**Tutorial 1 (Descriptive Statistics)**

**Question 1: Descriptive Statistics - Central Tendency**

(a) Define and explain the concept of "central tendency" in descriptive statistics. What are the common measures of central tendency, and under what circumstances is each measure most appropriate?

(b) You are given the following dataset representing the ages of 11 individuals in a sample: [25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75]. Calculate the mean, median, and mode of the dataset. Interpret what each of these measures tells you about the distribution of ages in the sample.

**Question 2: Descriptive Statistics - Variability**

(a) Define and explain the concept of "variability" in descriptive statistics. How is variability measured, and why is it important in data analysis?

(b) Consider two datasets: Dataset A with values [10, 20, 30, 40, 50, 60] and Dataset B with values [10, 10, 10, 50, 60, 60]. Calculate the range, interquartile range, variance, and standard deviation for both datasets. Compare the variability in these two datasets and discuss which dataset exhibits more variability and why.

**Question 3: Odds Ratios and Relative Risks**

A double-blind study that took a random sample of people who suffer from nose bleeds were split into two groups, a treatment group and a placebo group, to see if a new drug would improve their symptoms (Response). The results are given in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Response | No Response | Total |
| Treatment | 53 | 22 | 75 |
| Placebo | 44 | 31 | 75 |
| Total | 97 | 53 | 150 |

1. Calculate the relative risk for responding to the treatment compared to

placebo. Interpret this relative risk.

1. Calculate the odds ratio for responding to the treatment compared to

placebo. Interpret this odds ratio.