

1. Introduction to data modelling for business

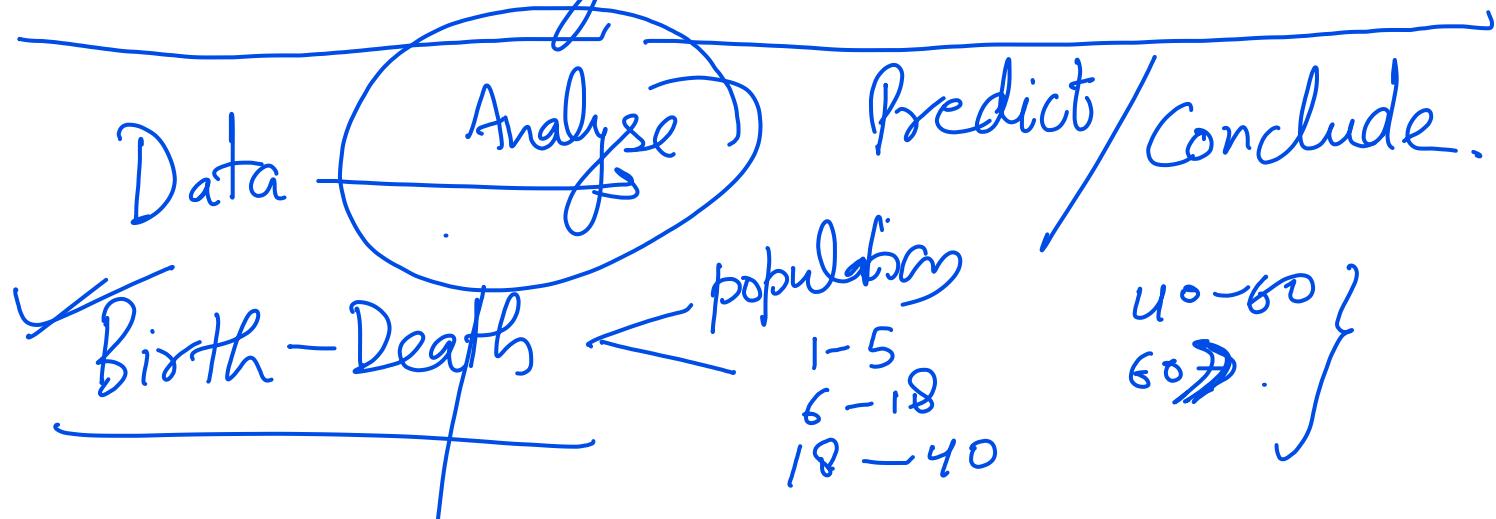
2. Fundamentals of Statistics

③ Inferential Statistics

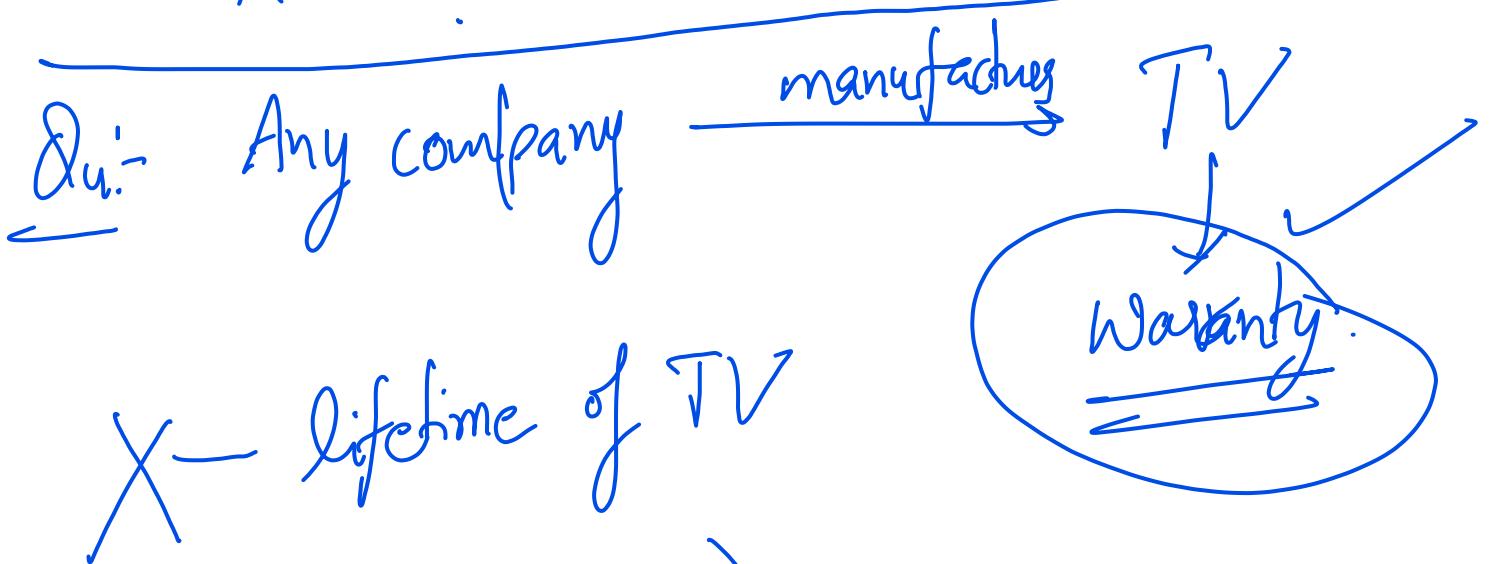
4. Descriptive statistics with R,

Reference book:

G. James, D. Witten, T. Hastie & R. Tibshirani - An introduction to statistical learning with application in R, Springer.



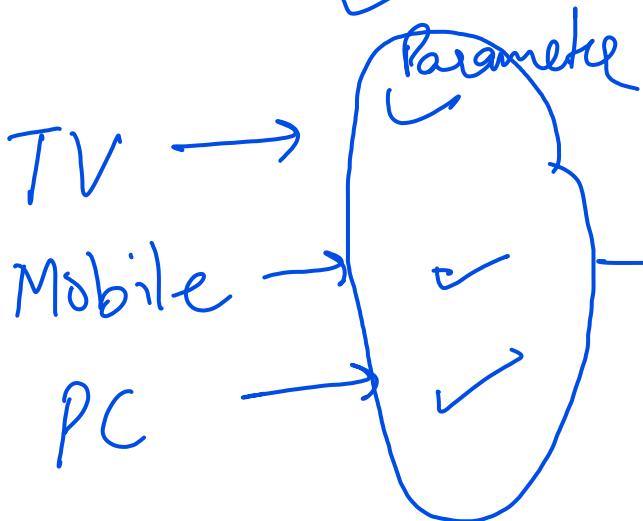
How ?



$$\text{Prob} (X > 1) = ?$$

$$P(X > 3) = ?$$

Exponential distri. → by a function depending on some parameter



finding this parameter

Parameter estimation

Statistics

Descriptive

① Measure of Central Tendency

Mean, Median, Mode



Students
Marks
 $a_1, a_2, a_3, \dots, a_{10}$

$$\text{Passing marks} = \frac{1}{2} \text{ Median}$$

② Measure of Dispersion : Range

$$\text{Var} = \frac{1}{n} \sum (x_i - \bar{x})^2$$

Variance, Standard deviation.
square feet.

Point estimation

Interval estimation

Parameter Estimation

Inferential

Hypothesis Testing

Statement

Null Hypothesis
Alternative Hypothesis

$$2 \quad 3 \quad 4 \cdot 5 \quad 6 \quad 7 \rightarrow \underline{\text{fact}}$$

$$\bar{x} = \frac{2+3+4+5+6+7}{6} = 4.5 \text{ fact}$$

(iii) Visualization:

Histogram, Bar graph, Pie charts.

Sampling:

Population → Destructive

Sample → Subset of population

large:

Sampling Theory:

Population: Income of people in Patna

1, 2, ..., 1000

$X_1, X_2, \dots, X_{1000} \rightarrow$ random variable

