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 for proportions (%) of a whole.

   Bar Chart → Use for comparing values across categories.

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

   Histogram → Use for large continuous data to show distribution.

   Dot Plot → Use for small datasets to see individual values.

3. **Question 3:** If we have categorical data, which graphs should we choose?
   - [x] ~~Bar Chart~~
   - [ ] Histogram
   - [ ] Line Chart
   - [ ] Dot Plot
   - [ ] Scatter Plot
   - [x] ~~Pie Chart~~

   ~~Bar Chart, Pie Chart is the right answee~~

4. **Question 4:** What is the definition of distribution, and what are its types?

   Definition: Spread of data values.

   Types: Normal, Skewed, Uniform, Bimodal, Exponential.

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

   Mean → Average, use for normal data.

   Median → Middle value, use for skewed data.

   Mode → Most frequent, use for categorical data.

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

   Definition: Best-fit line in a dataset.

   Outliers? Not ideal—use robust regression.

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

   Population: Entire group.

   Sample: Subset of population.

8. **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