Problem II

Please explain the relationship between **Probability** and **Statistical Inference** and how it can be implemented in your company (the case can be anything as long it is related to your company business).

Probability and Statistics are both closely related to each other. Before we dive further into linking these concepts, recall that we always start with a statistical investigation:

1. Collecting/Producing data: direct observations, experiments, surveys, etc.
2. Exploring data (analyze, summarize, and visualize our data): summarizing data numerically/graphically, nonlinear models, etc.
3. Draw conclusions about the data (e.g. trends)

In statistics, we use the data to "infer" something about the sample/population. The inference is based on probability.

Case Example:

At the end of 2020, KitaBisa conducted a poll to determine the percentage of teenagers who support COVID-19 fundraising.

1. Collecting data: The poll chose a random sample of 1000 Indonesian teenagers.
2. Exploring data: For instance, 60% of teenagers favor the COVID-19 fundraising program.
3. Draw conclusions: Use the data, probability, and statistical inference to draw a conclusion.

Now, our ultimate goal is to determine the percentage of the whole Indonesian teenagers' population that supports COVID-19 fundraising. What are the chances that a sample (1000 teenagers) reflects the opinions of the entire population within (let's say) 3%? This is where probability comes into play. Probability describes the likelihood that a specific sample is accurate, so that we can say with 90% or even 95% confidence that 57-63% of the population support COVID-19 fundraising.