ASSIGNMENT 15 - STATISTICS - 1

Problem Statement 1:

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.

Answer

Sum Σ = 1550 + 1700 + 900 + 850 + 1000 + 950 = $6950

Mean = 6950/6 = 1158

Variance = (1550 – 1158) ** 2 + (1700 -1158)**2 +(900-1158)**2 + (850-1158)**2 +

(1000-1158)**2+(950-1158)**2/6

= 153664 + 293764+66564+94864+24964+43264/6 = 112847

Standard Deviation = square root of(112847) = $ **335.927**

Problem Statement 2:

Find the variance for the following set of data representing trees in California (heights in feet):
3, 21, 98, 203, 17, 9

Answer

Sum = 3 + 21 + 98 + 203 + 17 + 9 = 351

Mean = 351/6 = 58.5

Variance = (3 – 58.5) ** 2 + (21 -58.5) ** 2 +(98-58.5) ** 2 + (203-58.5) ** 2 +

(17-58.5) ** 2 + (9 - 58.5) ** 2/6

= 3080.25 + 1406.25 + 1560.25 + 20880.25 + 1722.25 + 2450.25/6

= 5183.25

Problem Statement 3:

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In a class on 100 students, 80 students passed in all subjects, 10 failed in one subject, 7 failed in two subjects and 3 failed in three subjects. Find the probability distribution of the variable for number of subjects a student from the given class has failed in.

Answer :

For a random student,

The probability of failing in 0 subjects , P(X=0) = 80/100 = 0.8

The probability of failing in 1 subjects , P(X=1) = 10/100 = 0.1

The probability of failing in 2 subjects , P(X=2) = 7/100 = 0.07

The probability of failing in 3 subjects , P(X=3) = 3/100 = 0.03

The probability distribution can be shown as:

X	**0**	**1**	**2**	**3**
P(X)	.8	.1	.07	.03