In [1]:
```
#Experiment no.6
```

In [2]:
```
#Aim : To perform Data Visualization using Matplotlib
```

In [3]:
```
#Name:Janvi R.Kale
#Roll no.:29
#sec:A
#sub:ET 1
#date:08-09-2025
```

In [71]:
```
#import  library
import numpy as np
from matplotlib import pyplot as plt
```

In [72]:
```
x=np.arange(1,11)
```

In [73]:
```
x
```

Out[73]:
```
array([ 1,  2,  3,  4,  5,  6,  7,  8,  9, 10])
```

In [74]:
```
print(x)
```

```
[ 1  2  3  4  5  6  7  8  9 10]
```

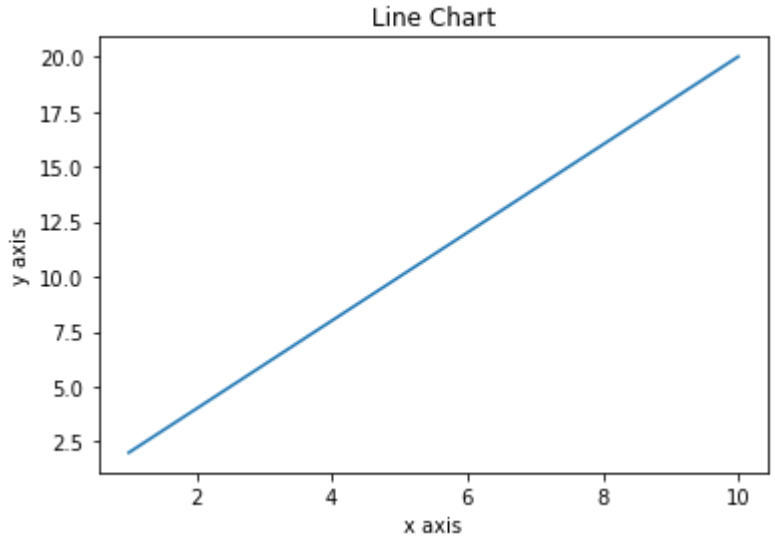
In [75]:
```
y=2*x
```

In [76]:
```
y
```

Out[76]:
```
array([ 2,  4,  6,  8, 10, 12, 14, 16, 18, 20])
```

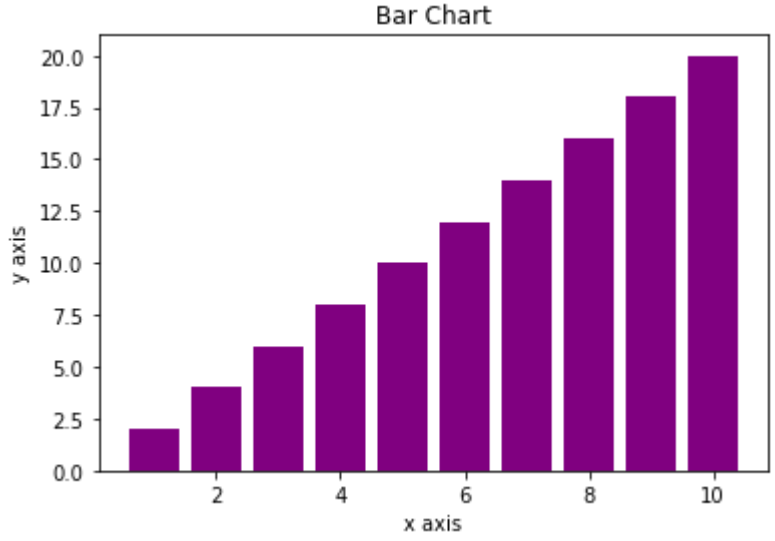
Line chart

In [77]:
```
plt.plot(x,y)
plt.title("Line Chart")
plt.xlabel("x axis")

plt.ylabel("y axis")
plt.show()
```



Bar Chart

In [78]:
```
plt.bar(x,y)
plt.title("Bar Chart")
plt.xlabel("x axis")

plt.ylabel("y axis")
plt.bar(x,y, color="purple")

plt.show()
```



