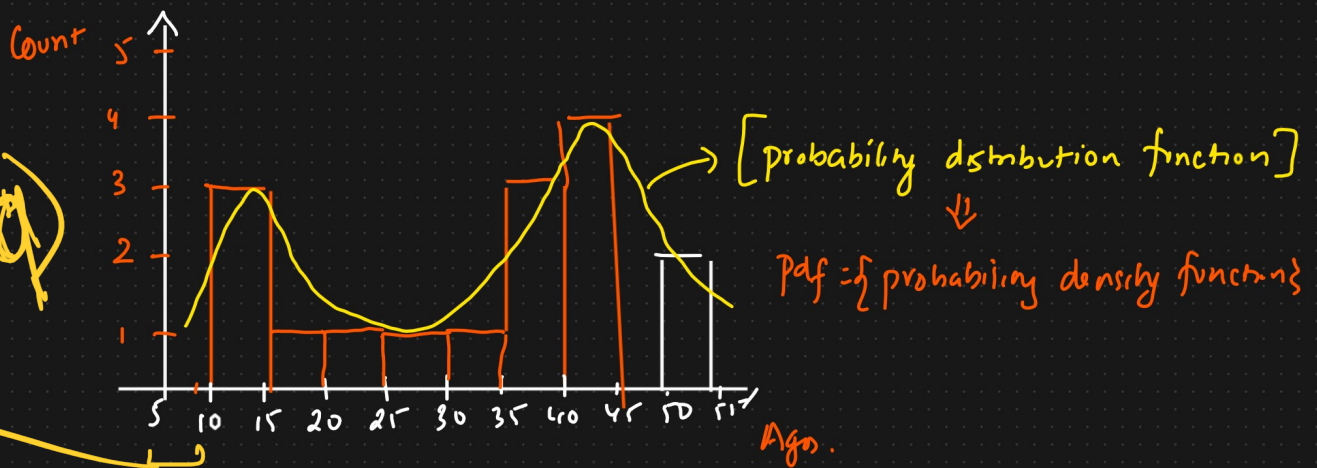


# Histograms And Skewness → [Frequency]

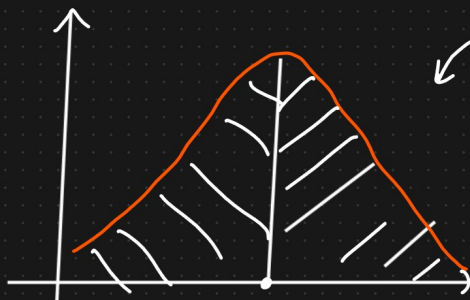
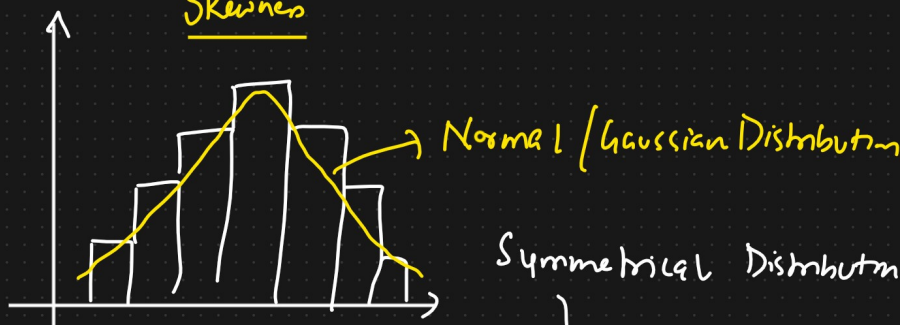
Ages = {10, 12, 14, 18, 24, 26, 30, 35, 36, 37, 40, 41, 42, 48, 50, 51}

$$\frac{50}{10} = 5 \rightarrow \text{bin size} \quad \{ \text{No. of bins} = 10 \}$$

$$\frac{50}{20} = 2.5 \rightarrow \text{bin size} \quad \{ \text{No. of bins} = 20 \}$$



## Skewness



① No skewness

## Box plot

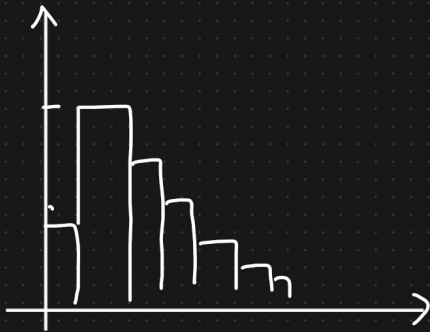


The mean, median, and mode all are perfectly at the center

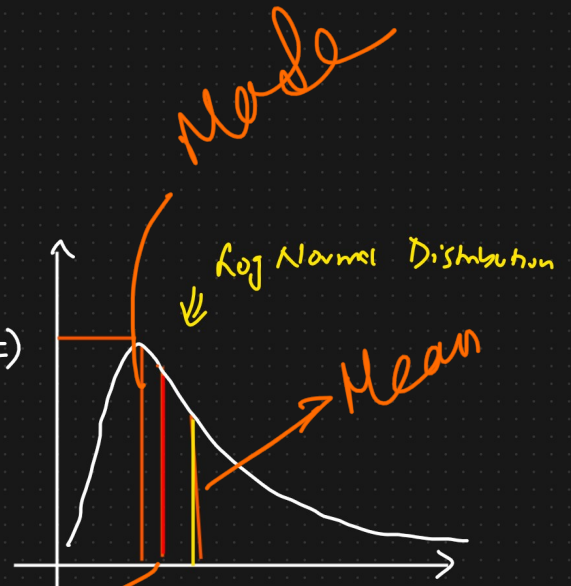
$$Q3 - Q2 \approx Q2 - Q1$$

$$\text{mean} = \text{median} = \text{mode}$$

## ② Right skewed



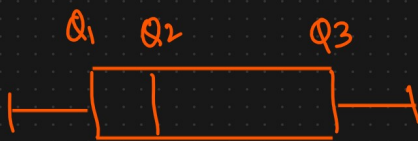
$\Rightarrow$  Positive Skewed  $\Rightarrow$



Relationship between Mean, Median, Mode

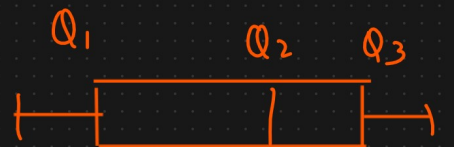
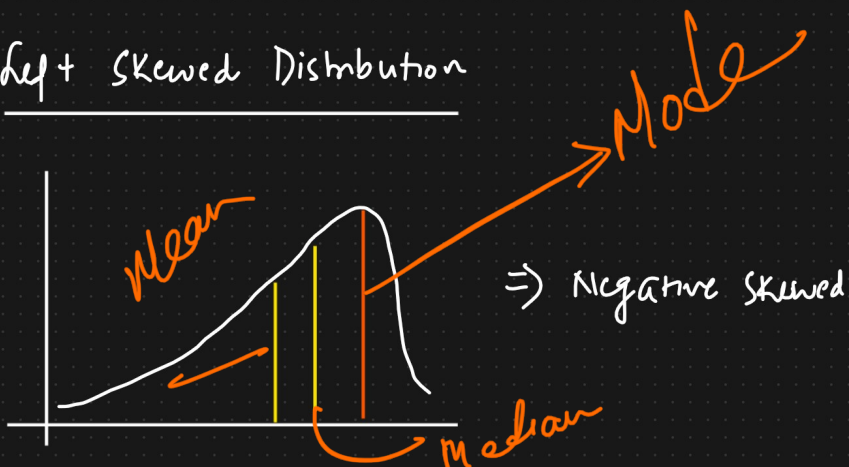
Median  $\left| \text{mean} > \text{median} > \text{mode} \right|$

## Box plot



$$Q_3 - Q_2 > Q_2 - Q_1$$

## ③ Left Skewed Distribution



$$Q_2 - Q_1 > Q_3 - Q_2$$

Relationship  $\therefore \text{mean} < \text{median} < \text{mode}$