Assignment 2.1

Four survey households in your area to find the average rent they are paying. Find the standard deviation from the following data

$1550, $1700, $900, $850, $1000, $950.

$$\text{Standard deviation } \sigma = \sqrt{\frac{\sum_{i=1}^{N} (x-\bar{x})^2}{N}}$$

x is given samples, $\bar{x}$ is mean of given samples

$$\bar{x} = \frac{\text{sum of all samples}}{\text{total No. of samples}} \qquad \bar{x} = \frac{1550+1700+900+850+1000+950}{6}$$

$$= \frac{6950}{6} \Rightarrow \bar{x} = 1158.333$$

x	$x-\bar{x}$	$(x-\bar{x})^2$
1550	391.667	153402.8
1700	541.667	293402.8
900	-258.333	66736.11
850	-308.333	95069.44
1000	-158.333	25069.44
950	-208.333	43402.78

$$\sum_{i=1}^{N} (x-\bar{x})^2$$

$$= 153402.8 + 293402.8 + 66736.11 \ldots + 43402.78$$

$$= 677083.3$$

$$\frac{\sum (x-\bar{x})^2}{N} = \frac{677083.3}{6} = 112847.2$$

$$\text{Standard deviation} = \sqrt{\frac{\sum (x-\bar{x})^2}{N}} = \sqrt{112847.2} = 335.92744$$

∴ The standard deviation of households survey is 335.92744