List 4: Python libraries - Exercise 2 Report

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1. ***Answer the question of whether, according to the analyzed dataset, more women or men suffer from heart diseases. By what percentage?***

   By performing the necessary calculations on provided dataset, the results are as follows:

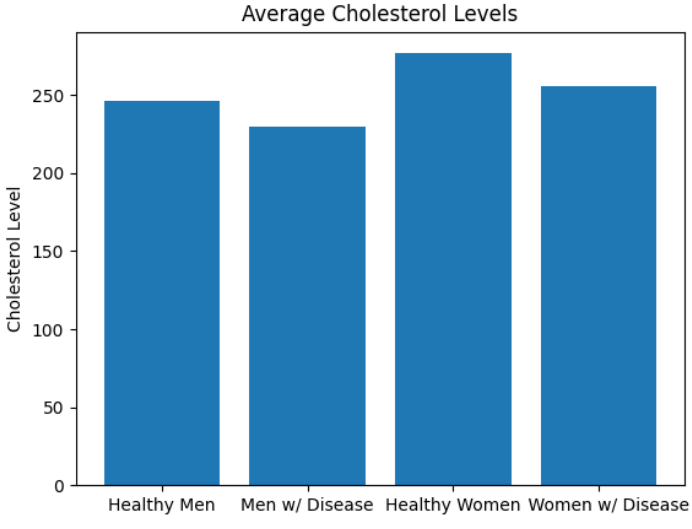
   Men with disease: 300
   Women with disease: 226
   Percentage difference: 32.74%

   As we can observe, more men than women suffer from heart disease by 32.74%.

2. ***Compare the average value of serum cholesterol separately for the group of women and the group of men depending on the presence of heart disease.***

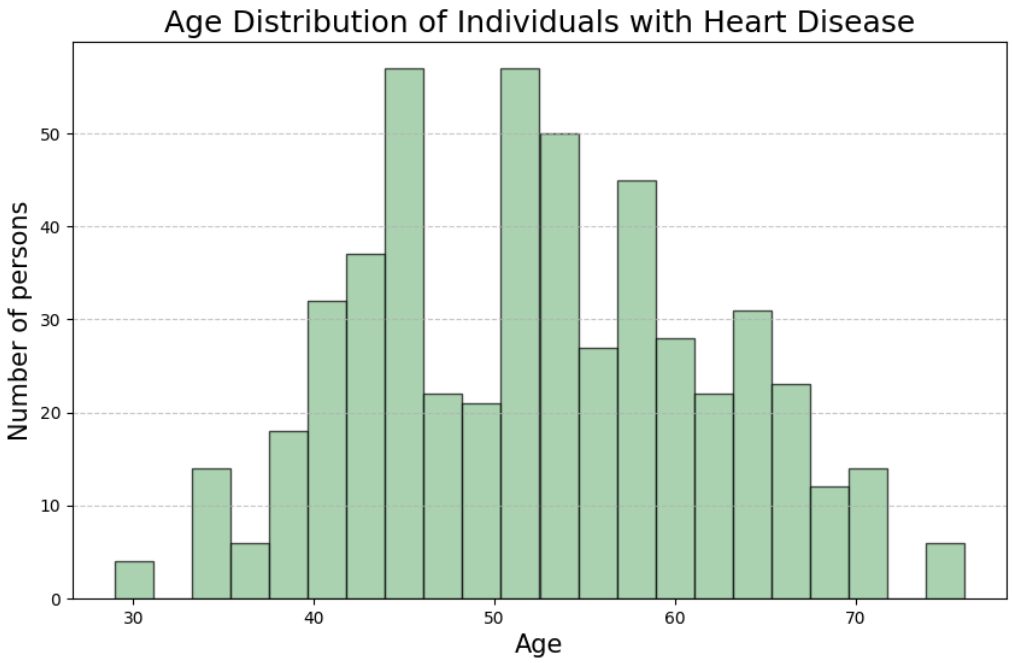
   By performing the necessary calculations on provided dataset, the results are as follows:

   Average cholesterol of healthy men: 246.0
   Average cholesterol of healthy women: 276.73
   Average cholesterol of men with disease: 229.93
   Average cholesterol of women with disease: 255.64



