Python Programming - 2301CS404
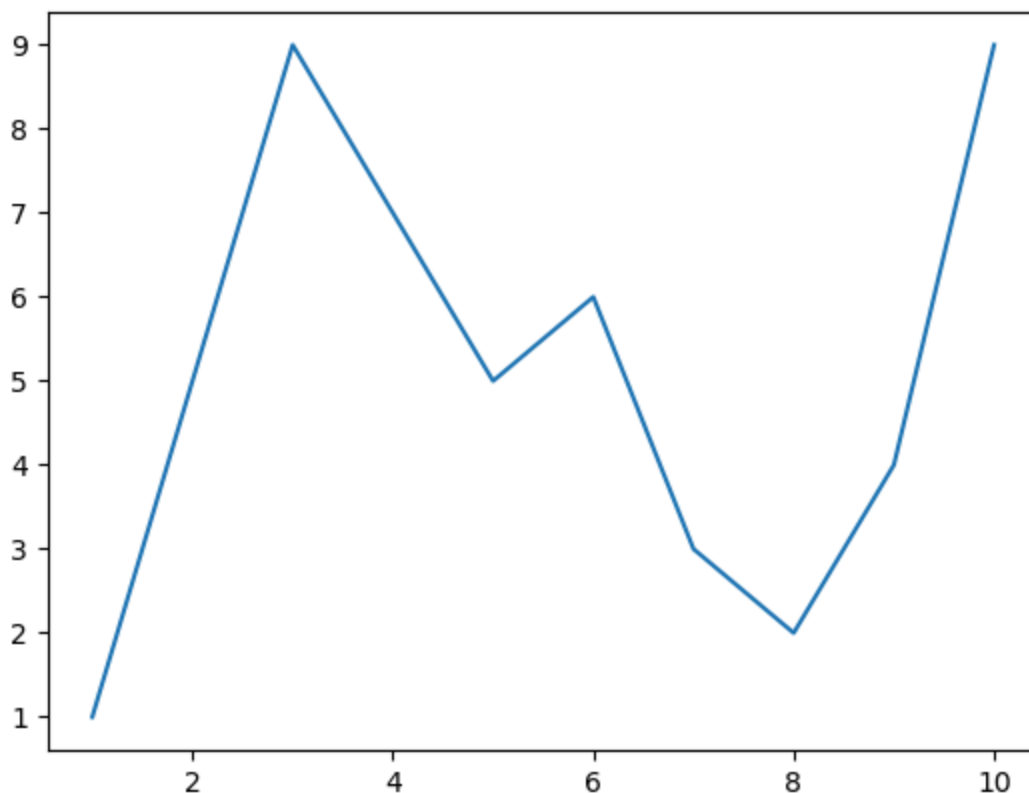
Lab - 12
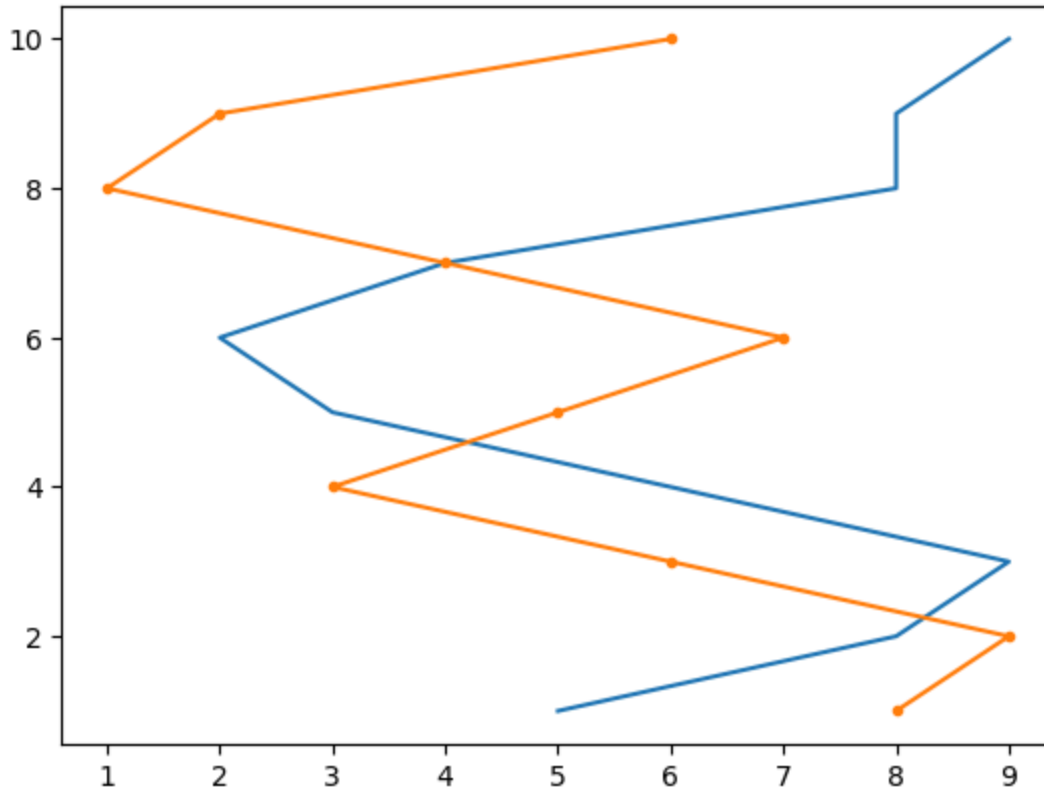
Smit Maru - 23010101161 - 260

In [7]:
```python
import matplotlib.pyplot as plt
```

In [8]:
```python
x = range(1,11)
y = [1,5,9,7,5,6,3,2,4,9]
plt.plot(x,y)
plt.show(x,y)
# write a code to display the line chart of above x & y
```

In [9]:
```python
