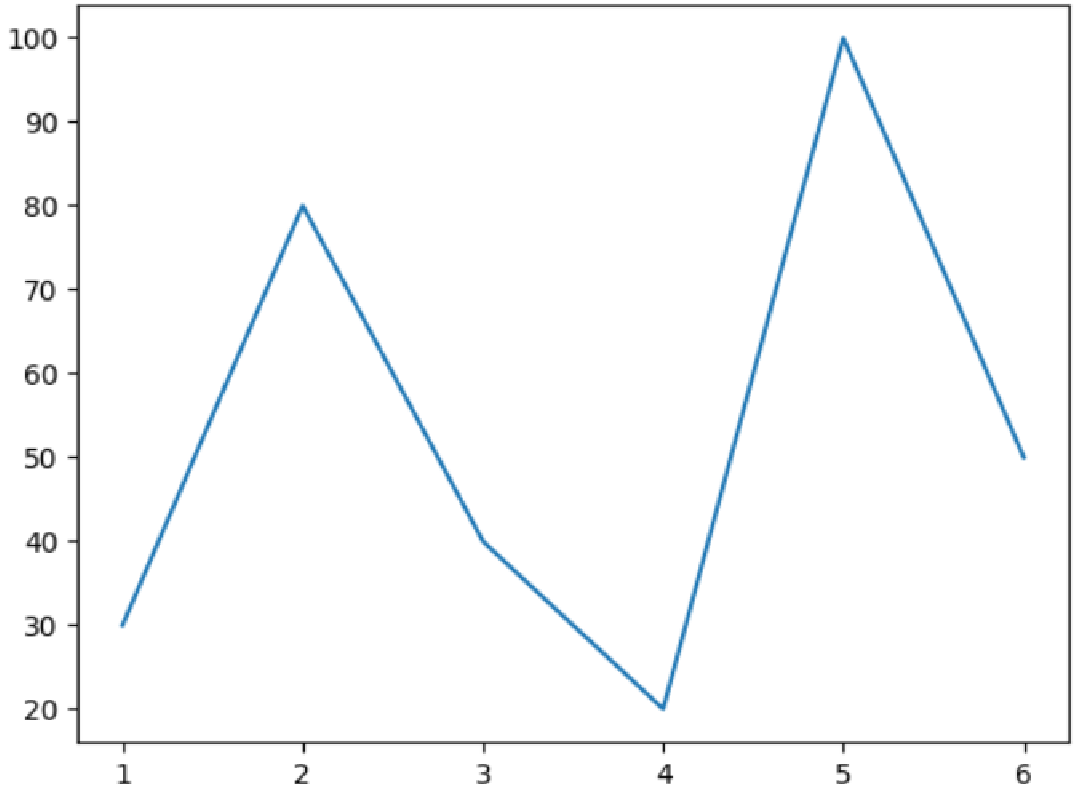
Q1. Create a simple line plot using Matplotlib and python. Given the lists x and y, where x = [1, 2, 3, 4, 5, 6] and y = [30, 80, 40, 20, 100, 50], what will the resulting plot look like when you run the code?

CODE:

```
import matplotlib.pyplot as plt
x = [1, 2, 3, 4, 5, 6]
y = [30, 80, 40, 20, 100, 50]
plt.plot(x, y)
```

OUTPUT:



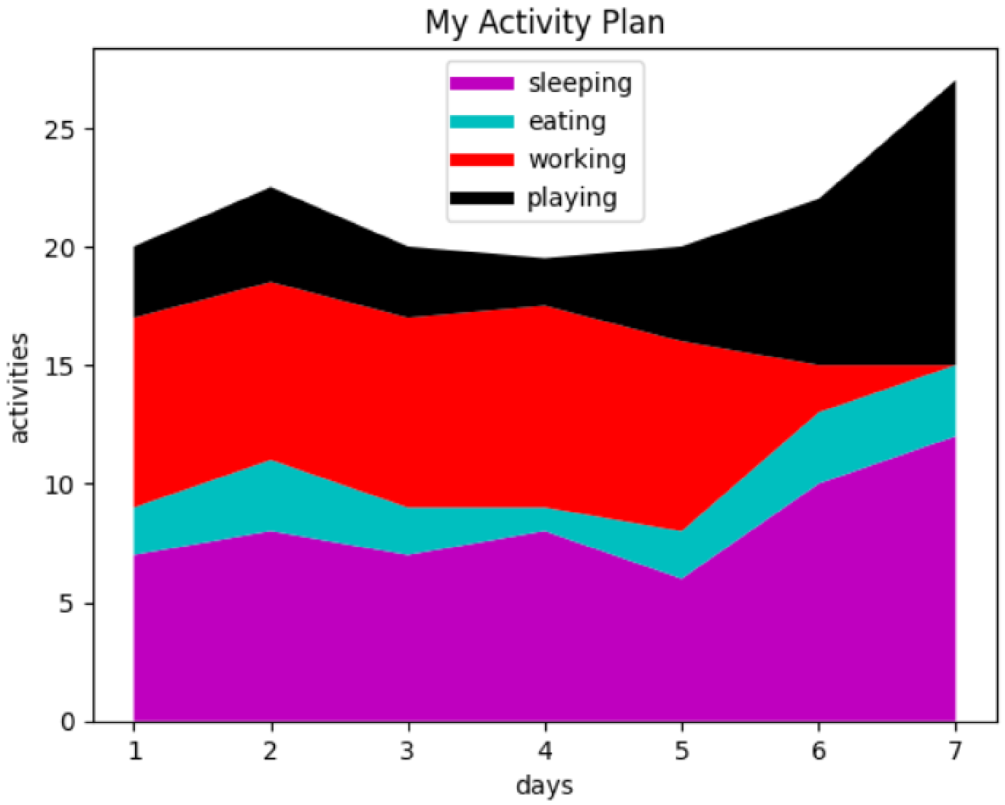
Q2. Create a plot using Matplotlib and python where time spent on activities (sleeping, eating, working, playing) over 7 days. Take the values as you want. What will the resulting plot look like when you run the code?

CODE:

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

```
days = [1,2,3,4,5,6,7]
sleeping = [7, 8, 7, 8, 6, 10, 12]
eating = [2, 3, 2, 1, 2, 3, 3]
working = [8, 7.5, 8, 8.5, 8, 2, 0]
playing = [3, 4, 3, 2, 4, 7, 12]
plt.plot([], [], color = "m", label = 'sleeping', linewidth = 5)
plt.plot([], [], color = "c", label = 'eating', linewidth = 5)
plt.plot([], [], color = "r", label = 'working', linewidth = 5)
plt.plot([], [], color = "k", label = 'playing', linewidth = 5)
plt.stackplot(days, sleeping, eating, working, playing, colors = ["m",
"c", "r", "k"])
plt.xlabel("days")
plt.ylabel("activities")
plt.title("My Activity Plan")
plt.legend()
```

OUTPUT:

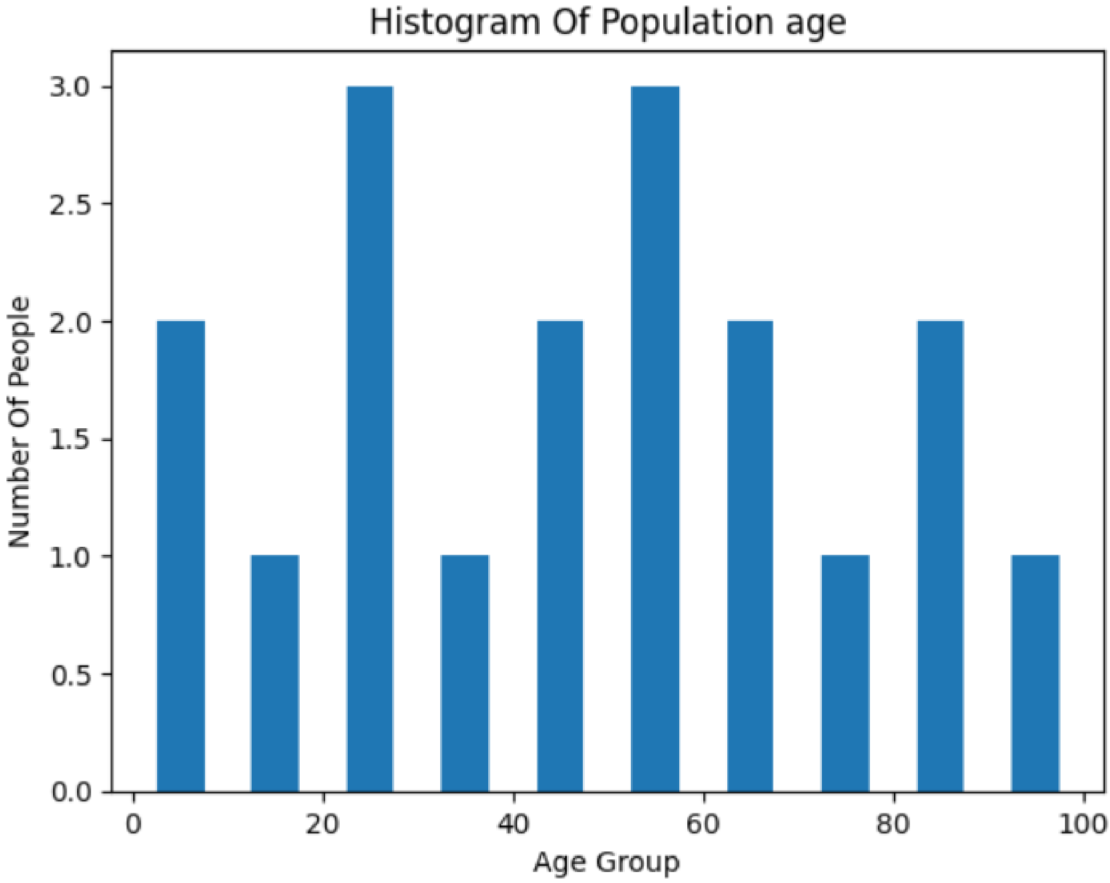


Q3. Create a histogram using Matplotlib and python that represents the distribution of a population's age. Take the values as you want. What will the resulting plot look like when you run the code?

CODE:

```
import matplotlib.pyplot as plt

population_age = [22, 55, 62, 45, 21, 22, 34, 42, 4, 2, 102, 95, 85, 55, 110, 120, 70,
65, 55, 11, 115, 80]

bins = [0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100]

plt.hist(population_age, bins, histtype = "bar", rwidth = 0.5)

plt.xlabel("Age Group")

plt.ylabel("Number Of People")

plt.title("Histogram Of Population age")
```

OUTPUT:

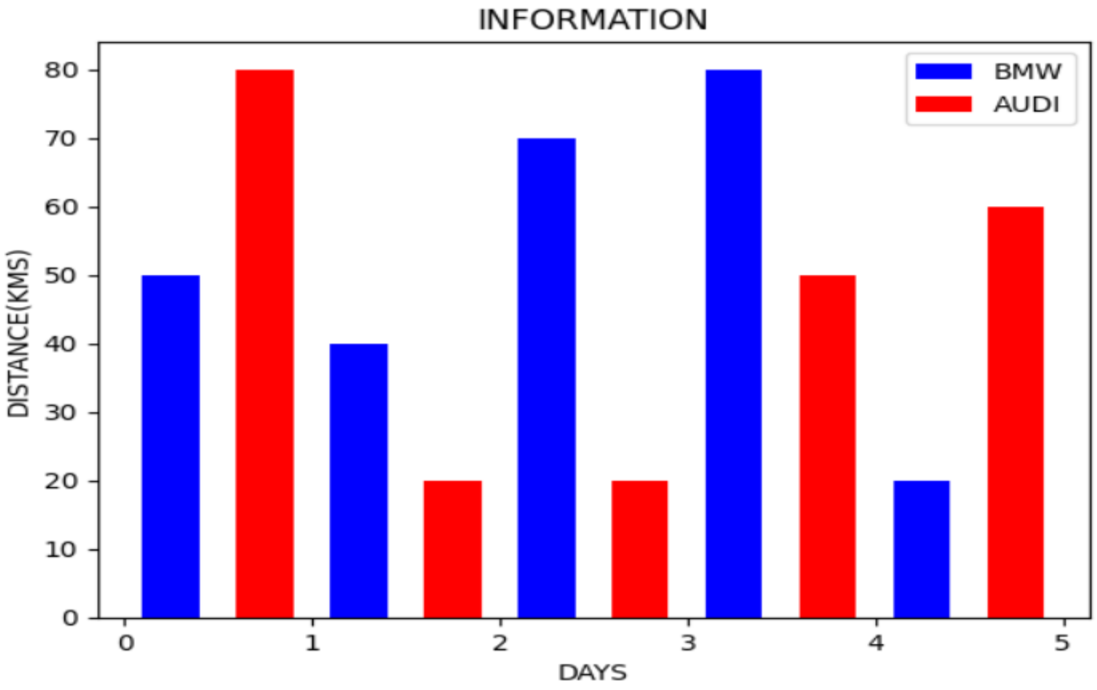


Q4. Create a bar chart using Matplotlib and python that compares the distances travelled by BMW and Audi cars over several days. Take the values as you want. What will the resulting plot look like when you run the code?

CODE:

```
import matplotlib.pyplot as plt
plt.bar([0.25, 1.25, 2.25, 3.25, 4.25], [50, 40, 70, 80, 20], label = "BMW", color = "b", width = 0.3)
plt.bar([0.75, 1.75, 2.75, 3.75, 4.75], [80, 20, 20, 50, 60], label = "AUDI", color = "r", width = 0.3)
plt.legend()
plt.xlabel("DAYS")
plt.ylabel("DISTANCE(KMS)")
plt.title("INFORMATION")
```

OUTPUT:

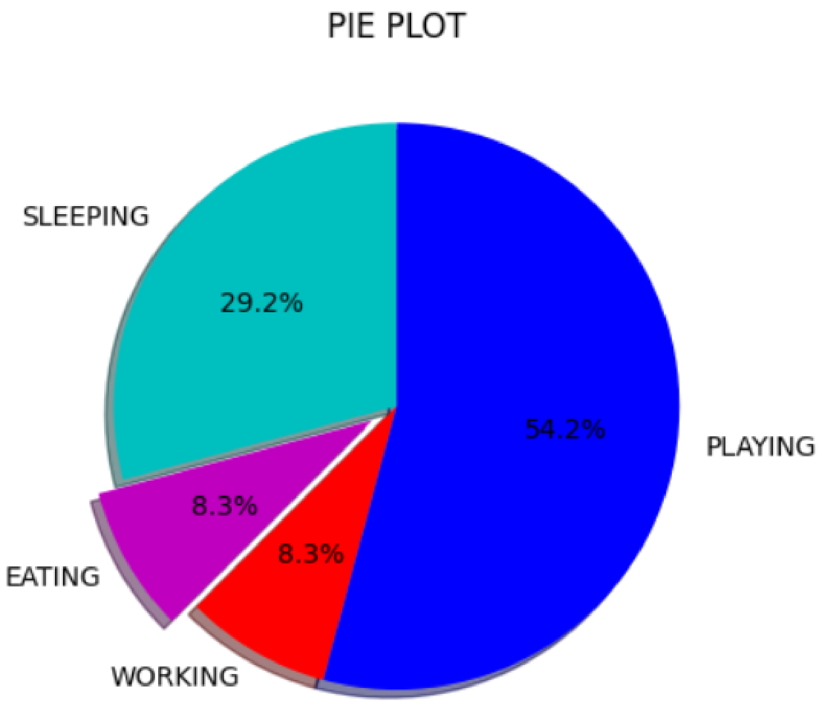


Q5. Create a pie chart using Matplotlib that representing the time spent on various activities. Take the values as you want. What will the resulting plot look like when you run the code?

CODE:

```
import matplotlib.pyplot as plt
DAYS = [1, 2, 3, 4, 5]
SLEEPING = [7, 8, 6, 11, 7]
EATING = [2, 3, 4, 3, 2]
WORKING = [7, 8, 7, 2, 2]
PLAYING = [8, 5, 7, 8, 13]
SLICES = [7, 2, 2, 13]
ACTIVITIES = ["SLEEPING", "EATING", "WORKING", "PLAYING"]
COLS = ["c", "m", "r", "b"]
plt.pie(SLICES, labels = ACTIVITIES, colors = COLS, startangle = 90,
shadow = True, explode = (0, 0.1, 0, 0), autopct = "%1.1f%%")
plt.title("PIE PLOT")
```

OUTPUT:

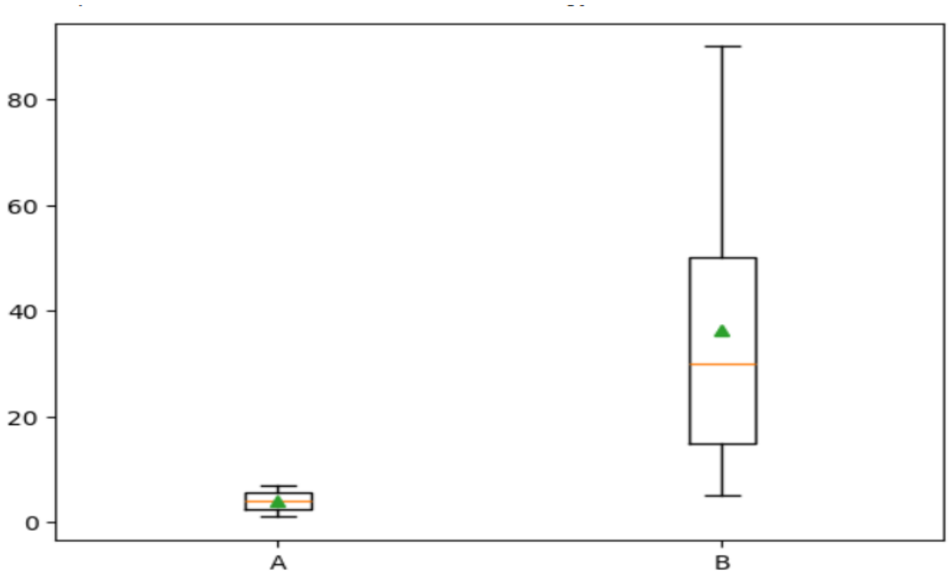


Q6. Create a box plot using Matplotlib for two datasets. Take the values as you want. What will the resulting plot look like when you run the code?

CODE:

```
import matplotlib.pyplot as plt

x = [1, 2, 3, 4, 5, 6, 7]

y = [10, 20, 40, 5, 30, 60, 90]

z = [x, y]

plt.boxplot(z, labels = ["A", "B"], showmeans = True)
```

OUTPUT:

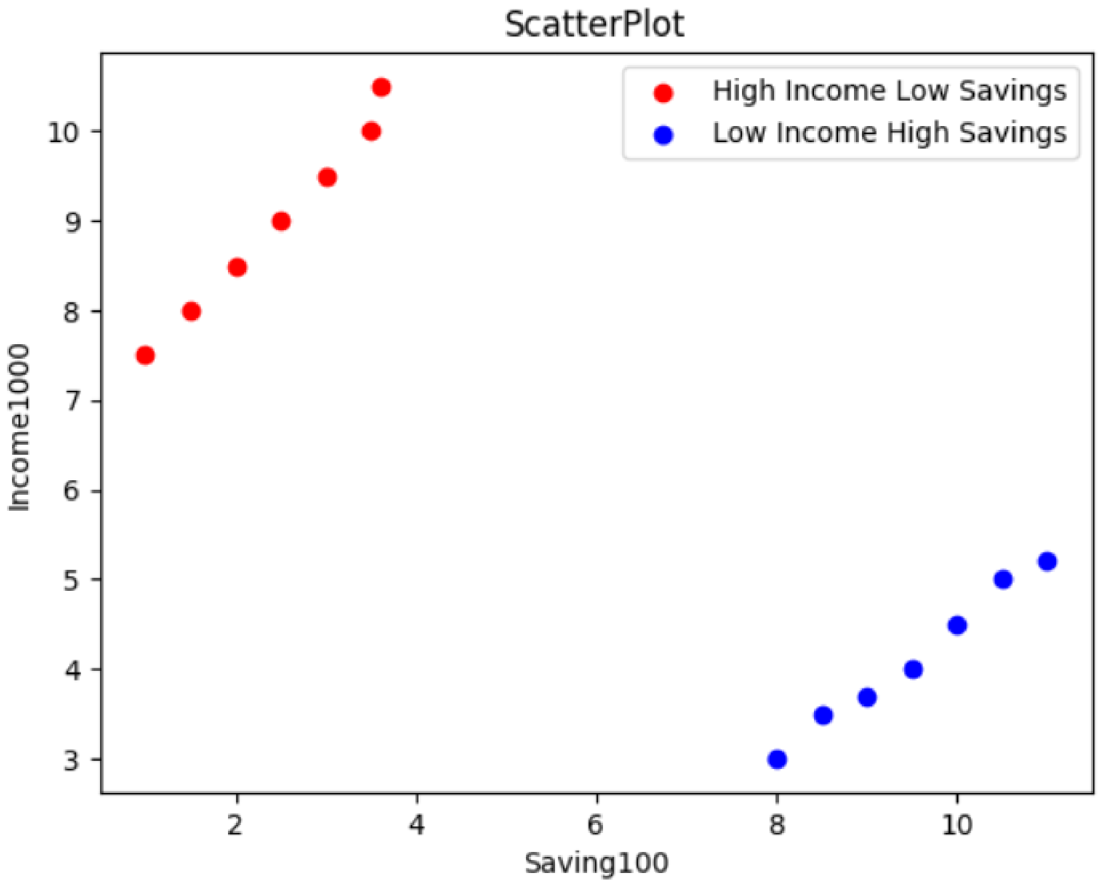


Q7. The following Python code uses Matplotlib to create a scatter plot comparing two groups with different income and savings patterns. What will the resulting plot look like when you run the code?

CODE:

```
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 Savings", color = "r")

plt.scatter(x1, y1, label = "Low Income High Savings", color = "b")
plt.xlabel("Saving100")
plt.ylabel("Income1000")
plt.title("ScatterPlot")
plt.legend()
```

OUTPUT:


ScatterPlot
● High Income Low Savings
● Low Income High Savings
Income1000
Saving100