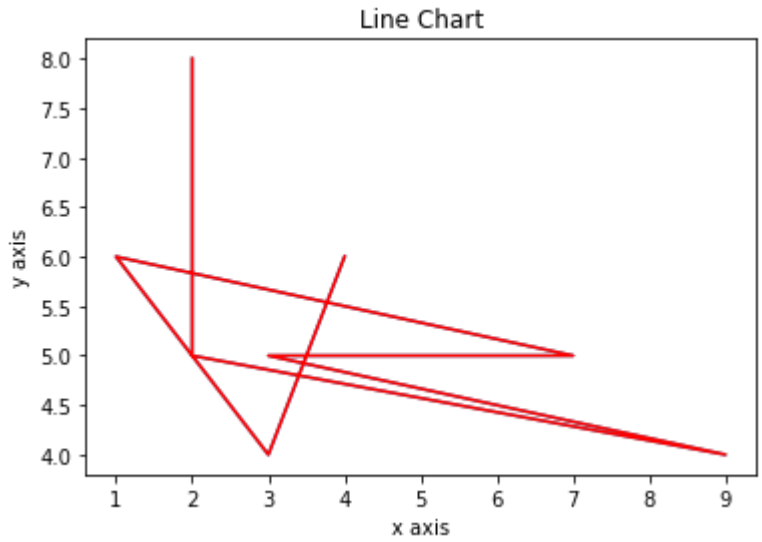
In [79]:
```
x=np.random.randint(1,10,9)
x
```

Out[79]:
```
array([4, 3, 1, 7, 4, 3, 9, 2, 2])
```

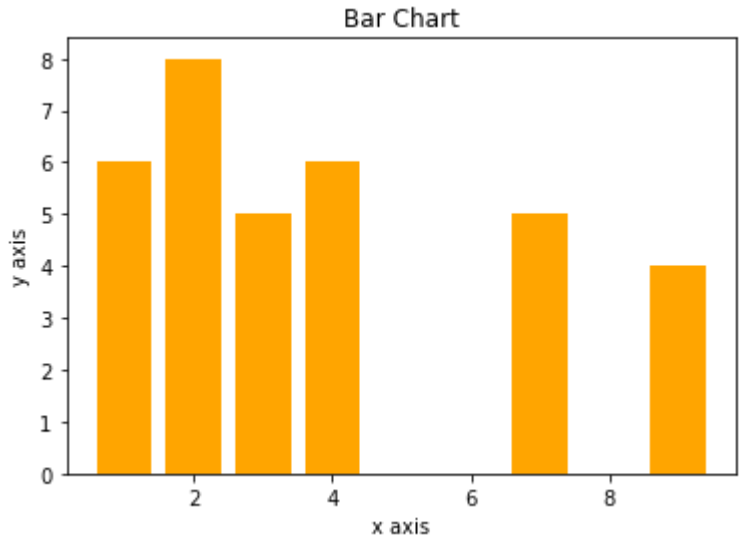
In [80]:
```
y=np.random.randint(1,10,9)
y
```

Out[80]:
```
array([6, 4, 6, 5, 5, 5, 4, 5, 8])
```

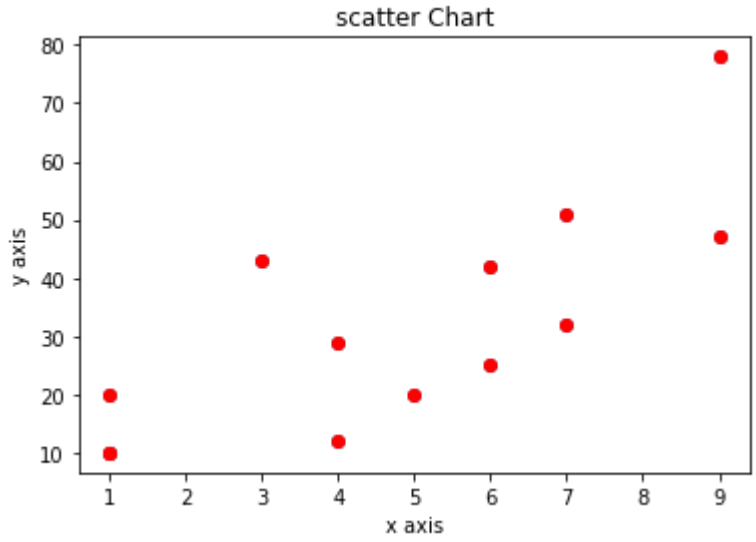
In [81]:
```
plt.plot(x,y)
plt.title("Line Chart")
plt.xlabel("x axis")

plt.ylabel("y axis")
plt.plot(x,y, color="red")

plt.show()
```



