DSC540_Week9&10_Visualizations

April 5, 2025

[1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

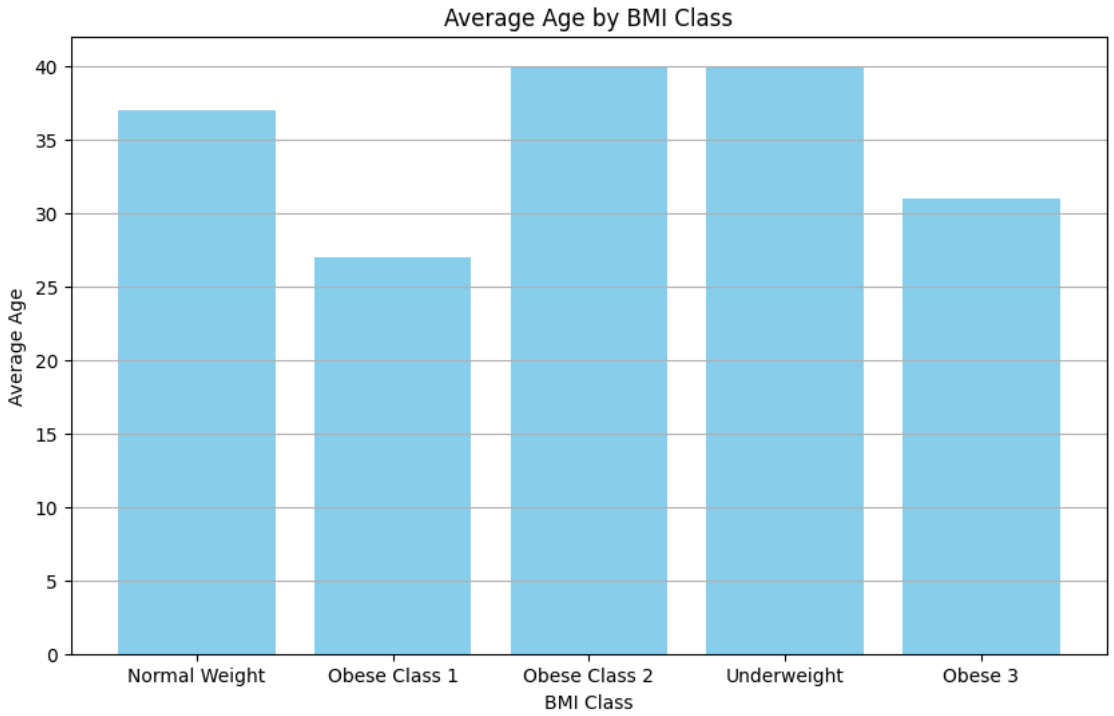
[2]:
```
df = pd.read_csv('bmi.csv')
df.head()
```

[2]:

	Age	Height	Weight	Bmi	BmiClass
0	61	1.85	109.30	31.935720	Obese Class 1
1	60	1.71	79.02	27.023700	Overweight
2	60	1.55	74.70	31.092612	Obese Class 1
3	60	1.46	35.90	16.841809	Underweight
4	60	1.58	97.10	38.896010	Obese Class 2

