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PRN - B24CE1079
Subject - Mathematical Foundation for GenAI
ASSIGNMENT 7 - Measures of Dispersion

/*PROBLEM STATEMENT:
A teacher wants to compare the consistency of study hours between two different groups of students. To achieve this, the teacher needs to analyze the range, variance, and standard deviation of study hours data for both groups. This analysis will help in understanding how dispersed the data is around the average, offering insight into study behavior differences between the groups.*/

PROGRAM

```
import statistics

def get_data_from_user(group_name):
    data_str = input(f"Enter study hours for {group_name}: ")
    data = list(map(float, data_str.strip().split()))
    return data

def analyze_group(data, group_name="Group"):
    data_range = max(data) - min(data)
    variance = statistics.pvariance(data)
    std_dev = statistics.pstdev(data)

    print(f"\n{group_name}:")
    print(f"Range = {data_range}")
    print(f"Variance = {variance:.2f}")
    print(f"Standard Deviation = {std_dev:.2f}")

# Get data from user
group1 = get_data_from_user("Group 1")
group2 = get_data_from_user("Group 2")

# Call the analysis function for both groups
analyze_group(group1, "Group 1")
analyze_group(group2, "Group 2")
```

OUTPUT

```
Enter study hours for Group 1: 6 8 7 6 5 6 9 7 8
Enter study hours for Group 2: 10 12 13 11 10 9 8 14

Group 1:
Range = 4.0
Variance = 1.43
Standard Deviation = 1.20

Group 2:
Range = 6.0
Variance = 3.61
Standard Deviation = 1.90

=== Code Execution Successful ===
```