x = [1,2,3,4,5,6,7,8,9,10]
cxMarks = [5,8,9,6,3,2,4,8,8,9]
cyMarks = [8,9,6,3,5,7,4,1,2,6]
plt.plot(cxMarks,x)
plt.plot(cyMarks,x,marker=".")
plt.show()
# write a code to display two lines in a line chart (data given above)
```
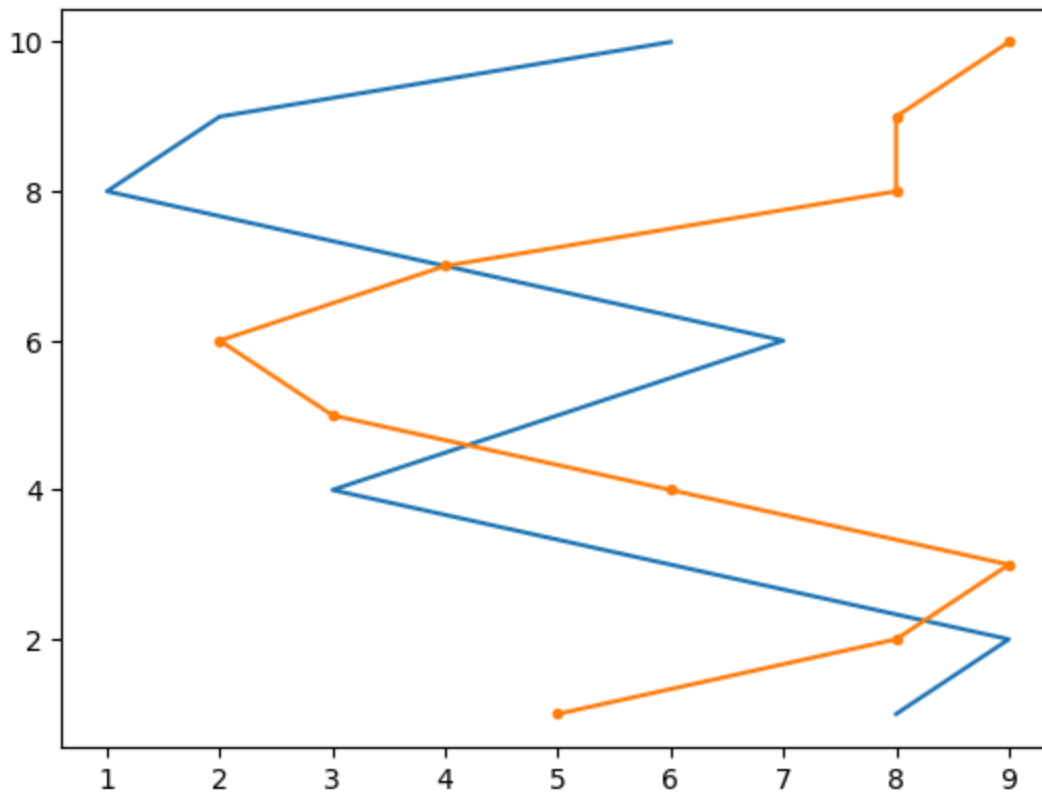

In [22]:
```python
x = range(1,11,1)
cxMarks= [8,9,6,3,5,7,4,1,2,6]
cyMarks= [5,8,9,6,3,2,4,8,8,9]

# write a code to generate below graph
```
