In [1]:
```python
#Q. 671
import numpy as np
from matplotlib import pyplot as plt
# Manual data setup
labels = ('Engineering', 'Manufacturing', 'Sales', 'Profit')
sizes = [1.35,3.6,2.25,1.8]
# pie chart setup
myexplode=[0.1,0.4,0.3,0.2]
plt.pie(sizes, labels=labels, autopct='%1.f%%', explode=myexplode)

# layout configuration
plt.ylabel('Cost (in dollars)')
plt.xlabel('cost categories')

# Save the chart file
#pyplot.savefig('matplotlib_pie_chart01.png', dpi=300)

# Print the chart
plt.show()
```
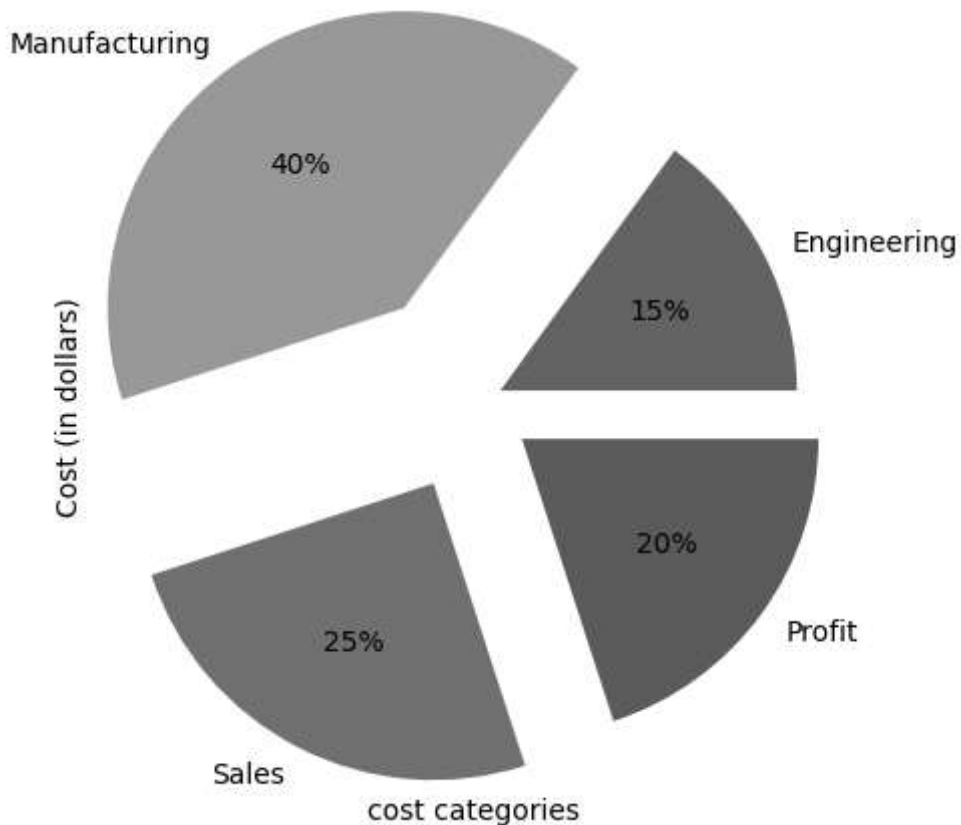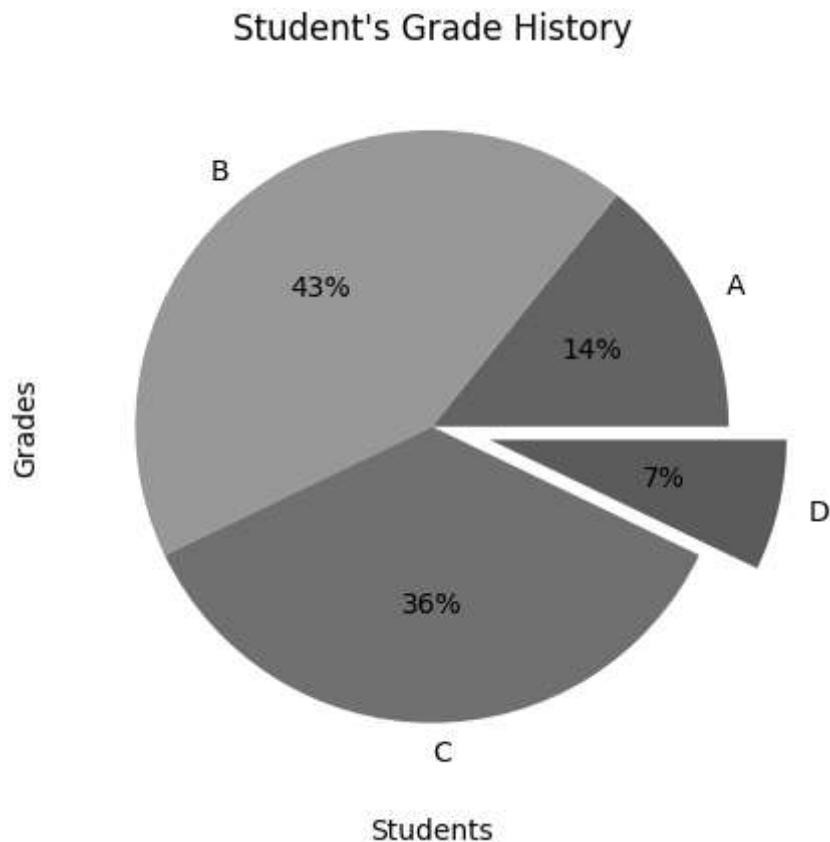

In [2]:
```python
#Q. 672
import numpy as np
from matplotlib import pyplot as plt
# Manual data setup
labels = ('A', 'B', 'C', 'D')
sizes = [4,12,10,2]
# pie chart setup
myexplode=[0,0,0,0.2]
plt.pie(sizes, labels=labels, autopct='%1.f%%', explode=myexplode)
```

Prepared by Abhi Shah

```
# layout configuration
plt.ylabel('Grades')
plt.xlabel('Students')
plt.title("Student's Grade History")

# Save the chart file
#pyplot.savefig('matplotlib_pie_chart01.png', dpi=300)

# Print the chart
plt.show()
```
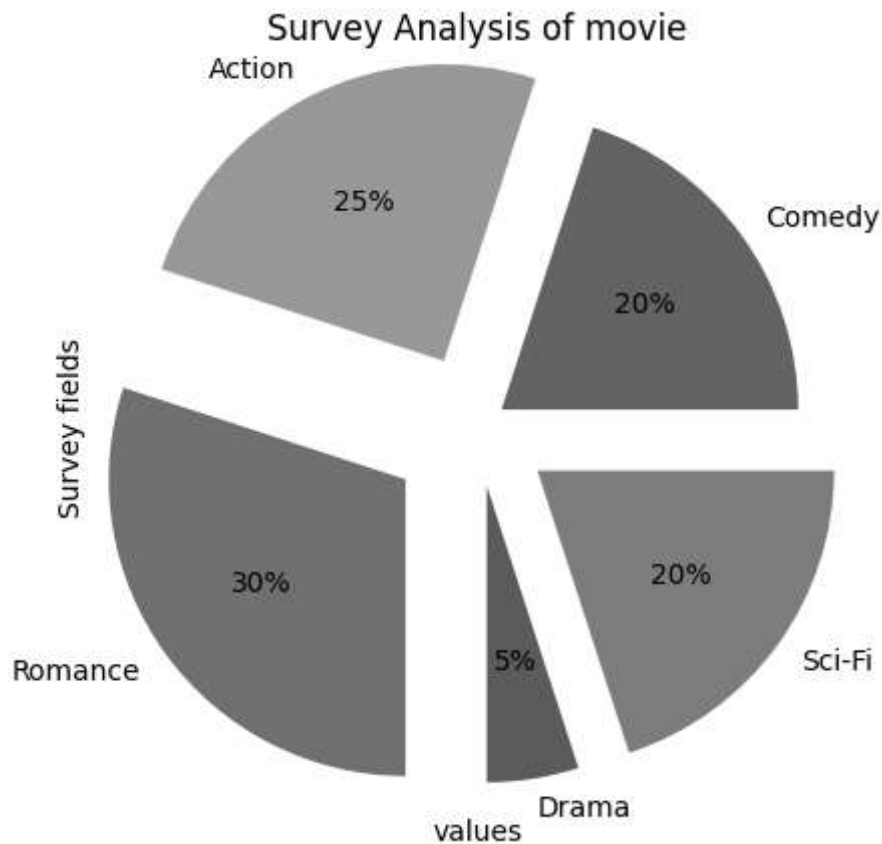
Student's Grade History


```
In [3]: #Q. 673
        import numpy as np
        from matplotlib import pyplot as plt
        # Manual data setup
        labels = ('Comedy','Action','Romance','Drama','Sci-Fi')
        sizes = [4,5,6,1,4]
        # pie chart setup
        myexplode=[0.1,0.25,0.3,0.2,0.25]
        plt.pie(sizes, labels=labels, autopct='%1.f%%', explode=myexplode)

        # layout configuration
        plt.ylabel('Survey fields')
        plt.xlabel('values')
        plt.title('Survey Analysis of movie')

        # Save the chart file
        #pyplot.savefig('matplotlib_pie_chart01.png', dpi=300)
```

```
# Print the chart
plt.show()
```

