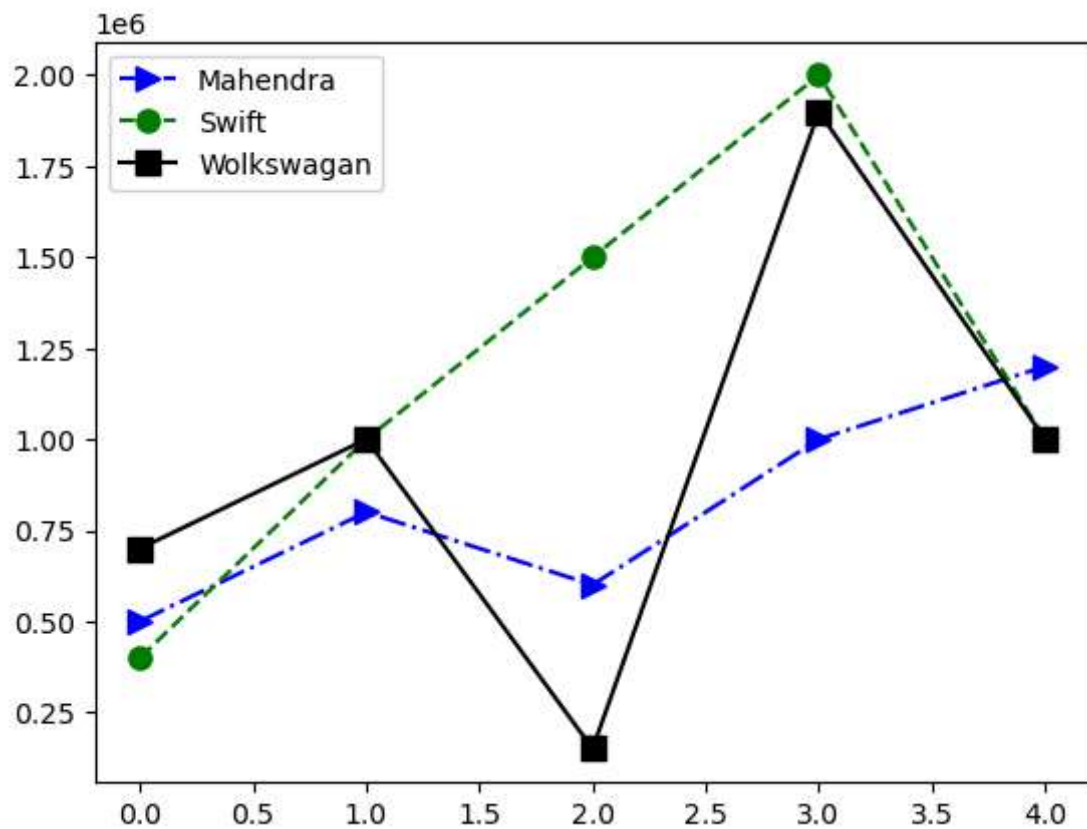
Out[23]: [<matplotlib.lines.Line2D at 0x1eb7c597d40>]


```python
plt.plot(Car_Rate[0], c = 'blue', ls = '-.', ms =8 ,marker = '>')
plt.plot(Car_Rate[1],c = 'green', ls = '--', ms =8, marker = 'o')
plt.plot(Car_Rate[2], c = 'black', ls = '-', ms =8 ,marker = 's')
```

Out[35]: [<matplotlib.lines.Line2D at 0x1eb02e82de0>]

In [37]:
```python
plt.plot(Car_Rate[0], c = 'blue', ls = '-.', ms =8 ,marker = '>', label = Car_na
plt.plot(Car_Rate[1],c = 'green', ls = '--', ms =8, marker = 'o',label = Car_nam
plt.plot(Car_Rate[2], c = 'black', ls = '-', ms =8 ,marker = 's',label = Car_nam
plt.legend()
```

Out[37]: `<matplotlib.legend.Legend at 0x1eb03703c20>`

In [ ]: