

### Assignment 16.1 : Problem Statement

You 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.**

#### Step 1:

**Find the mean:**

$$(\$1550 + \$1700 + \$900 + \$850 + \$1000 + \$950)/6 = \$1158.33$$

#### Step 2:

**Subtract the mean from each value. This gives you the differences:**

$$\begin{aligned} \$1550 - \$1158.33 &= \$391.67 \\ \$1700 - \$1158.33 &= \$541.67 \\ \$900 - \$1158.33 &= -\$258.33 \\ \$850 - \$1158.33 &= -\$308.33 \\ \$1000 - \$1158.33 &= -\$158.33 \\ \$950 - \$1158.33 &= -\$208.33 \end{aligned}$$

#### Step 3:

**Square the differences you found in Step 3:**

$$\begin{aligned} \$391.67 &= 153405.3889 \\ \$541.67 &= 293406.3889 \\ -\$258.33 &= 66734.3889 \\ -\$308.33 &= 95067.3889 \\ -\$158.33 &= 25068.3889 \\ -\$208.33 &= 43401.3889 \end{aligned}$$

#### Step 4:

**Add up all of the squares you found in Step 3 and divide by 5 (which is 6 – 1):**

$$(153405.3889 + 293406.3889 + 66734.3889 + 95067.3889 + 25068.3889 + 43401.3889) / 5 = 135416.66668$$

#### Step 5:

**Find the square root of the number you found in Step 4 (the variance):**

$$\sqrt{135416.66668} = 367.99$$

**The standard deviation is 367.99.**