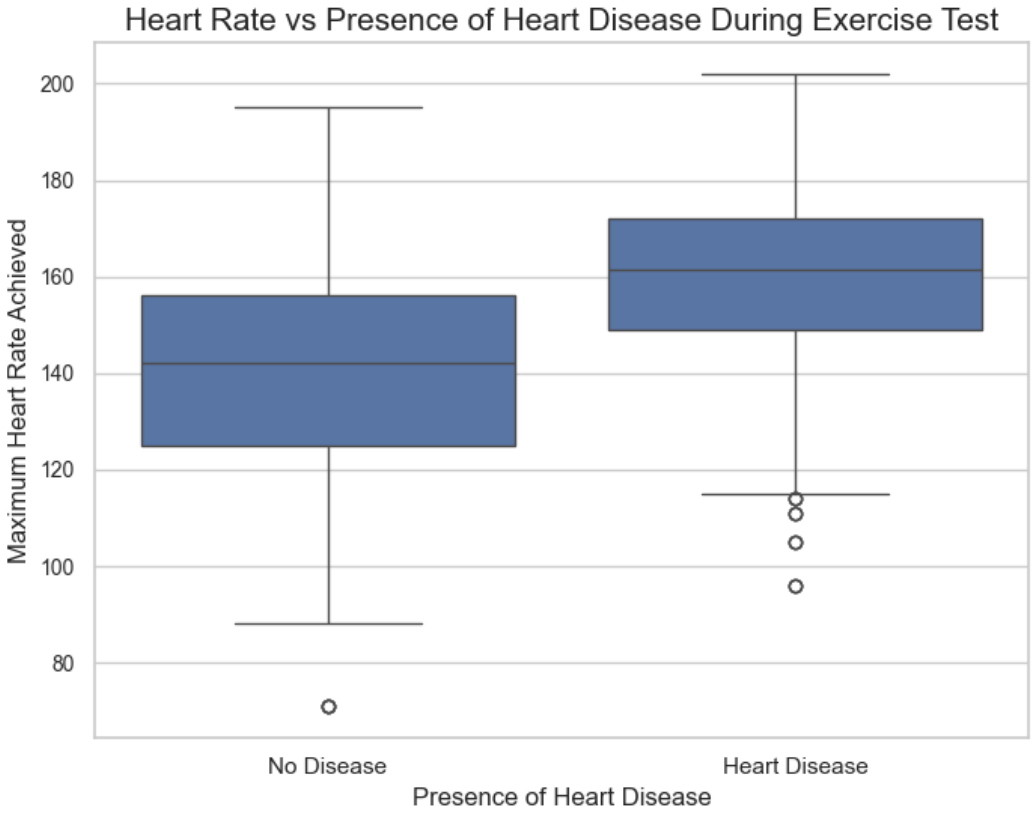
As we can see, healthy men and women have slightly higher cholesterol levels than men and women with heart disease.

3. ***Draw a histogram of people with heart diseases. In which age range are the most affected individuals?***



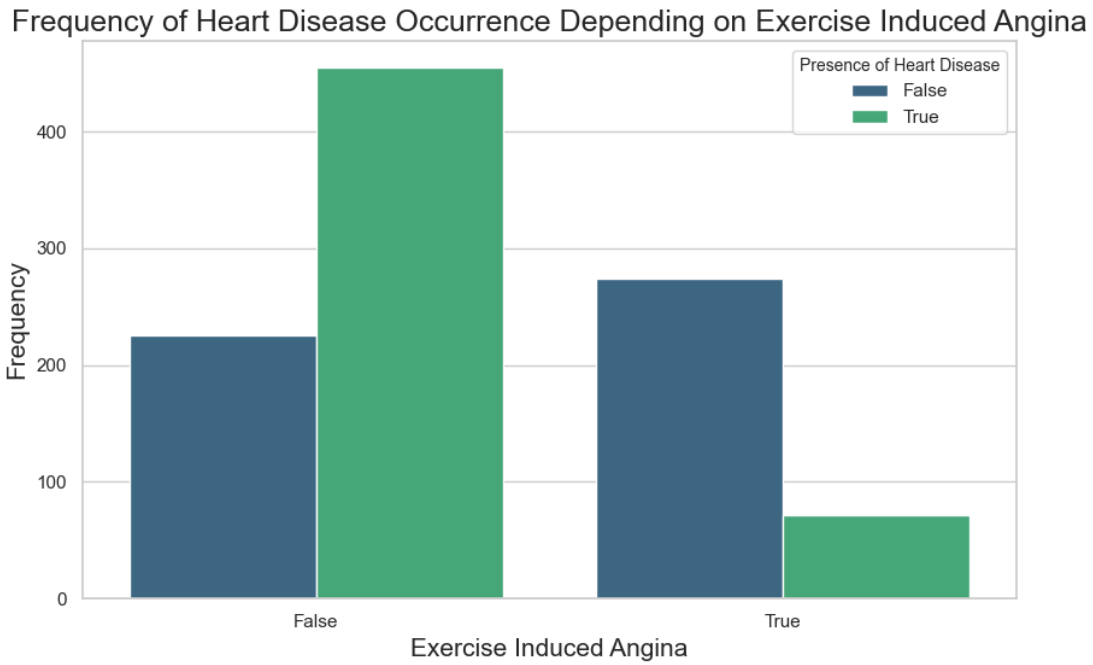
We can observe that the most affected by heart disease individuals lie in a range between ages of 50 and 60. The other significant peak of individuals lies around the age of 45.

4. ***Draw a box plot for the maximum achieved heart rate during the exercise test depending on the presence of heart disease. What observations can be made based on this plot?***



By analyzing this box plot, one can observe that during exercise tests, individuals without heart disease have a significantly lower maximum heart rate than those with heart disease. The range of the maximum achieved heart rate for a healthy individual lies between values of ± 125 and ± 165, whereas for individuals with heart disease, the range extends from ± 150 to ± 175.

5. ***Draw a bar chart for the frequency of heart disease occurrence depending on whether the patient has angina during the exercise test. What observations can be made based on the chart?***



By analyzing this bar chart, we can observe the following:

- In the group of individuals without exercise-induced angina, there are significantly more individuals with heart disease than healthy individuals.

- In the group of individuals with exercise-induced angina, there are more healthy individuals than individuals with heart disease.