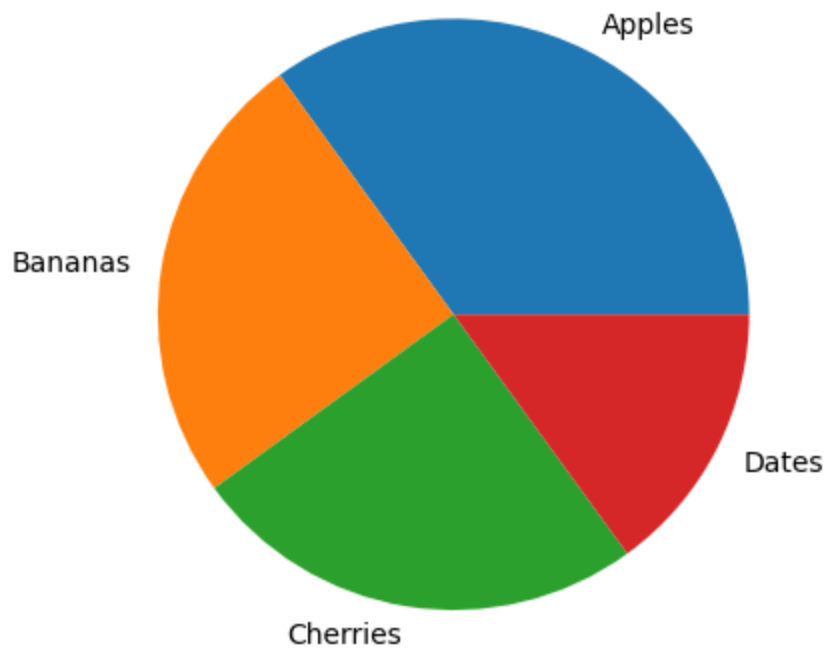
04) WAP to demonstrate the use of Pie chart.
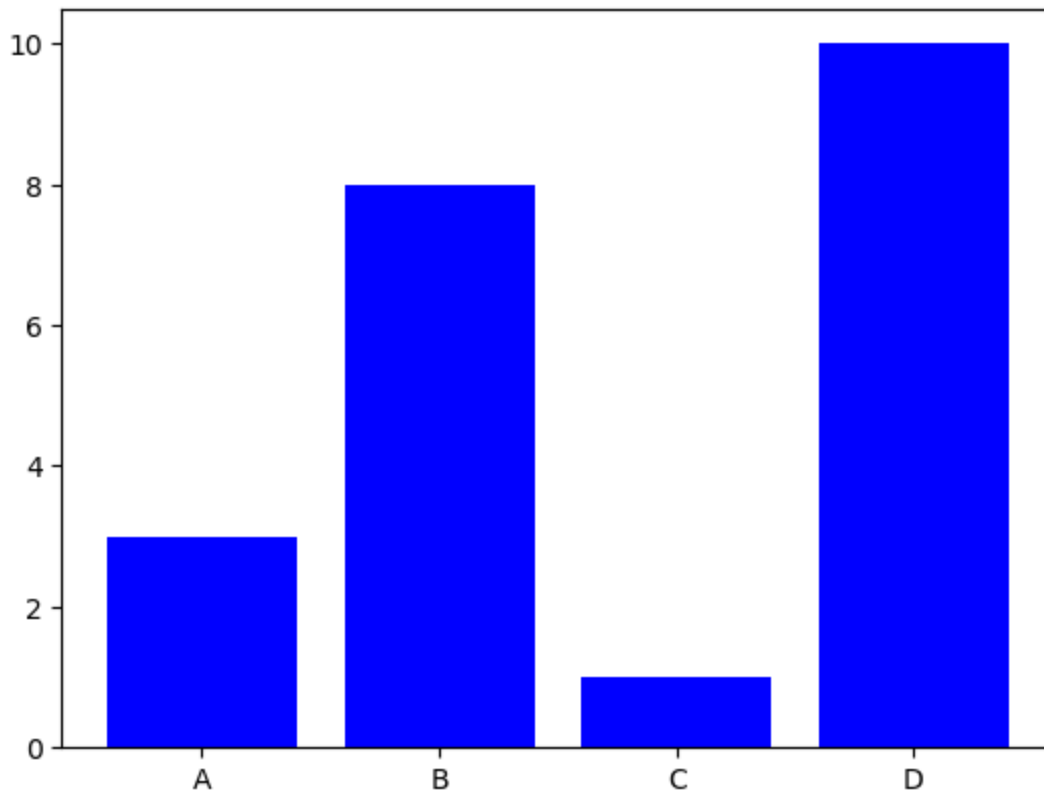
```
In [43]:  y = [35, 25, 25, 15]
          mylabels = ["Apples", "Bananas", "Cherries", "Dates"]

          plt.pie(y, labels = mylabels)
          plt.show()
```
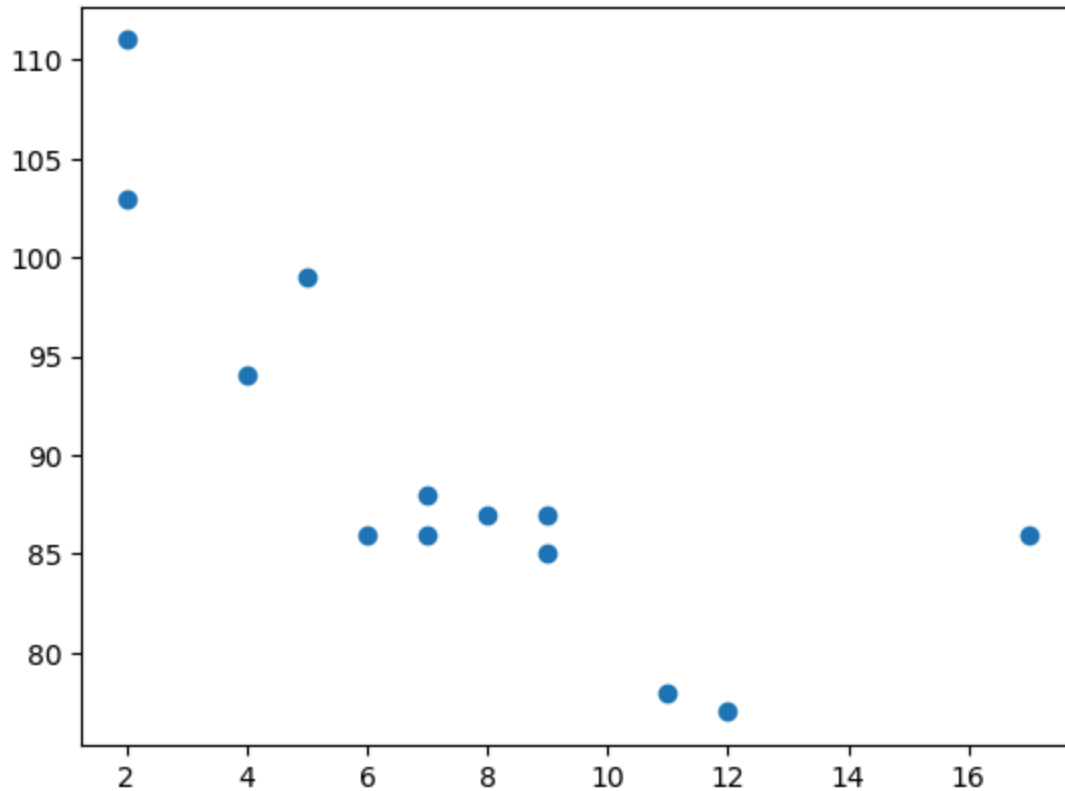
05) WAP to demonstrate the use of Bar chart.

```
In [27]: x = ["A", "B", "C", "D"]
         y = [3, 8, 1, 10]

         plt.bar(x, y, color = "b")
         plt.show()
```

06) WAP to demonstrate the use of Scatter Plot.

```
In [26]: x = [5,7,8,7,2,17,2,9,4,11,12,9,6]
         y = [99,86,87,88,111,86,103,87,94,78,77,85,86]

         plt.scatter(x, y)
         plt.show()
```

07) WAP to demonstrate the use of Histogram.

