

1. Simple Random Sampling without Replacement
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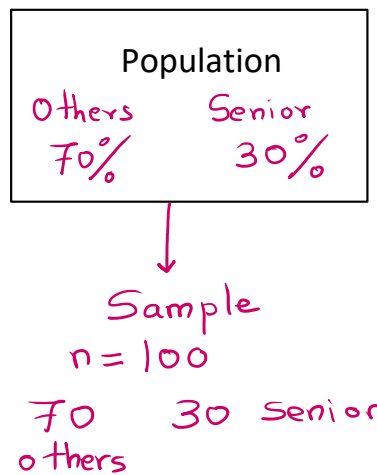
## Simple Random Sampling without Replacement

Pack of 52 cards  
 $\frac{1^{st}}{52}$      $\frac{2^{nd}}{51}$      $\frac{3^{rd}}{50}$      $\frac{4^{th}}{49}$

## Simple Random Sampling with Replacement

Pack of 52 cards  
 $\frac{1^{st}}{52}$      $\frac{2^{nd}}{52}$      $\frac{3^{rd}}{52}$      $\frac{4^{th}}{52}$   
 Used in Bagging & Random Forest in ML

## Stratified Random Sampling



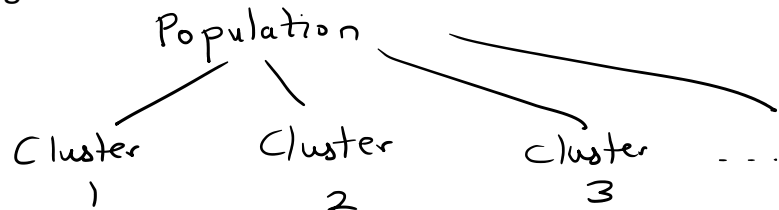
## Systematic Random Sampling

e.g. Directory of names  
 $\underbrace{A \dots}_{g^{th}}$ ,  $\underbrace{B \dots}_{g^{th}}$ ,  $\underbrace{C \dots}_{g^{th}}$ , ...  
 say

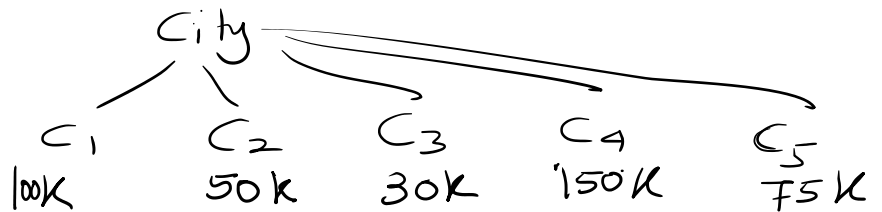
$\underbrace{Z \dots}_{g^{th}}$

e.g.  $\underbrace{1, \dots, 11, \dots}_{4^{\text{th}}}$   $\underbrace{11, \dots, 21, \dots}_{14^{\text{th}}}$   $\underbrace{21, \dots, 61, \dots}_{24^{\text{th}}}$   $\underbrace{61, \dots}_{64^{\text{th}}}$

### Cluster Random Sampling



- 1) Randomly a cluster / or multiple clusters chosen
- 2) The chosen complete clusters are taken as a sample



say  $C_3, C_1$

Sample  $\rightarrow 100K + 30K = 130K$

Can be implemented while operationalizing different Government Schemes (Yojana)