2. Problem Statement

Find the variance for the following set of data representing trees in California (heights in feet):

3, 21, 98, 203, 17, 9

Solution :

1. **Find the mean of tree heights**

Avg Tree height in feet = (3+21+98+203+17+9)/6 = 58.5 feet

2. **Find the differences between observations and the mean**

(3-58.5) = -55.5

(21-58.5 = -37.5

(98-58.5) = 39.5

(203-58.5) = 144.5

(17-58.5)= -41.5

(9-58.5)= -49.5

3. Find the square of their differences

(-55.5) ^2 = 3080.25

(-37.5) ^ 2 = 1406.25

(39.5) ^ 2 = 1560.25

(144.5) ^ 2 = 20880.25

(-41.5) ^ 2 = 1722.25

(-49.5) ^ 2 = 2450.25

4. Divide the sum of squares result by n-1

= (3080.25+1406.25+1560.25+20880.25+1722.25+2450.25)/5 = 6219.9

The Variance of the given values is 6219.9

5. Take the square root of your answer from Step 4 . This gives the standard deviation:

√6,219.9 = 78.86634

The Standard Deviation is = 78.86634