## Survey Analysis of movie


```
In [4]:  #Q. 674
         import numpy as np
         from matplotlib import pyplot as plt
         # Manual data setup
         labels = ('Python', 'Java', 'JavaScript', 'C#', 'PHP', 'C,C++', 'R')
         sizes = [29, 19, 8, 7, 6, 5, 3]
         # bar chart setup
         myexplode=[0.2,0,0,0,0,0,0]
         plt.pie(sizes, labels=labels, autopct='%1.f%%', explode=myexplode)

         # layout configuration
         plt.ylabel('Usage in %')
         plt.xlabel('Programming Languages')

         # Save the chart file
         #pyplot.savefig('matplotlib_pie_chart01.png', dpi=300)

         # Print the chart
         plt.show()
```
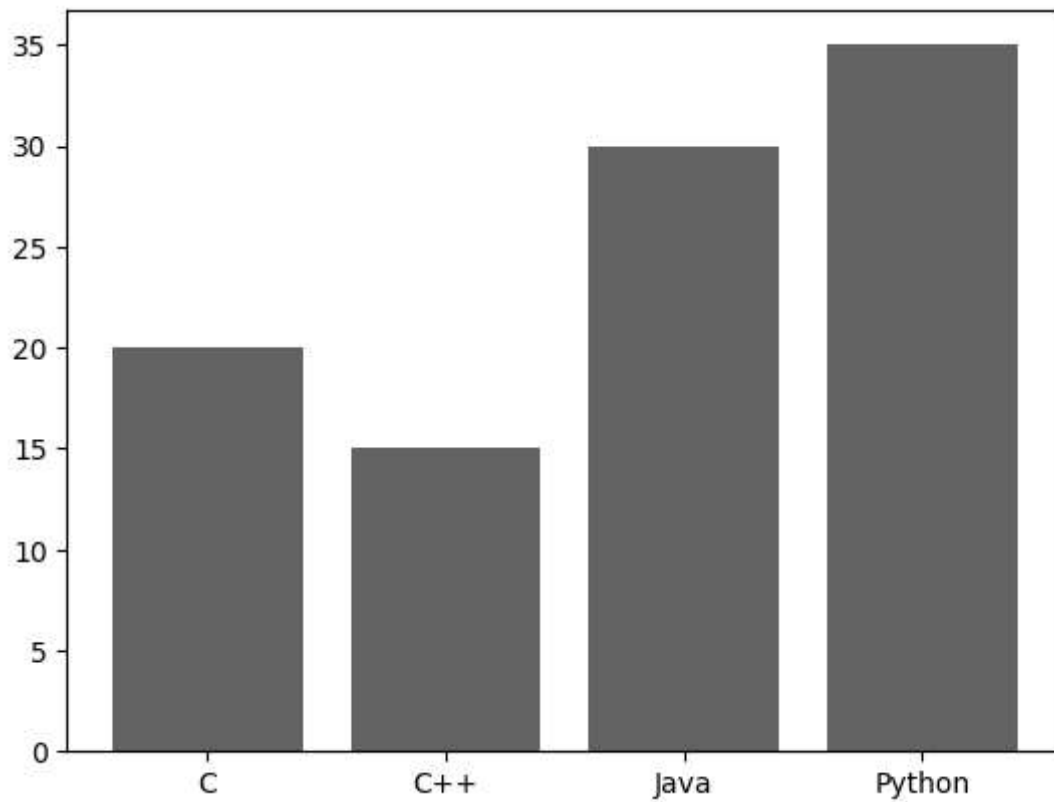
Programming Languages
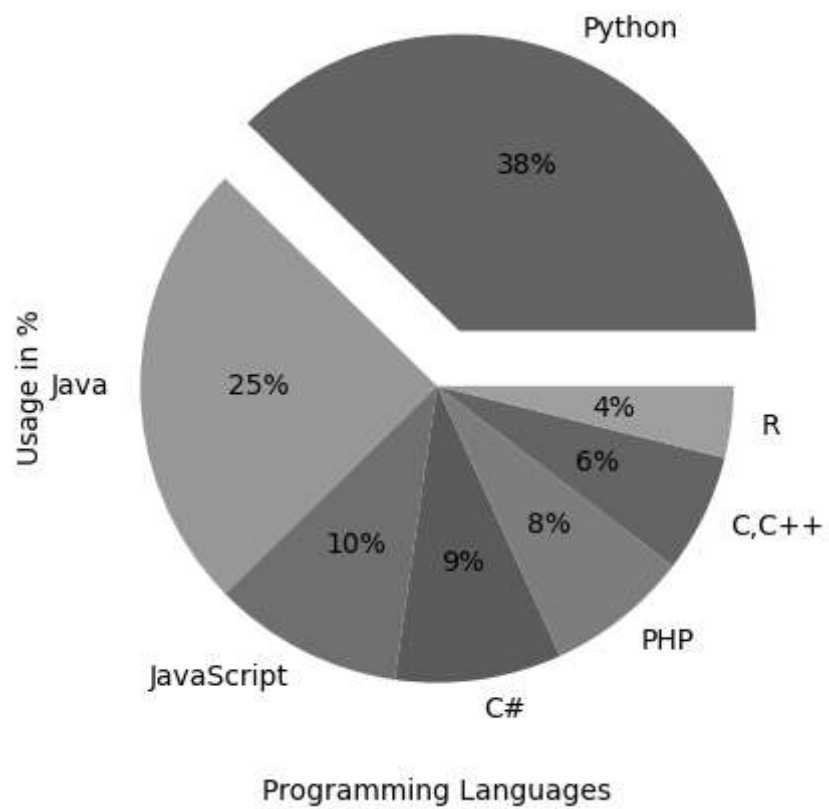
```
#Q. 675
import numpy as np
from matplotlib import pyplot as plt
data={'C':20,'C++':15,'Java':30,'Python':35}
proglang=list(data.keys())
values=list(data.values())
plt.bar(proglang,values)
plt.show()
```

```
#Q. 676
import matplotlib.pyplot as plt

country = ['USA', 'Canada', 'Germany', 'UK', 'France']
gdp_per_capita = [45000, 42000, 52000, 49000, 47000]

colors = ['green', 'blue', 'purple', 'brown', 'teal']
plt.bar(country, gdp_per_capita, color=colors)
plt.title('Country Vs GDP Per Capita', fontsize=14)
plt.xlabel('Country', fontsize=14)
plt.ylabel('GDP Per Capita', fontsize=14)
plt.grid(True)
plt.show()
```

Country Vs GDP Per Capita
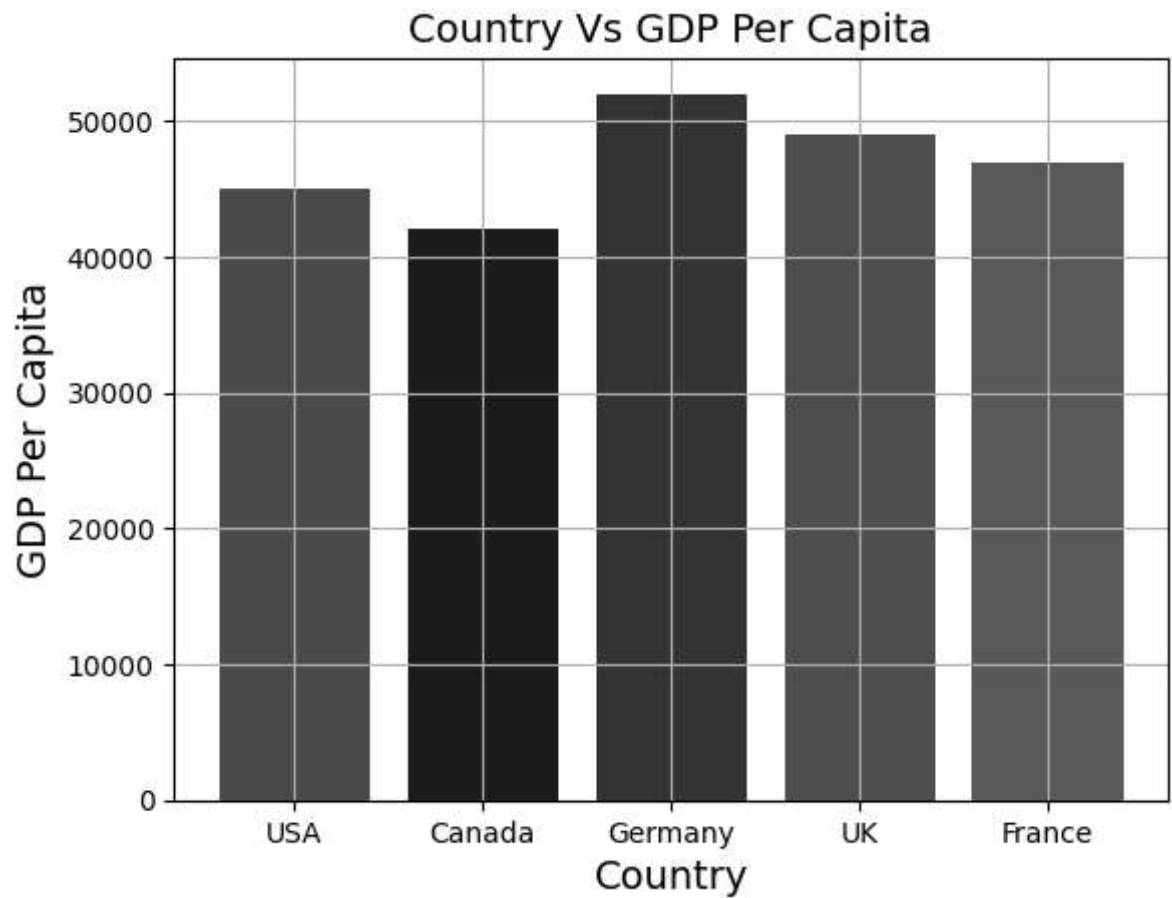
In [6]:
```python
#Q. 677
import numpy as np
from matplotlib import pyplot as plt
x= [1001,1003,1006,1007,1009,1011]
y= [10000,23000.50,18000.33,16500.5,12000.75, 9999.99]

x1=[1002,1004,1010,1008,1014,1015]
y1=[5000,6000,4500.5,12000,9000,10000]


plt.bar(x,y,label='sales dept',color='red')

plt.bar(x1,y1,label='Purchase dept',color='green')
plt.title('MICROSOFT INC')
plt.show()
```
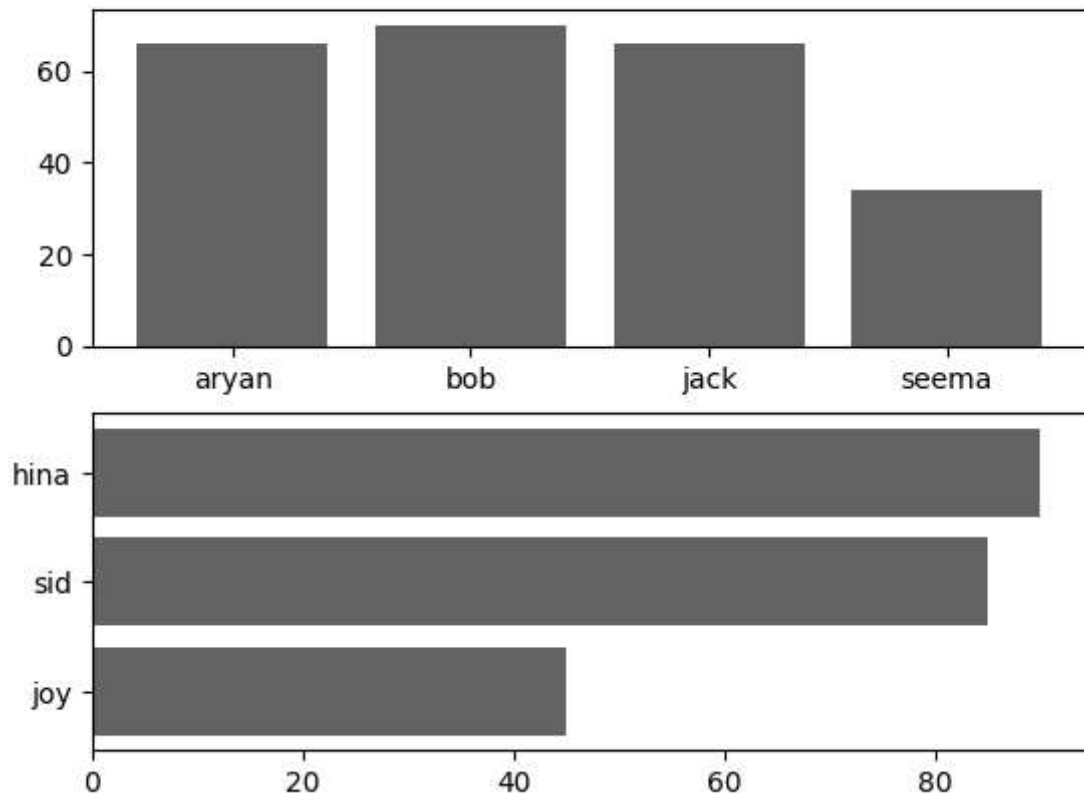
MICROSOFT INC
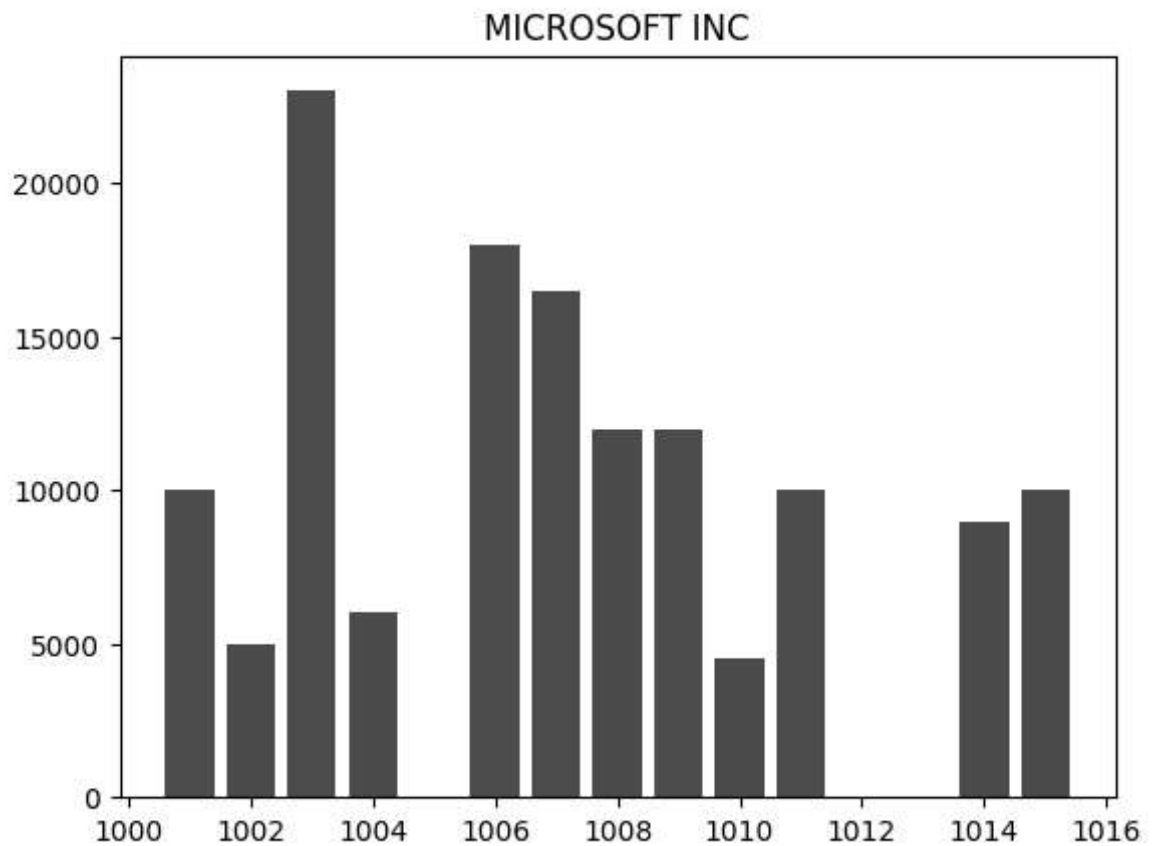
In [7]:
```python
#Q. 678
import numpy as np
from matplotlib import pyplot as plt
D1={'aryan':66,'bob':70,'jack':66,'seema':34}
D2={'joy':45,'sid':85,'hina':90}
name1=list(D1.keys())
values1=list(D1.values())
name2=list(D2.keys())
plt.subplot(2,1,1)
plt.bar(name1,values1)
values2=list(D2.values())
plt.subplot(2,1,2)
plt.barh(name2,values2)
plt.suptitle('BAR PLOT')
plt.show()
```

Prepared by Abhi Shah

BAR PLOT

In [8]:
```python
#Q. 679
# Q 679
import matplotlib.pyplot as plt
emp_ages=[22,45,30,59,58,56,57,45,43,43,50,40,34,33,25,19]
bins=[0,10,20,30,40,50,60]
plt.hist(emp_ages,bins,rwidth=0.8,color='cyan')
plt.xlabel("employee ages")
plt.ylabel('no. of employees')
plt.title('ORACLE CORP')
plt.show()
```
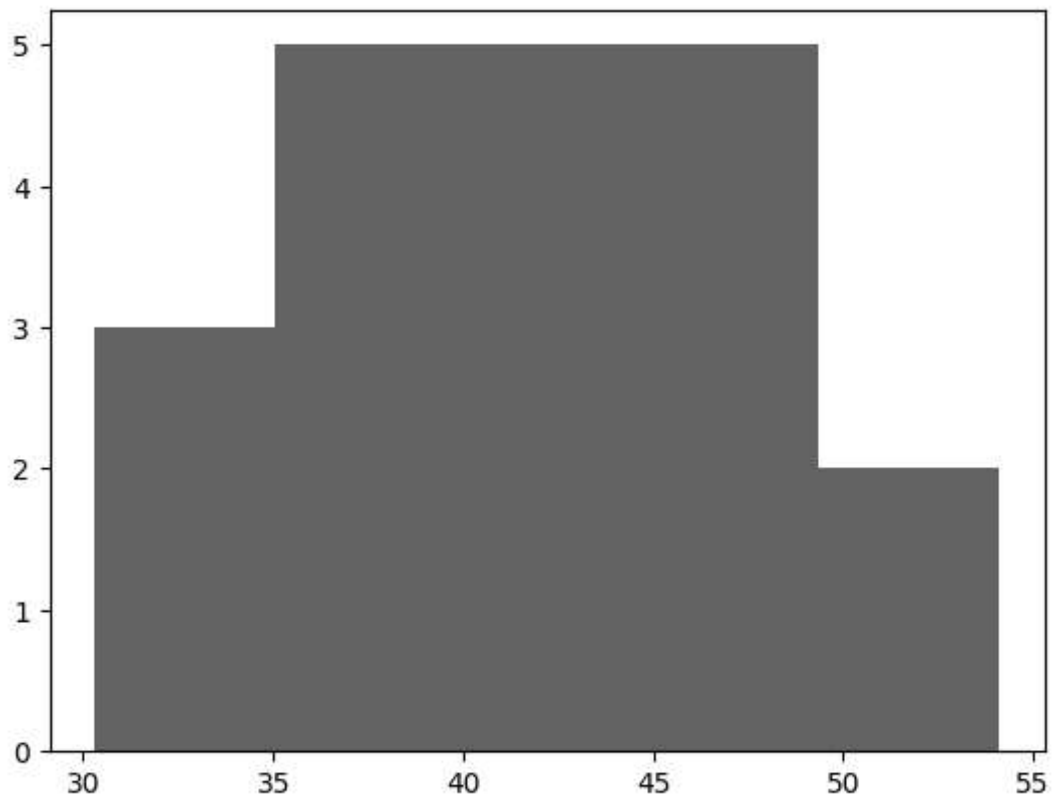
ORACLE CORP
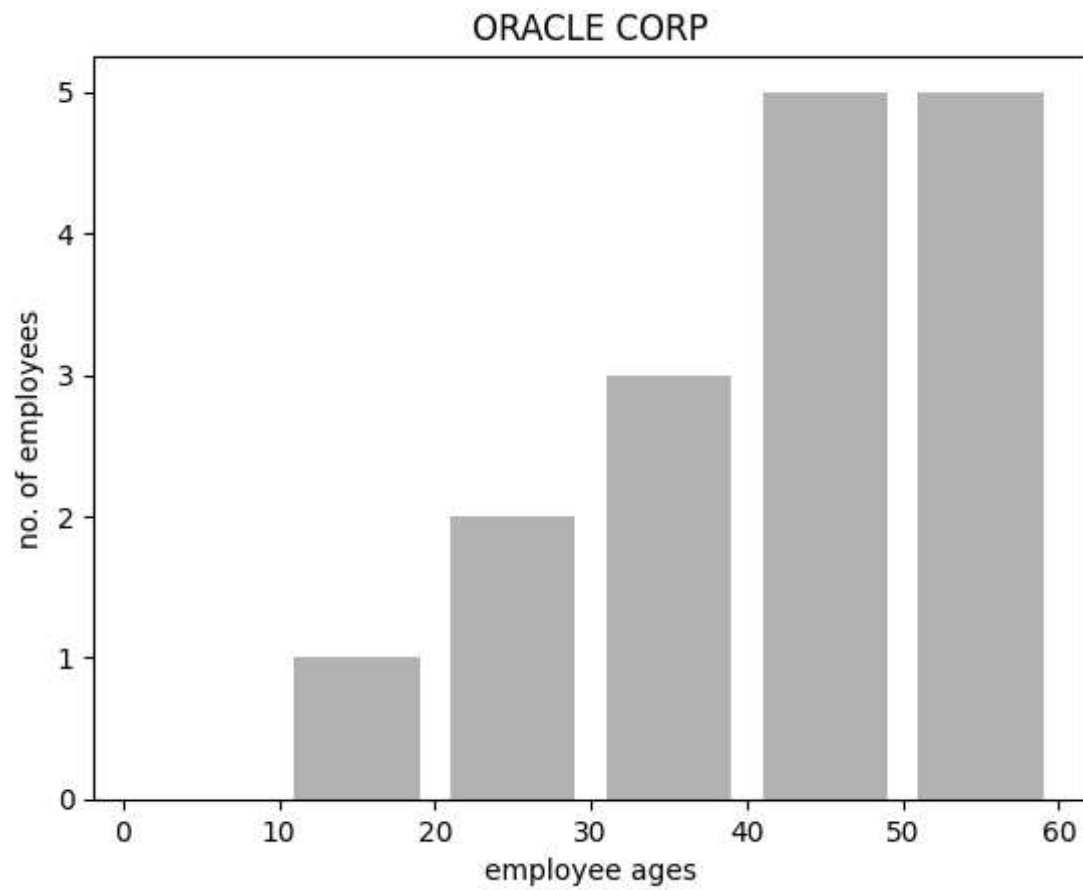
In [9]:
```
#Q. 680
import matplotlib.pyplot as plt

x = [43.1,35.6,37.6,36.5,45.3,43.5,40.3,50.2,47.3,31.2,42.2,45.5,30.3,31.4,35.6,45.2,5

plt.hist(x,bins=5)
plt.show()
```
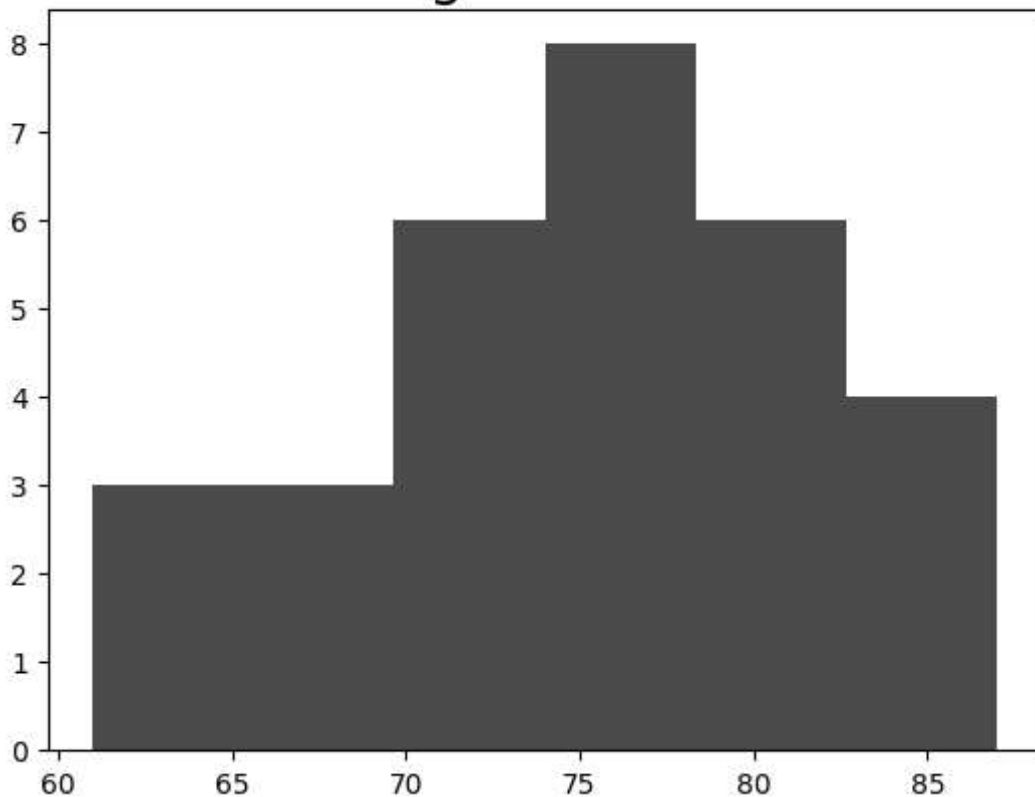
```
#Q. 681
import matplotlib.pyplot as plt

x = [61, 63, 64, 66, 68, 69, 71, 71.5, 72, 72.5, 73, 73.5, 74, 74.5, 76, 76.2, 76.5, 7

plt.hist(x,bins=6,color='green')
plt.title('Height of trees', fontsize=20)
plt.show()
```

Height of trees

```
#Q682
import numpy as np
from matplotlib import pyplot as plt

# Create an ndarray on x axis using the numpy range() function:
x=[2012,2013,2014,2015,2016,2017]
y=[9,10,10.5,8.8,10.9,9.75]

plt.xlabel("Years")
plt.ylabel("Profits (in Millions)")
plt.title("XYZ Company")

# Plot values using x,y coordinates:
plt.plot(x,y,linestyle="--")
plt.show()
```
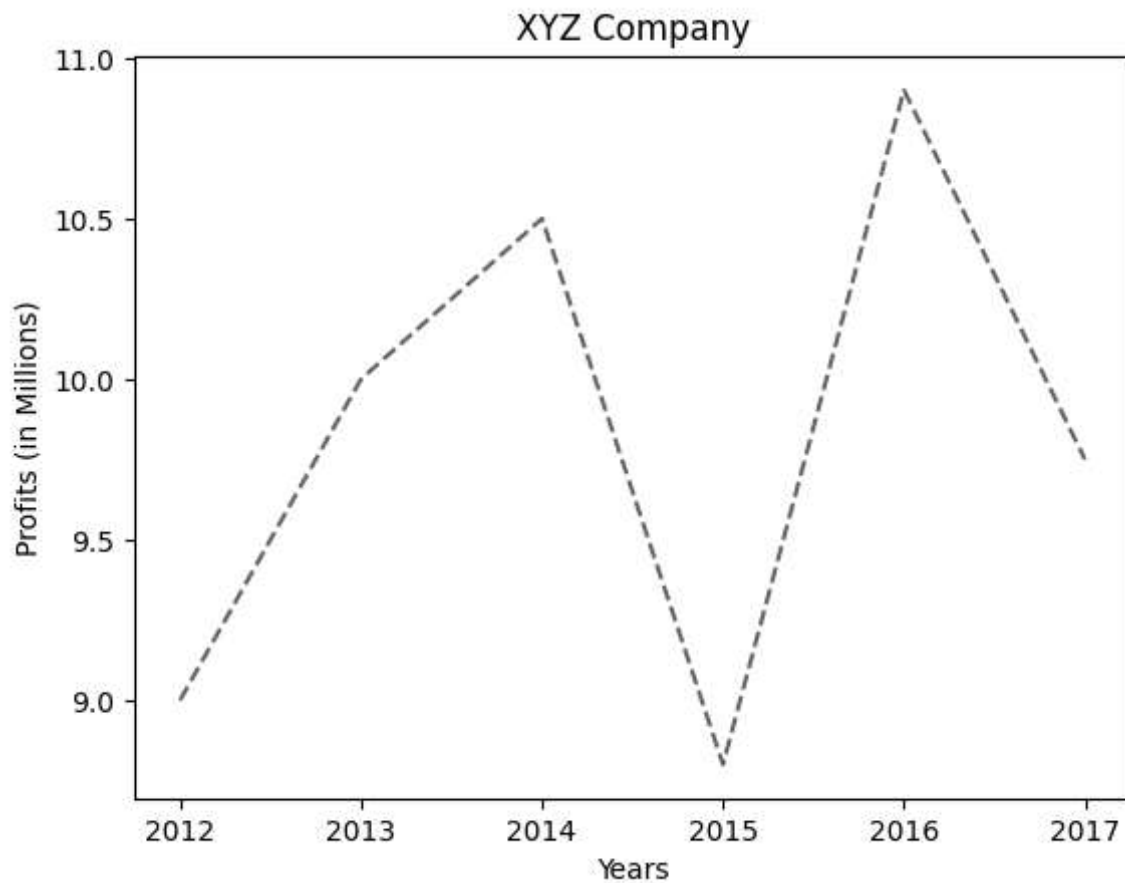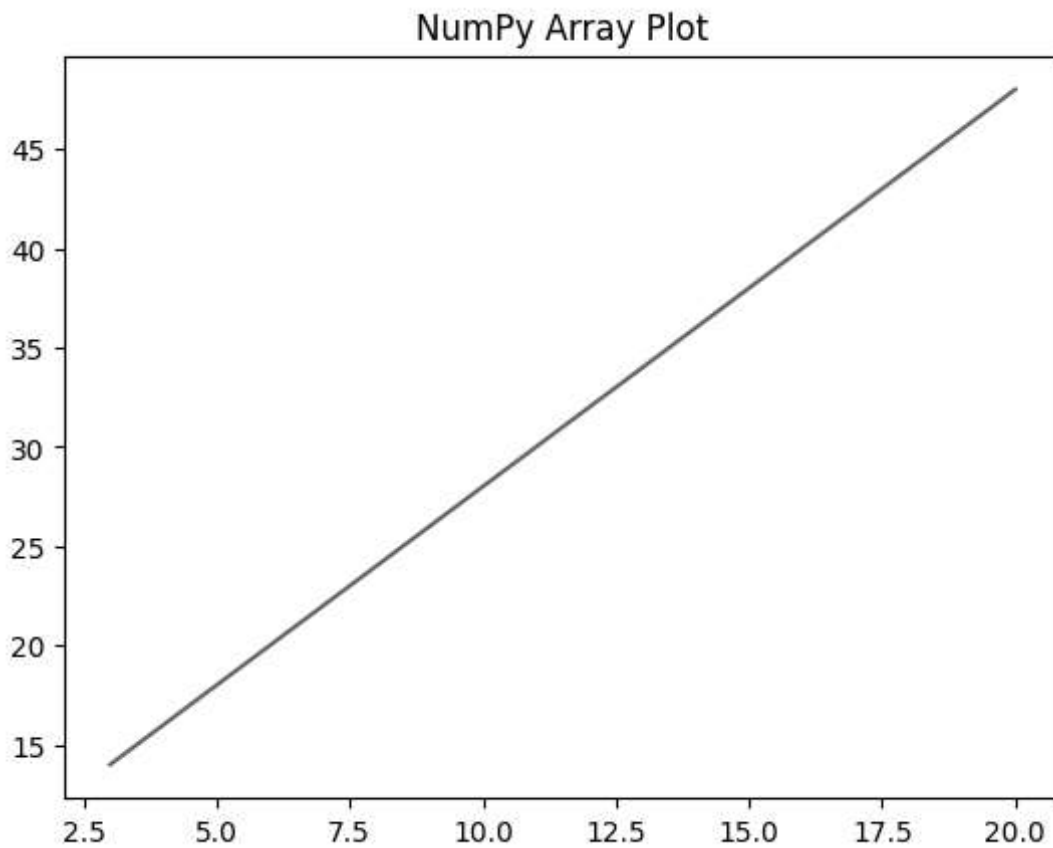
Prepared by Abhi Shah

XYZ Company

In [12]:
```python
#Q.683
import numpy as np
from matplotlib import pyplot as plt

# Create an ndarray on x axis using the numpy range() function:
x = np.arange(3,21)

# Store equation values on y axis:
y = 2 * x + 8
plt.title("NumPy Array Plot")

# Plot values using x,y coordinates:
plt.plot(x,y)
plt.show()
```
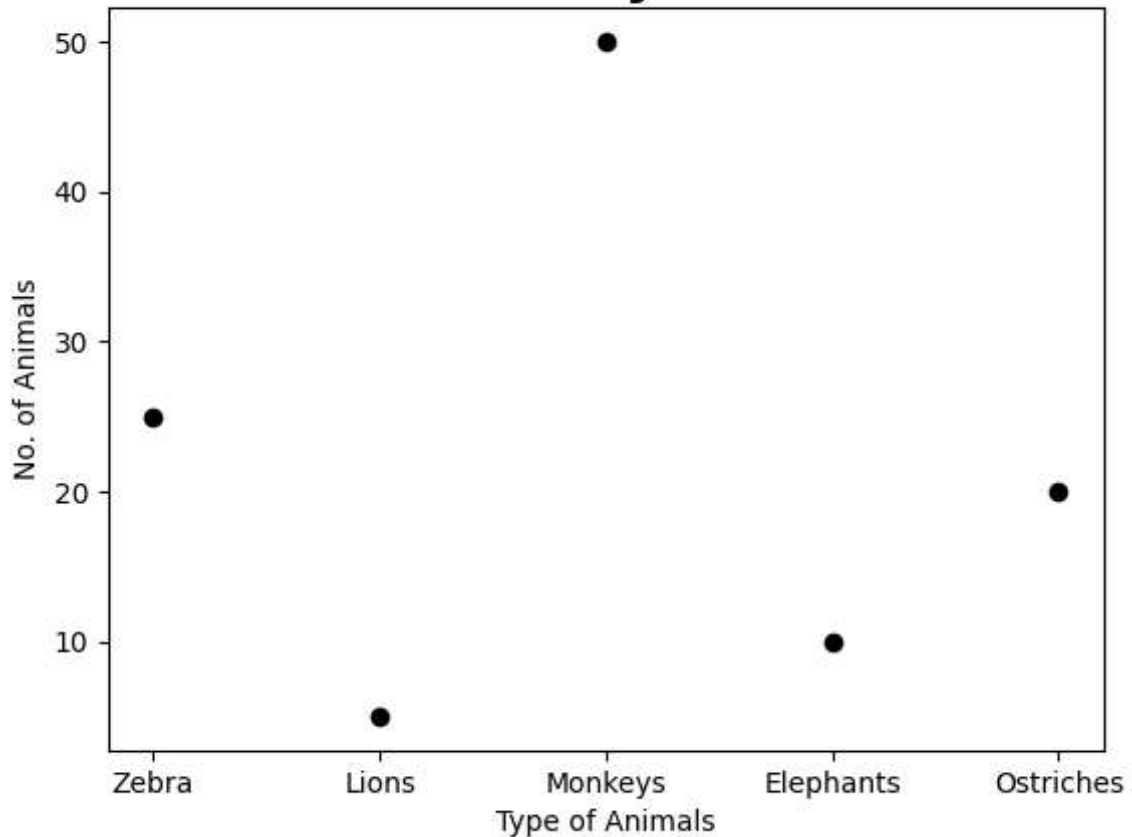
NumPy Array Plot

```
#Q. 684
import numpy as np
import matplotlib.pyplot as plt
x=["Zebra","Lions","Monkeys","Elephants","Ostriches"]
y=[25,5,50,10,20]
plt.scatter(x,y,color="black")
plt.title("Animal Analysis in Zoo",fontsize=20, fontweight="bold")
plt.xlabel('Type of Animals')
plt.ylabel('No. of Animals')

plt.show()
```

Animal Analysis in Zoo

In [19]:
```python
#Q. 685
import numpy as np
import matplotlib.pyplot as plt
discount= np.array([10,20,30,40,50])
saleInRs=eval(input("Enter 5 sales in Rs:"))
#saleInRs=np.array([40000,45000,48000,50000,100000])
plt.scatter(x=discount,y=saleInRs)
plt.title('Sales Vs Discount')
plt.xlabel('Discount offered')
plt.ylabel('Sales in Rs')
plt.show()
```

Enter 5 sales in Rs:[40000,45000,48000,50000,100000]

Prepared by Abhi Shah

Sales Vs Discount
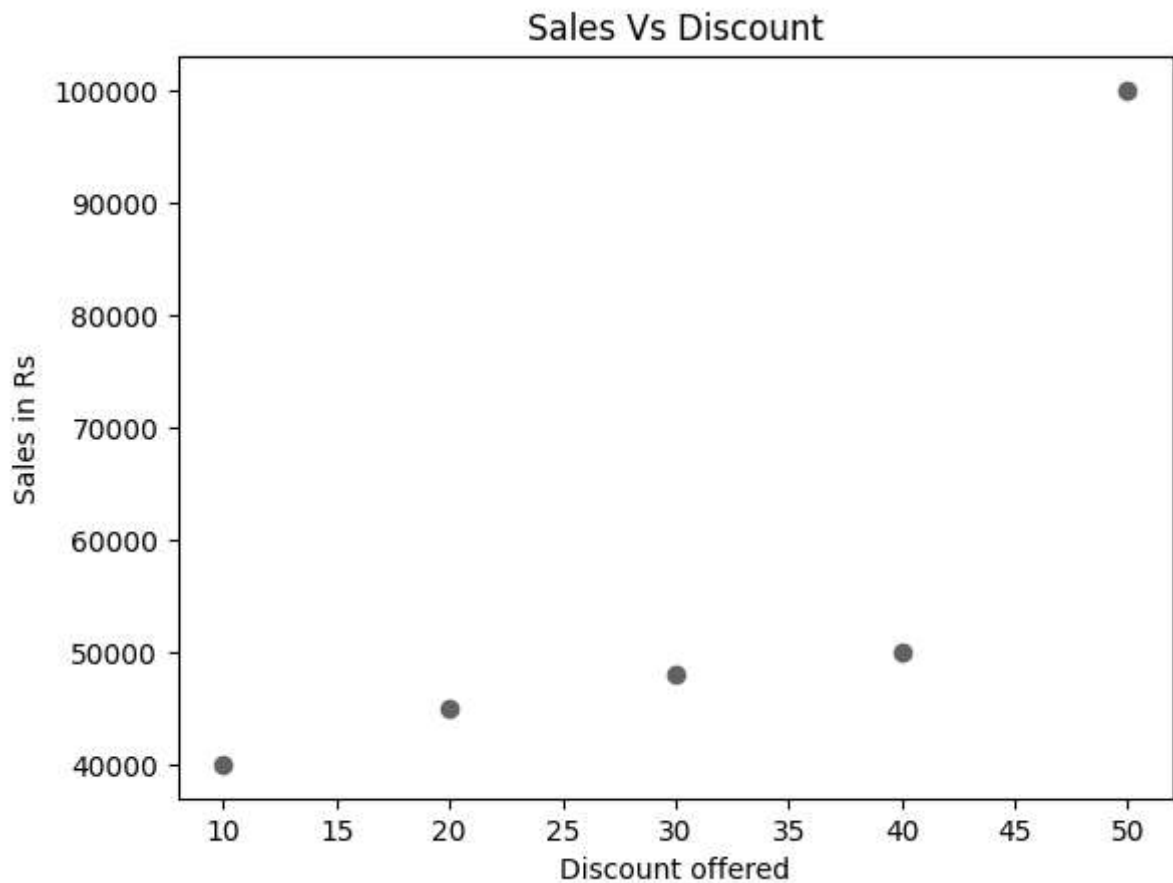
```
In [14]:  #Q. 686
          import matplotlib.pyplot as plt
          x = [1,1.5,2,2.5,3,3.5,3.6]
          y = [7.5,8,8.5,9,9.5,10,10.5]

          x1=[8,8.5,9,9.5,10,10.5,11]
          y1=[3,3.5,3.7,4,4.5,5,5.2]

          plt.scatter(x,y, label='high income low saving',color='r')
          plt.scatter(x1,y1,label='low income high savings',color='b')
          plt.xlabel('saving*100')
          plt.ylabel('income*1000')
          plt.title('INCOME V/S SALARY SCATTER PLOT')
          plt.legend()
          plt.show()
```

INCOME V/S SALARY SCATTER PLOT
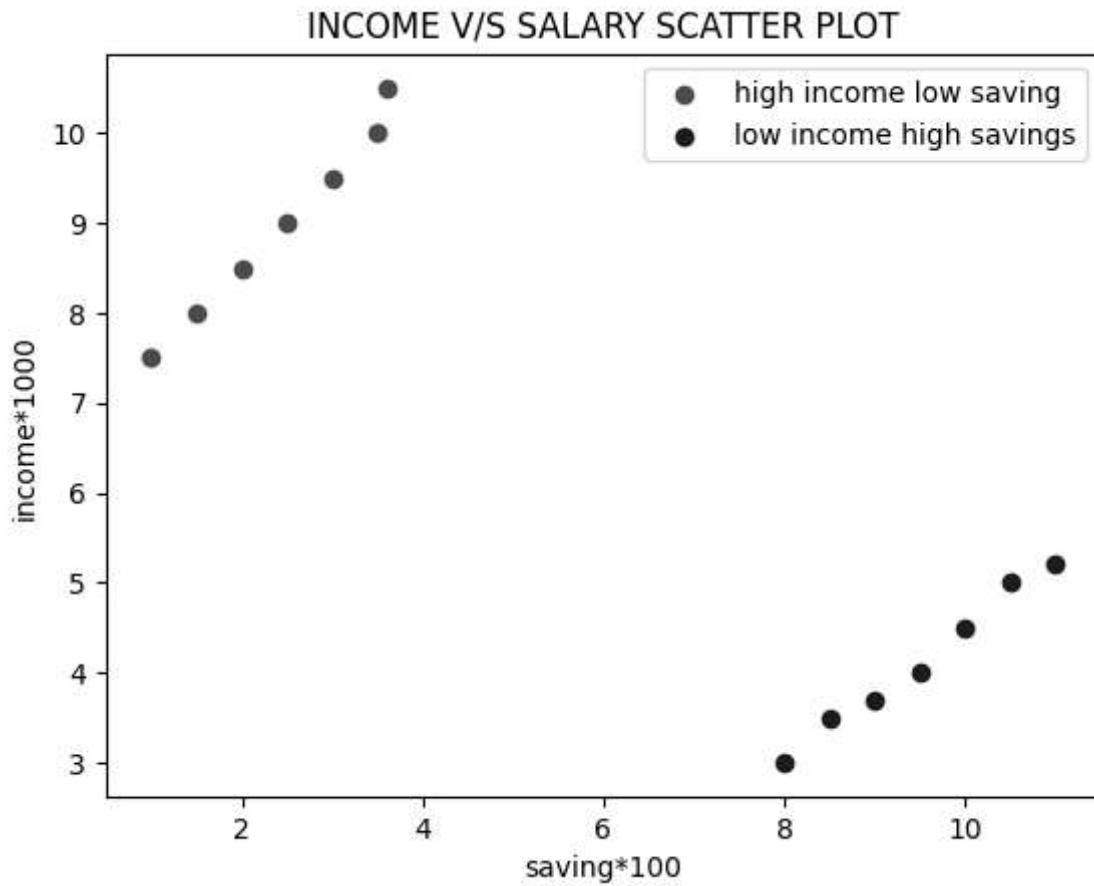
```
In [15]:  #Q.687
          import matplotlib.pyplot as plt
          days = [1, 2, 3, 4, 5]
          Y1 = [50, 40, 70, 80, 20]
          Y2=[80, 20, 20, 50, 60]
          Y3=[70, 20, 60, 40, 60]
          Y4=[80, 20, 20, 50, 60]
          plt.scatter(days,Y1, label='Enfield',color='r')
          plt.scatter(days,Y2,label='Honda',color='b')
          plt.scatter(days,Y3,label='Yahama',color='y')
          plt.scatter(days,Y4,label='KTM',color='k')
          plt.xlabel('Days')
          plt.ylabel('Distance in kms')
          plt.title('Bike details in Scatter Plot')
          plt.legend()
```
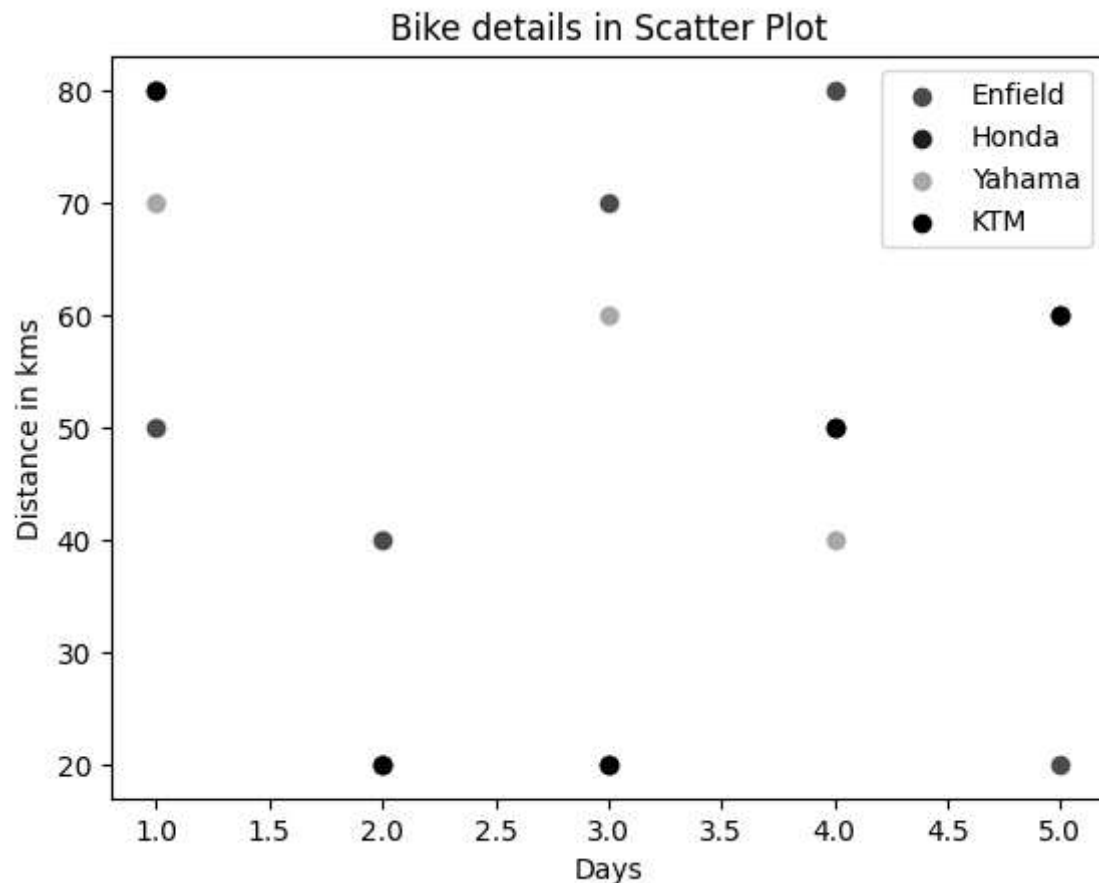
Out[15]: <matplotlib.legend.Legend at 0x1d10c36b880>