[3]:
```
#First Visualization- Average BMI by Average Age
```

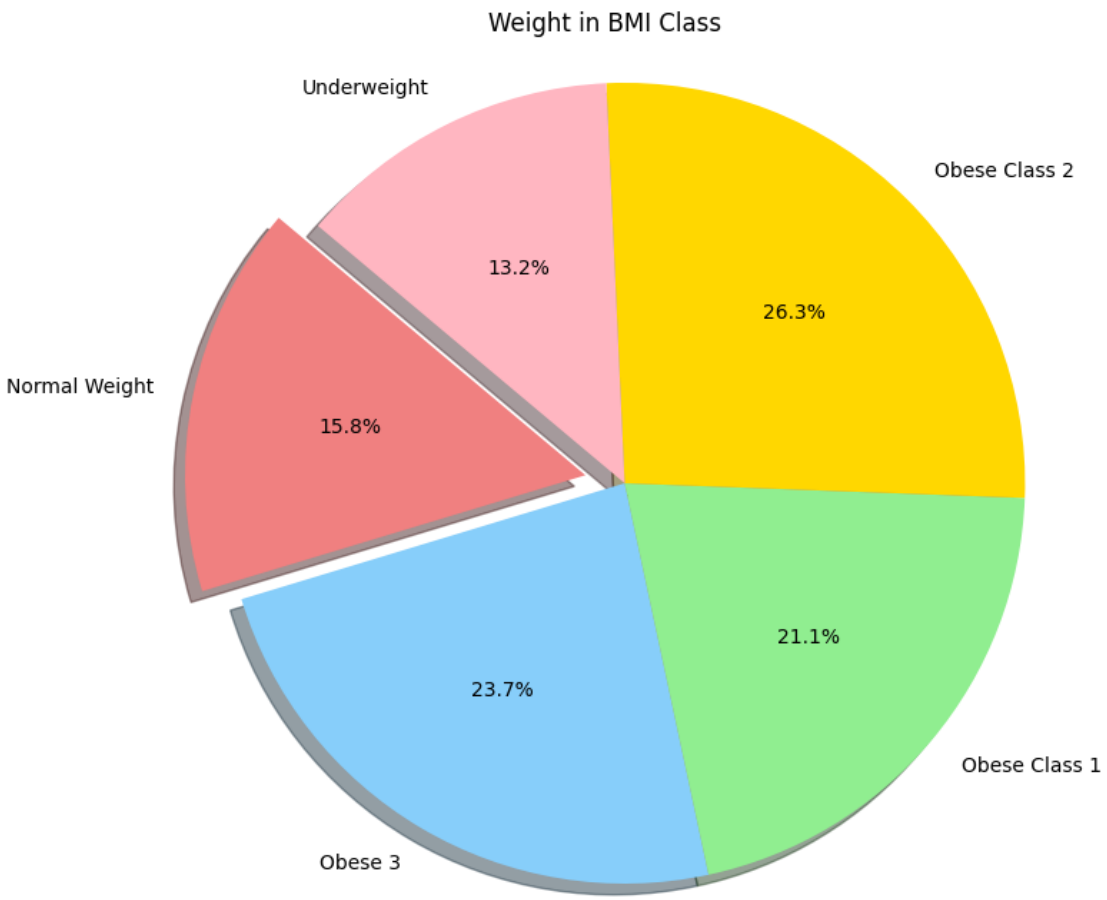
[4]:
```
Age = [20, 25, 30, 35, 40, 45, 50, 55]
bmi_classes = ['Normal Weight', 'Obese Class 1', 'Obese Class 2',␣
 ↪'Underweight', 'Obese 3']

average_ages = np.random.randint(25, 45, size=len(bmi_classes))

plt.figure(figsize=(10, 6))
plt.bar(bmi_classes, average_ages, color='skyblue')


plt.xlabel('BMI Class')
plt.ylabel('Average Age')
plt.title('Average Age by BMI Class')
plt.grid(axis='y')

plt.show()
```



[5]:
```
#Second Visualization- Weight represenation in BMI class with Pie Chart
```

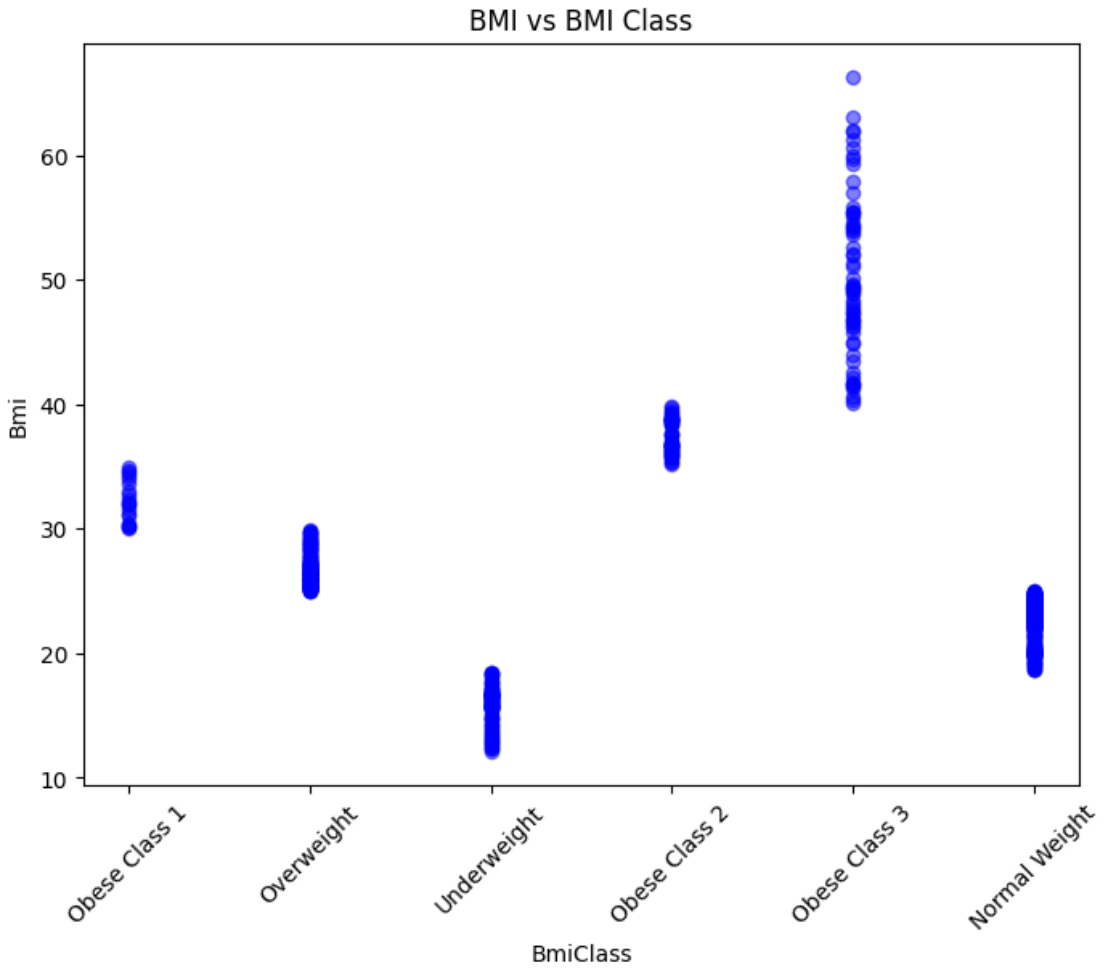
[7]:
```
df = pd.DataFrame({
    'BMI Class': ['Normal Weight', 'Obese Class 1', 'Obese Class 2',␣
 ↪'Underweight', 'Obese 3'],
    'Weight': [60, 80, 100, 50, 90]
})

weights_by_class = df.groupby('BMI Class')['Weight'].sum()

labels = weights_by_class.index
sizes = weights_by_class.values
colors = ['lightcoral', 'lightskyblue', 'lightgreen', 'gold', 'lightpink']
explode = (0.1, 0, 0, 0, 0)

plt.figure(figsize=(8, 8))
plt.pie(sizes, explode=explode, labels=labels, colors=colors, autopct='%1.
 ↪1f%%', shadow=True, startangle=140)
plt.axis('equal')


plt.title('Weight in BMI Class')
```

```
plt.show()
```



[8]:
```
#Third Visualization- Scatter plot of BMI vs BMI Class
```

[9]:
```
df = pd.read_csv('bmi.csv')

plt.figure(figsize=(8, 6))
plt.scatter(df['BmiClass'], df['Bmi'], color='b', alpha=0.5)

plt.title('BMI vs BMI Class')
plt.xlabel('BmiClass')
plt.ylabel('Bmi')
plt.xticks(rotation=45)

plt.show()
```


BMI vs BMI Class
Bmi
60
50
40
30
20
10
Obese Class 1
Overweight
Underweight
Obese Class 2
Obese Class 3
Normal Weight
BmiClass

[ ]: