Statistics Task

1. **Question 1:** When do we need to use a Pie Chart instead of a Bar Chart, and vice versa?

—--------------------------------------------------- Pie chart use proportion or percentage , handle small categories .

—-------------------------------------------------- Bar chart compare between frequencies , handle

large categories .

1. **Question 2:** When do we need to use a Histogram instead of a Dot Plot, and vice versa?

—--------------------------------------------------- Dot Plot handles small categories ,histogram handles large categories .the distribution of continuous data by grouping it into intervals

1. **Question 3:** If we have categorical data, which graphs should we choose?
* ~~Bar Chart~~
* Histogram
* Line Chart
* Dot Plot
* Scatter Plot
* ~~Pie Chart~~
1. **Question 4:** What is the definition of distribution, and what are its types?

—-------------------------------------------------- refers to the way data set spread across a range of values ,types nomial ,ordered , interval ,ratio

1. **Question 5:** What is the difference between Mean, Median, and Mode, and when should we use each of them? Discuss.

—--------------------------------------------------Mode :: The most frequently value , working with categories (nomial , ordered )

—--------------------------------------------------Median :: The middle value in the ordered data

if odd numbers then are selected directly else equal average

—---------------------------------------------------Mean :: point balance without outliers and equal average dataset =sum x/n

**Question 6:** What is the Regression Line? And Is it the best solution when there are many outliers in the data? Discuss.

—--------------------------------------------------Regression line : Best fit line in scatter plot

1. **Question 7:** What is the difference between Population and Sample?

—-------------------------------------------------- population the entire set ,Sample is subset from population

1. **MCQ** : Which of the following is true about Bayes' Theorem? (**Only One Choice True**)
* It is used to predict the outcome of decision trees.
* ~~It helps calculate the probability of an event based on prior knowledge of related events.~~
* It calculates the joint probability between two random events
* It determines the marginal probability of an event occurring