```
In [29]:  import matplotlib.pyplot as plt
          import numpy as np

          # Generate random data
          np.random.seed(42)
          data = np.random.normal(100, 20, 200)

          plt.figure(figsize=(10, 6))
          plt.hist(data, bins=15, color='skyblue', edgecolor='black', alpha=0.7)

          plt.xlabel('Value')
          plt.ylabel('Frequency')
          plt.title('Histogram of Randomly Generated Data')
          plt.show()
```
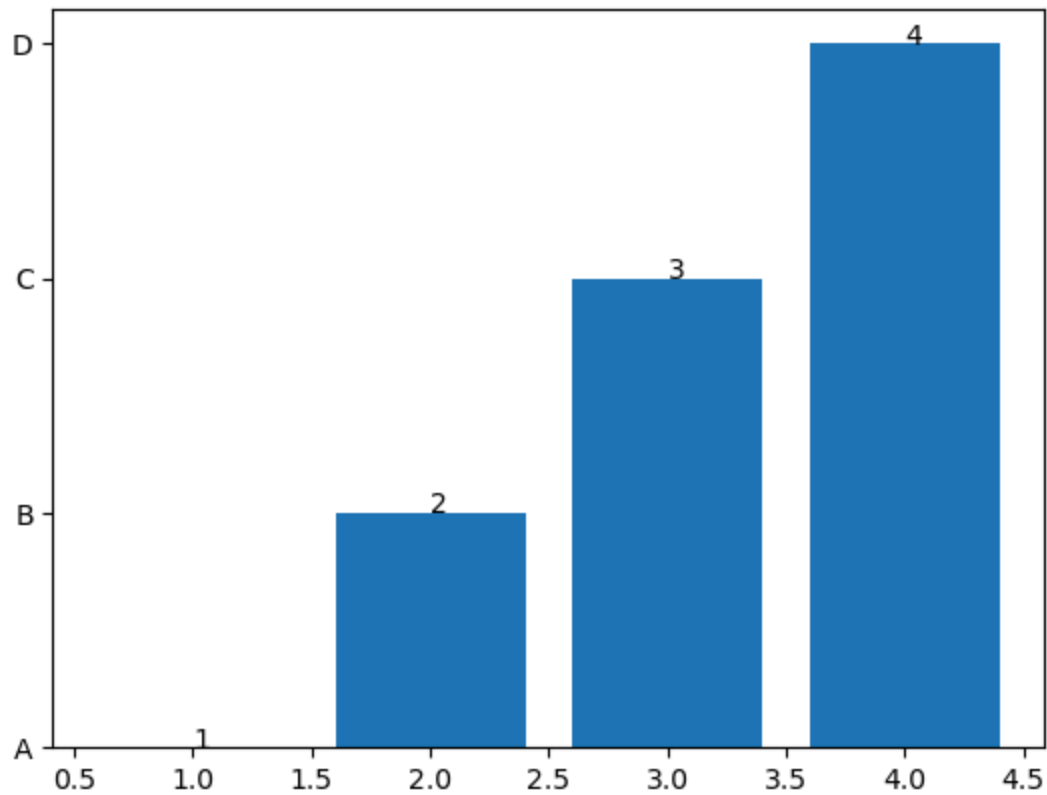
Histogram of Randomly Generated Data
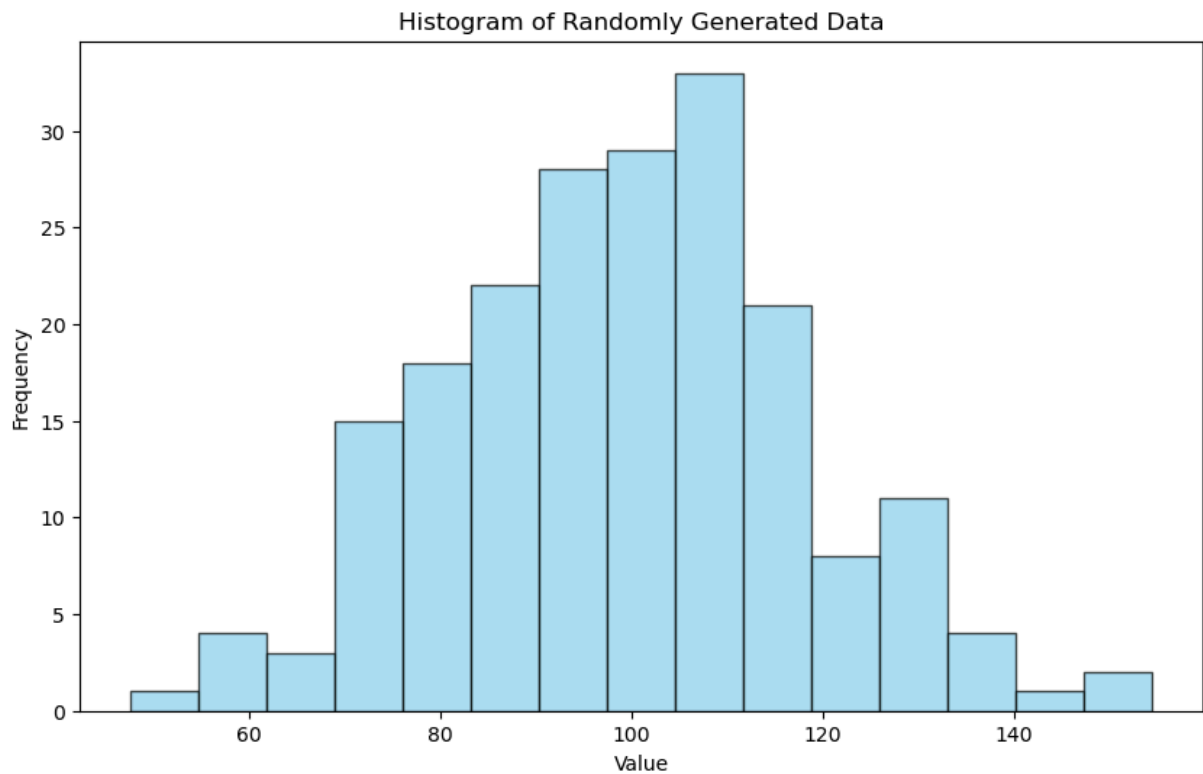
08) WAP to display the value of each bar in a bar chart using Matplotlib.

In [25]:
```python
x = ["A", "B", "C", "D"]
y = [1, 2, 3, 4]
plt.bar(y,x)

for index, value in enumerate(y):
    plt.text(value, index,str(value))

plt.show()
```
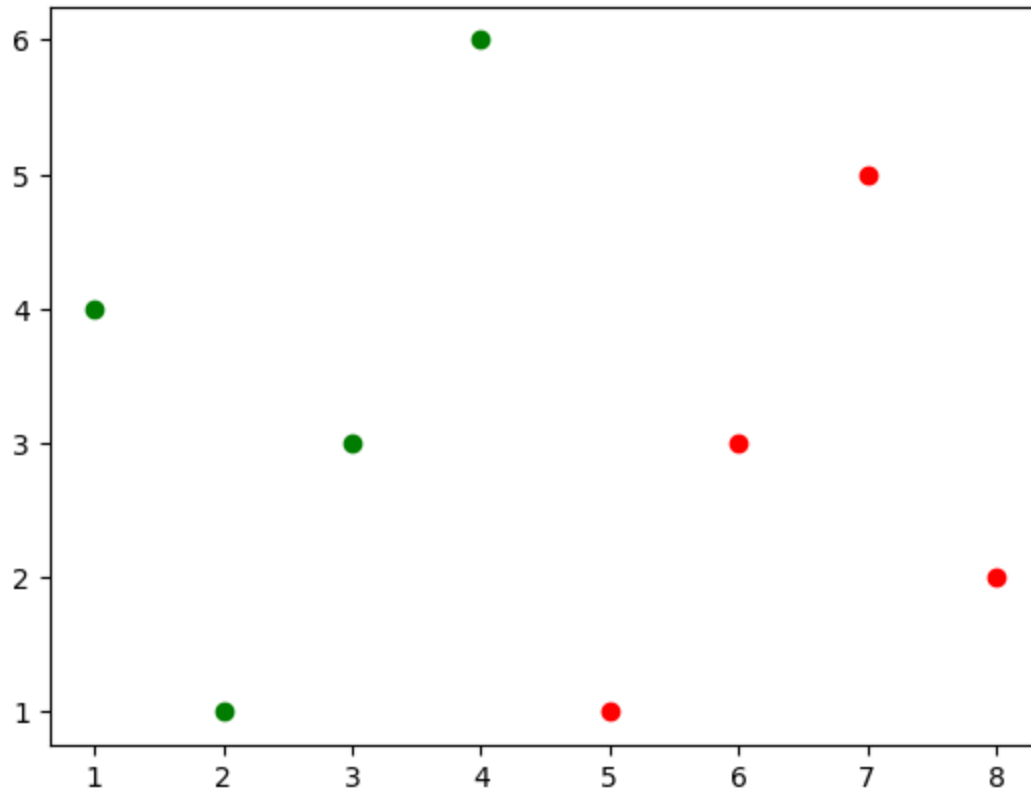
09) WAP create a Scatter Plot with several colors in Matplotlib?

```
In [22]:  x = [1, 2, 3, 4]
          y = [4, 1, 3, 6]

          plt.scatter(x, y, c='green')

          x = [5, 6, 7, 8]
          y = [1, 3, 5, 2]

          plt.scatter(x, y, c='red')
          plt.show()
```
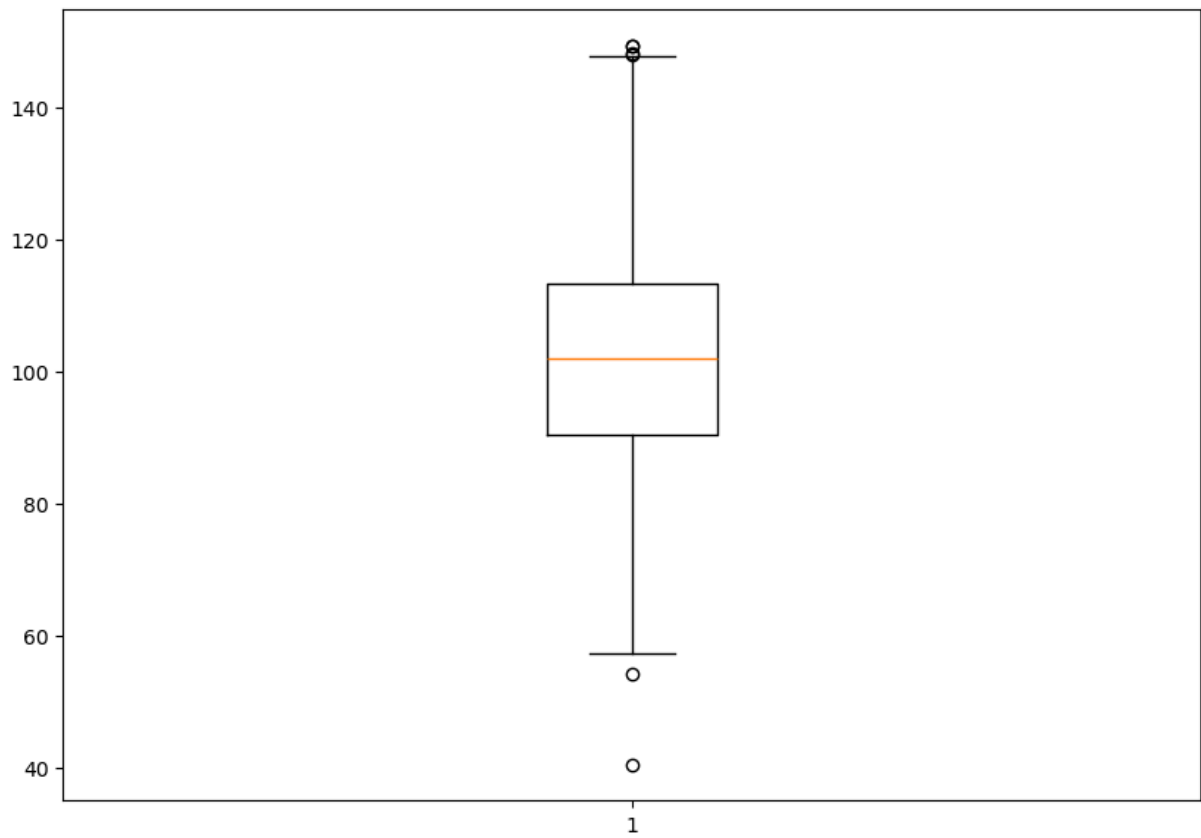
10) WAP to create a Box Plot.

```
In [20]: import matplotlib.pyplot as plt
         import numpy as np

         # Creating dataset
         np.random.seed(10)
         data = np.random.normal(100, 20, 200)

         fig = plt.figure(figsize =(10, 7))
         # Creating plot
         plt.boxplot(data)

         # show plot
         plt.show()
```

In [ ]: