	Person 1	Person 2
Mon	7.30 AM	8 AM
Tue	7.45 AM	11 AM
Wed	8 AM	9 AM
Thurs	7.15 AM	7 AM
Fri	7 AM	10 AM
Sat	?	?

Variance high
Prediction Low

2) Measure of Dispersion

* Variance
* Standard Deviation
* Range

Population Variance (σ^2)

$$\sigma^2 = \frac{\sum_{i=1}^{N} (x_i - \mu)^2}{N}$$

Sample Variance (s^2)

$$s^2 = \frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n-1}$$

$n-1$ = degree of freedom

$\{1, 2, 2, 3, 4, 5\}$ $\mu = 2.8$

~~33.45~~

$$\sigma^2 = \frac{(1-2.8)^2 + (2-2.8)^2 + (2-2.8)^2 + (3-2.8)^2 + (4-2.8)^2 + (5-2.8)^2}{6}$$

$\sigma^2 = 1.8 \text{ km}^2$

$\sigma = \sqrt{1.8 \text{ km}^2} = 1.34 \text{ km}$ = Standard deviation

$$SD = \sqrt{\text{variance}}$$

Population SD

$$\sigma = \sqrt{\sigma^2}$$

$$\sigma = \sqrt{1.8}$$

$$\sigma = 1.34$$

Sample variance (s^2)

$$s^2 = \frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n-1} = \frac{10.83}{5}$$

Sample SD

$$S = \sqrt{s^2}$$

$$S = \sqrt{2.16}$$

$$S = 1.46$$

Range = max - min

= 5 - 1

= 4

Percentile & Quartile

Percentile is a value below which a certain percent of observations will be come under

{1, 1, 2, 3, 4, 5, 5, 6, 7, 7, 8} Total = 11 => 100%

=> How much % of Data will come below 6?

Percentile rank of x = $\frac{\#\text{ of value below } x}{N} \times 100$

$= \frac{7}{11} \times 100$

$= 63\%$ observation data value

ie, < 6

~~Quartes~~ Quartile

It will helps to find the value which is present at the given percentile rank.

=> Which value is present at 25%?

$\text{Value} = \frac{\text{Percentile}}{100} \times n+1$

$= \frac{25}{100} \times 12$

$= 3 \longrightarrow$ Index [if decimal → then just integer]

value = 2