sampling techniques

- **Probability sampling** involves random selection, allowing you to make strong statistical inferences about the whole group.
- **Non-probability sampling** involves non-random selection based on convenience or other criteria, allowing you to easily collect data.

1. Probability Sampling:

Probability sampling is a sampling technique where each unit in the population has a known and non-zero chance of being selected as part of the sample. This means that the selection of the sample is based on random chance and probability theory. Probability sampling techniques include:

There are four types of probability sampling techniques:

- **Simple Random Sampling**: In this technique, each unit in the population has an equal chance of being selected for the sample. This is often done using random number generators or tables.
- **Stratified Sampling**: In this technique, the population is divided into smaller, more homogenous groups or strata, and then a random sample is selected from each stratum.
- **Cluster Sampling**: In this technique, the population is divided into clusters or groups, and then a random sample of clusters is selected. All units within the selected clusters are included in the sample.
- **Systematic Sampling:** In this technique, a random starting point is selected, and then units are selected at regular intervals from the population.

2. **Non-Probability Sampling**:

Non-probability sampling is a sampling technique where the probability of each unit in the population being selected for the sample is unknown or unequal.

1.Convenience sampling :

in which individuals are selected for the sample based on their availability or proximity to the researcher. This method is often used when the researcher needs to quickly gather data or when the population is difficult to access.
In convenience sampling, the researcher selects individuals who are easily accessible, such as those who are nearby, members of the researcher's social network, or customers of a particular business. The sample is not selected randomly, and therefore, it may not be representative of the larger population.
Convenience sampling has several advantages, including its ease of use and low cost. It is often used in exploratory research or pilot studies, where the goal is to gather initial data that can be used to inform further research. It can also be useful in situations where the population is small, such as in case studies or qualitative research.

2.qouta sampling :

Quota sampling is a non-probability sampling technique in which the researcher selects individuals based on specific quotas or characteristics, such as age, gender, or ethnicity. The goal is to ensure that the sample is representative of the population in terms of these characteristics, even though the sample is not selected randomly.
the choice of quota sampling method depends on the research question, the characteristics of the population, and the resources available for the study.

Quota sampling methods can be divided into two broad categories:

1. Controlled quota sampling :
   imposes restrictions on the researcher’s choice of samples. Here, the researcher is limited to the selection of samples.

2. Uncontrolled quota sampling :
   does not impose any restrictions on the researcher’s choice of samples. Here, the researcher chooses sample members at will.
   Ex : Gender: 250 males and 250 females

Steps :

1.Divide the sample population into subgroups: With stratified random sampling.
2. Figure out the weightage of subgroups: The researcher evaluates the proportion in which the subgroups exist in the population. He/she maintains this proportion in the sample selected using this type of sampling method.
For example, if 58% of the people who are interested in purchasing your Bluetooth headphones are between the age group of 25-35 years, your subgroups also should have the same percentages of people belonging to the respective age group.
3.Select an appropriate sample size: In the third step, the researcher should select the sample size while maintaining the proportion evaluated in the previous step.
4. Conduct surveys according to the quotas defined: Make sure to stick to the predefined quotas to achieve actual actionable results. Don't survey quotas that are full and focus on completing surveys for each quota.

3.Purposive sampling:

in which the researcher selects individuals based on specific criteria, such as their expertise or knowledge about a particular topic. The goal is to ensure that the sample includes individuals who are most knowledgeable about the topic of interest.
In purposive sampling, the researcher identifies the characteristics or criteria that are relevant to the research question, such as age, profession, or experience. The researcher then selects individuals who meet these criteria, often through methods such as referrals or expert networks.
has several advantages, including its ability to provide in-depth and detailed information about a particular topic, as well as its ability to target specific subgroups of the population. It can be useful in situations where the population is small or difficult to access, such as when studying high-level executives or rare diseases.

4.Snowball sampling :

This is a sampling technique, in which existing subjects provide referrals to recruit samples required for a research study.
For example, if you are studying the level of customer satisfaction among the members of an elite country club, you will find it extremely difficult to collect primary data sources unless a member of the club agrees to have a direct conversation with you and provides the contact details of the other members of the club.
Snowball sampling method is purely based on referrals and that is how a researcher is able to generate a sample. Therefore this method is also called the chain-referral sampling method. Snowball sampling is a popular business study method. The snowball sampling method is extensively used where a population is unknown and rare and it is tough to choose subjects to assemble them as samples for research**.**

Types of Snowball Sampling :

1. **Linear Snowball Sampling:** The formation of a sample group starts with one individual subject providing information about just one other subject and then the chain continues with only one referral from one subject. This pattern is continued until enough number of subjects are available for the sample.
2. **Exponential Non-Discriminative Snowball Sampling:** In this type, the first subject is recruited and then he/she provides multiple referrals. Each new referral then provides with more data for referral and so on, until there is enough number of subjects for the sample.
3. **Exponential Discriminative Snowball Sampling:** In this technique, each subject gives multiple referrals, however, only one subject is recruited from each referral. The choice of a new subject depends on the nature of the research study.