Prepared by Abhi Shah

Bike details in Scatter Plot
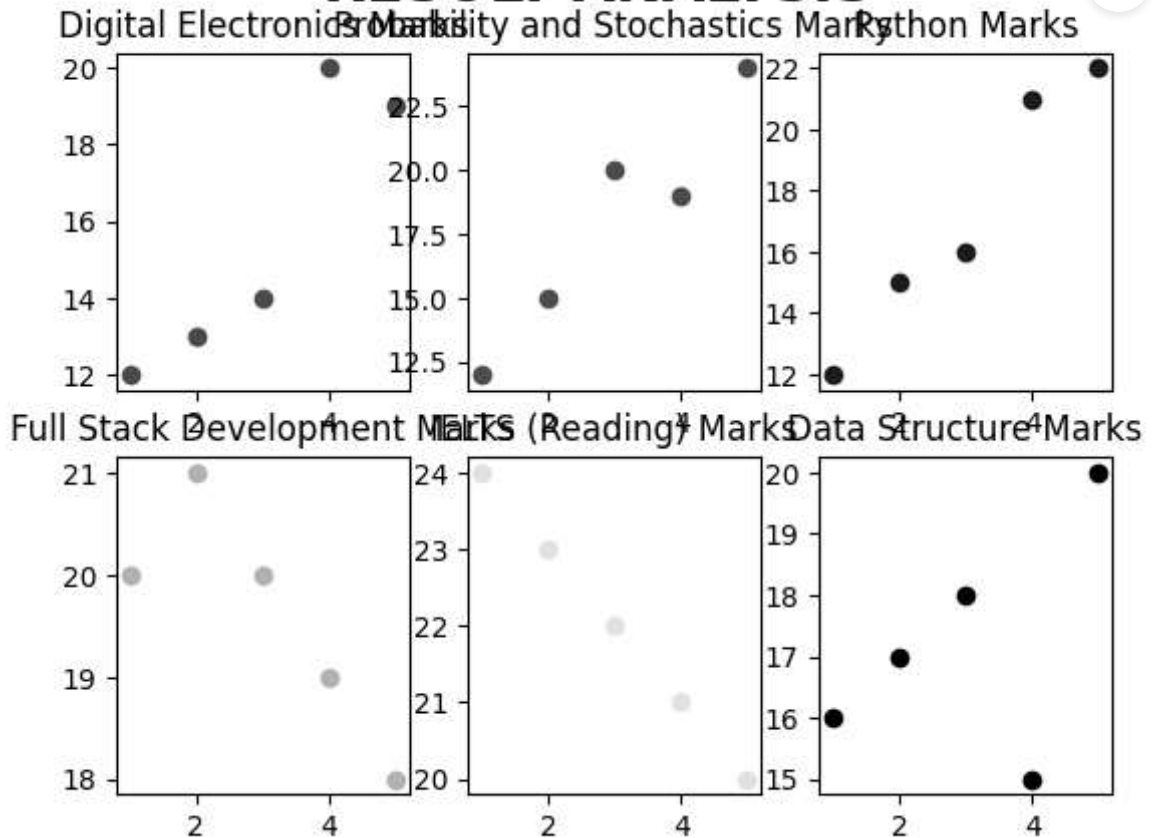
```
In [16]: #Q. 688
         import numpy as np
         import matplotlib.pyplot as plt
         x=np.array([1,2,3,4,5])
         DEM=eval(input("Enter 5 student marks for Digital Electronics out of 25:"))
         plt.subplot(2,3,1)
         plt.title('Digital Electronics Marks')
         plt.scatter(x,DEM,color="green")
         PSM=eval(input("Enter 5 student marks for Probability and Stochastics out of 25:"))
         plt.subplot(2,3,2)
         plt.title('Probability and Stochastics Marks')
         plt.scatter(x,PSM,color="red")
         PM=eval(input("Enter 5 student marks for Python out of 25:"))
         plt.subplot(2,3,3)
         plt.title('Python Marks')
         plt.scatter(x,PM,color="blue")
         FSM=eval(input("Enter 5 student marks for Full Stack Development out of 25:"))
         plt.subplot(2,3,4)
         plt.title('Full Stack Development Marks')
         plt.scatter(x,FSM,color="cyan")
         IEM=eval(input("Enter 5 student marks for IELTS (Reading) out of 25:"))
         plt.subplot(2,3,5)
         plt.title('IELTS (Reading) Marks')
         plt.scatter(x,IEM,color="yellow")
         DSM=eval(input("Enter 5 student marks for Data Structure out of 25:"))
         plt.subplot(2,3,6)
         plt.title('Data Structure Marks')
         plt.scatter(x,DSM,color="black")
```

Prepared by Abhi Shah

```
plt.suptitle("RESULT ANALYSIS",fontsize=20, fontweight="bold",)
plt.show()
```

Enter 5 student marks for Digital Electronics out of 25:[12,13,14,20,19]
Enter 5 student marks for Probability and Stochastics out of 25:[12,15,20,19,24]
Enter 5 student marks for Python out of 25:[12,15,16,21,22]
Enter 5 student marks for Full Stack Development out of 25:[20,21,20,19,18]
Enter 5 student marks for IELTS (Reading) out of 25:[24,23,22,21,20]
Enter 5 student marks for Data Structure out of 25:[16,17,18,15,20]

RESULT ANALYSIS

In [ ]: