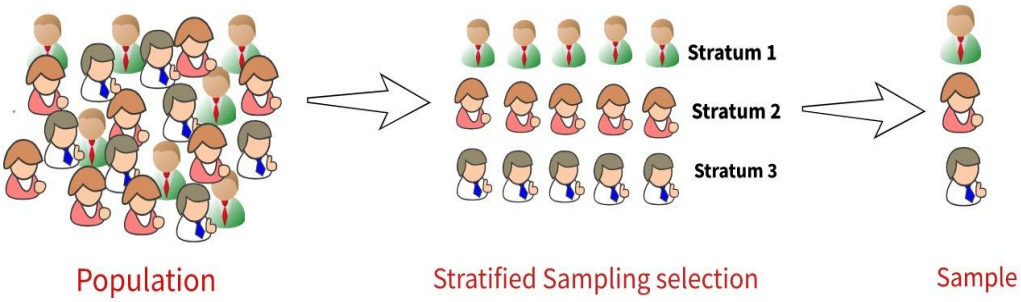
Sampling

Sampling is a technique of selecting a subset or sample of the population to make a statistical decision from the sample and estimating the whole population's characteristics.

Stratified Random Sampling :

In statistics, **stratified sampling** is a sampling method from a population that can be partitioned into subpopulations. In this method, you can divide a population into homogeneous subpopulations called ***strata*** based on specific characteristics (e.g., gender, location etc.). Every member of the population should be in exactly one stratum.

You can rely on this method when you want to ensure that every type of population is properly represented in the sample when you have a diverse population (different set of data points present).



In this method, the stratum can be based on gender, age group, education type, salary structure etc., depending on the type of people you have in the dataset.

It is important to note that one person should be part of only one stratum. If they overlap in subgroups, that means the chances of that candidate getting selected in the sample will be higher than others, completely defying the concept of stratified sampling as a type of probability sampling.

For example, in a school event, there are 180 people consisting of students and teachers. where :

- Male teacher: 18 {stratum 1}
- Female teacher, full-time: 9 {stratum 2}
- Female, student: 63 {stratum 3}
- Male student: 90 {stratum 4}
- total: 180

And we are asked to take a sample of 40 in total from the above present people, stratified according to the above categories.

The first step is to calculate the percentage of each group of the total.

- % male teacher = 18 ÷ 180 = 10%
- % female teacher= 9 ÷ 180 = 5%
- % female student = 63 ÷ 180 = 35%
- % male student = 90 ÷ 180 = 50%

Now to create sample of 40 from above stratum :

- 10% (4 individuals) should be Male teacher.
- 5% (2 individuals) should be Female teacher.
- 35% (14 individuals) should be Female student.
- 50% (20 individuals) should be Male studnet.

So the sample should have 20 male students, 14 female students, 4 male teachers and 2 female teachers.