In [82]:
```
plt.bar(x,y)
plt.title("Bar Chart")
plt.xlabel("x axis")

plt.ylabel("y axis")
plt.bar(x,y, color="orange")
plt.show()
```



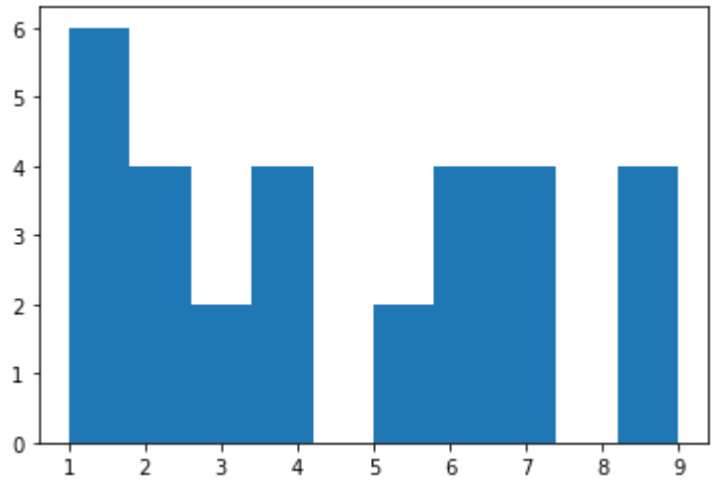
In [83]:
```
 a=(1,5,4,7,6,9,3,7,1,4,6,9,1)
 b=(10,20,12,51,42,47,43,32,20,29,25,78,10)
plt.scatter(a,b)
plt.title("scatter Chart")
plt.xlabel("x axis")

plt.ylabel("y axis")
plt.scatter(a,b, color="red")
plt.show()
```



Histogram

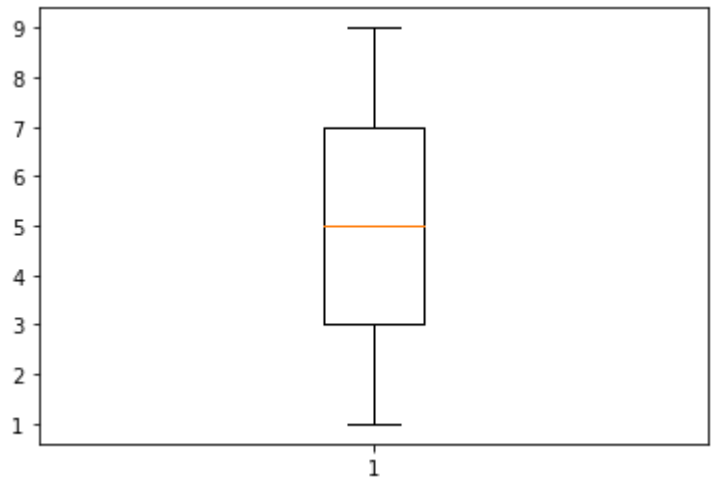
In [84]:
```
H=(1,5,4,7,6,9,3,7,1,4,6,9,1,1,5,4,7,6,9,3,7,1,4,6,9,1,2,2,2,2)
```

In [85]:
```
plt.hist(H)


plt.show()
```

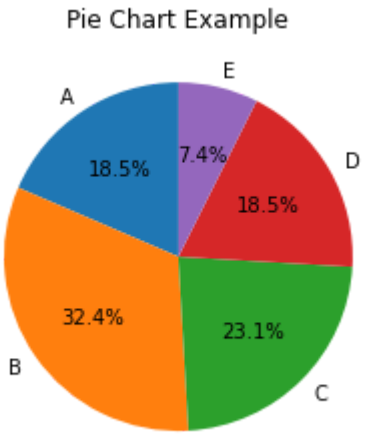


In [86]:
```
B=[1,5,4,7,6,9,3,7,1,4,6,9,1]
```

In [87]:
```
plt.boxplot(B)
plt.show()
```



In [88]:
```
c = [20, 35, 25, 20, 8]
d = ['A', 'B', 'C', 'D', 'E']
plt.pie(c, labels=d, autopct='%1.1f%%', startangle=90)
plt.title("Pie Chart Example")
plt.show()
```



🔷 Conclusion: In this practical, we learned how to perform data visualization using Matplotlib by creating various plots such as bar charts, pie charts, line graphs, and histograms. Visualizing data with Matplotlib helped in identifying patterns, trends, and insights, making data interpretation easier and more effective.

In [ ]: