Sampling methods, types & techniques

Sampling definitions

- **Population:** The total number of people or things you are interested in
- **Sample:** A smaller number within your population that will represent the whole
- **Sampling:** The process and method of selecting your sample

Probability sampling methods

1. Simple random sampling

With simple random sampling, every element in the population has an equal chance of being selected as part of the sample. It's something like picking a name out of a hat. Simple random sampling can be done by anonymizing the population – e.g. by assigning each item or person in the population a number and then picking numbers at random.

Example: Simple random sampling

You want to select a simple random sample of 1000 employees of a social media marketing company. You assign a number to every employee in the company database from 1 to 1000 and use a random number generator to select 100 numbers.

2. Systematic sampling

Systematic sampling is like simple random sampling, but it is usually slightly easier to conduct. Every member of the population is listed with a number, but instead of randomly generating numbers, individuals are chosen at regular intervals.

With systematic sampling the random selection only applies to the first item chosen. A rule then applies so that every nth item or person after that is picked.

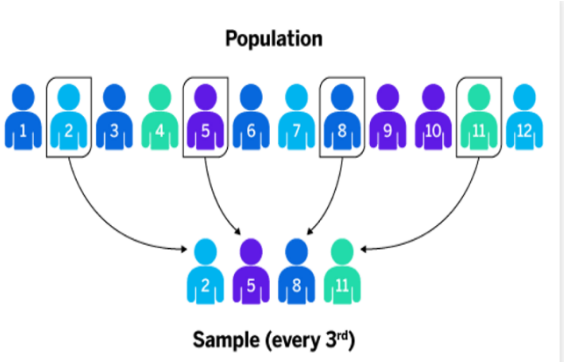
After determining the right sample size, researchers assign a regular interval number they will use to select which members of the target population will be included in the sample.

The sample interval (k) is decided by dividing the population size (N) by the sample size (n).

If you had a list of 1000 customers (your target population) and you wanted to survey 200 of them, your interval would be 5. This means that you would sample every 5th person in your list of 1,000 customers: 1000 / 200 = 5

To ensure a random sample, researchers use a random starting point within the range from

0-k. So, if k = 5 you might randomly start with the 2nd name in the list and then sample every 5th person (e.g. 2, 7, 12, 17 and so on).



Example: Systematic sampling

You want to select a Systematic random sample of 1000 employees of a social media marketing company.

All employees of the company are listed in alphabetical order. From the first 10 numbers, you randomly select a starting point: number 6. From number 6 onwards, every 10th person on the list is selected (6, 16, 26, 36, and so on), and you end up with a sample of 100 people.

3. Stratified sampling:

To use this sampling method, you divide the population into subgroups (called strata) based on the relevant characteristic (e.g., gender identity, age range, income bracket, job role).

Based on the overall proportions of the population, you calculate how many people should be sampled from each subgroup. Then you use random or systematic sampling to select a sample from each subgroup.

Example: Stratified sampling

The company has 800 female employees and 200 male employees. You want to ensure that the sample reflects the gender balance of the company, so you sort the population into two strata based on gender. Then you use random sampling on each group, selecting 80 women and 20 men, which gives you a representative sample of 100 people.

4. Cluster sampling:

Cluster sampling also involves dividing the population into subgroups, but each subgroup should have similar characteristics to the whole sample. Instead of sampling individuals from each subgroup, you randomly select entire subgroups.

With cluster sampling, groups rather than individual units of the target population are selected at random for the sample. These might be pre-existing groups, such as people in certain zip codes or students belonging to an academic year.

Example: Cluster sampling

The company has offices in 10 cities across the country (all with roughly the same number of employees in similar roles). You don't have the capacity to travel to every office to collect your data, so you use random sampling to select 3 offices – these are your clusters.