Statistics Assignment 6

1. What is a Cumulative Distribution Function, and how does it work?

2. When should we use a t-test vs a z-test?

3. How do we examine two category characteristics?

4. Explain the concept of Chebyshev's Inequality.

5. Explain the concept of Pareto Distribution.

1. The cumulative density function calculates the cumulative probability for a given x-value. Use the cumulative density function to determine the probability that a random observation that is taken from the population will be less than or equal to a certain value.
2. We perform a one-sample t-test when we want to compare a sample mean with the population mean. The difference from the z-test is that we do not have the information on population variance here. We use the sample standard deviation instead of population standard deviation in this case.

4. Chebyshev’s inequality states that within two standard deviations away from the mean contains 75% of the values, and within three standard deviations away from the mean contains 88.9% of the values, it holds for a wide range of probability distributions, not only the normal distribution.

5. Pareto distribution is a skewed, heavy tailed distribution that is sometimes used to model that distribution of incomes 80% of consequences come from 20% of the causes, asserting an unequal relationship between input and outputs. The principle serves as a general reminder that the relationship between input and output is not balanced.