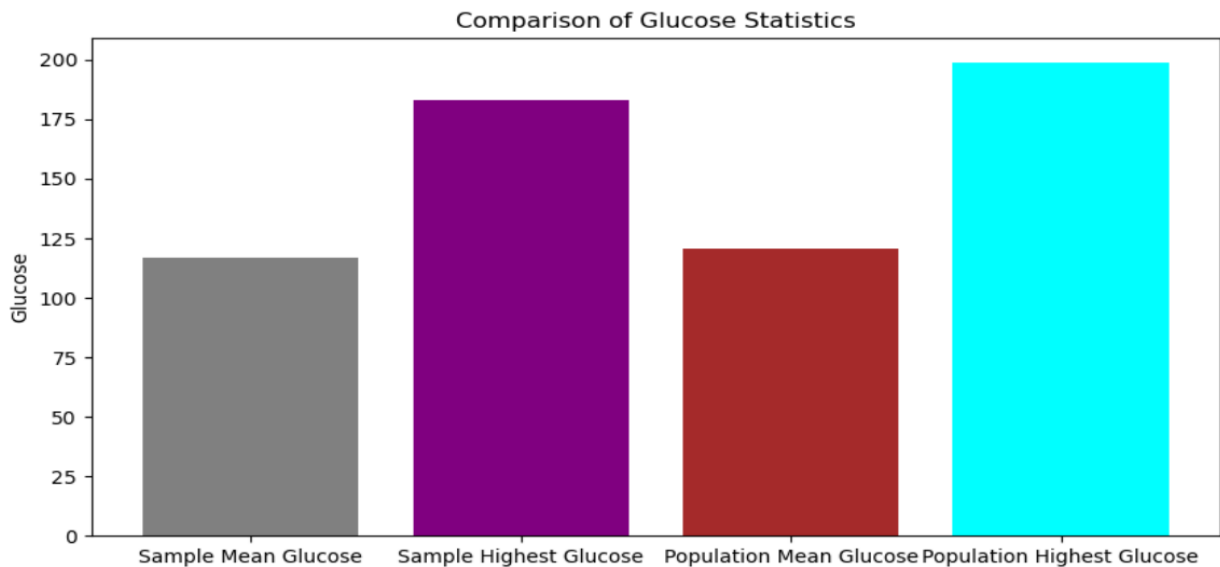# Assignment – 3 and 4

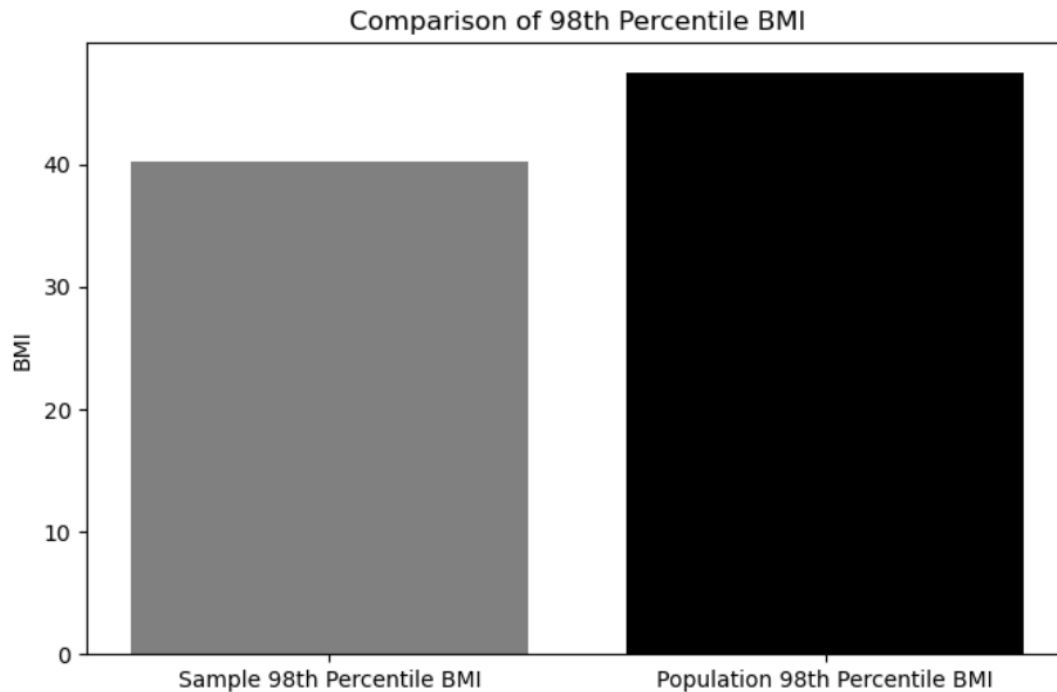**Durgajyothi Sathyanarayana Gannamani**

Q.2

a)

Sample Mean Glucose: This gray bar shows the average glucose level for the sample, approximately 112.5 mg/dL. Sample Highest Glucose: The purple bar represents the highest glucose level recorded in the sample, exceeding 175 mg/dL, suggesting possible hyperglycemia. Population Mean Glucose: The brown bar displays the average glucose level for the general population, around 112.5 mg/dL. Population Highest Glucose: The cyan bar indicates the highest glucose level found in the general population, at least 200 mg/dL, possibly indicating severe hyperglycemia.
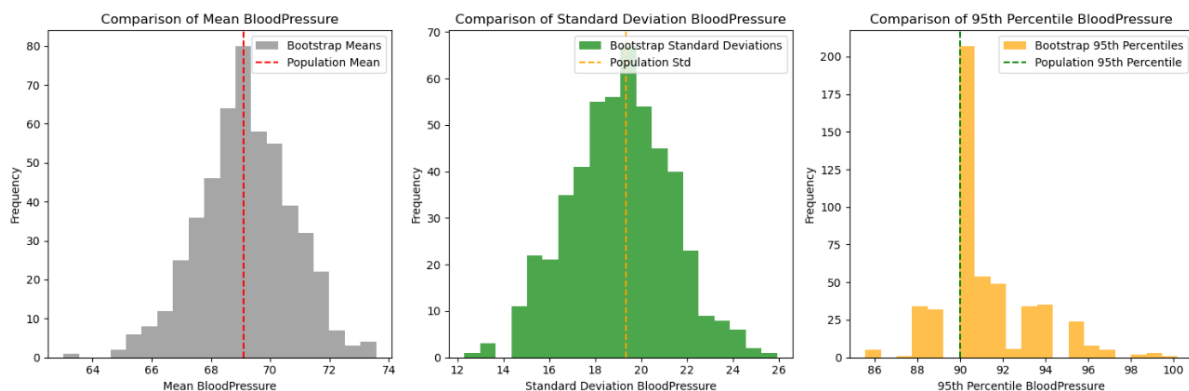
Both the sample and population's highest glucose levels are notably higher than their respective mean levels, hinting at potential outliers or individuals with significant glucose level variations.

b)

Comparison of 98th Percentile BMI

Sample 98th Percentile BMI: The gray bar shows us the BMI at the 98th percentile for the group studied. This means that 98% of the people in group have a BMI equal to or less than what's shown. It goes just above the 30 mark on the BMI scale. Population 98th Percentile BMI: black bar represents the 98th percentile BMI for the entire population. It goes just above the 40 mark on the BMI scale. This means that 98% of people in the general population have a BMI equal to or less than what's shown.

c).

Mean Blood Pressure Comparison:

The gray histogram shows the average blood pressure values from a method called bootstrap sampling. The dashed red line represents the average blood pressure of the entire population, and it's very close to the center of the gray histogram. This suggests that the bootstrap sample averages are a good match with the population average.

Standard Deviation Blood Pressure Comparison:

The green histogram shows the spread of blood pressure values from the bootstrap samples. The dashed yellow line represents the spread of blood pressure in the whole population, and it lines up well with the peak of the green histogram. This means the bootstrap samples accurately capture how blood pressure varies in the population.

95th Percentile Blood Pressure Comparison:

The orange histogram shows the highest 5% of blood pressure values from the bootstrap samples. It's skewed to the right, with most values between 90 and 92.The dashed green line shows the highest 5% of blood pressure in the whole population. It intersects the orange histogram just to the right of its peak, suggesting that the bootstrap samples slightly underestimate the highest blood pressure values in the population.