
Assignment 1

Question 1: Class Grade Analysis

A teacher has recorded the following grades for a class:
grades = [85, 92, 78, 65, 88, 72, 90, 85, 83, 72]
Write a program to calculate and display:
1. The mean grade
2. The median grade
3. The standard deviation
4. The highest and lowest grades
5. The range of grades (max-min)

Expected Output:
Mean: 81.0
Median: 84.0
Standard Deviation: ~8.64
Highest Grade: 92
Lowest Grade: 65
Range: 27

Question 2: Mode Calculator

Write a function that finds the mode (most frequent value) in a dataset.
The function should handle:
1. Single mode
2. Multiple modes (if they exist)
3. No mode (if all values appear equally often)

Question 3: Moving Average

Calculate the moving average of time series data with a specified window size. The function should:
1. Accept a list of numbers and a window size
2. Return a list of moving averages

Example Input:
data = [1, 3, 5, 7, 9, 11, 13, 15]
window_size = 3
Expected Output: [3.0, 5.0, 7.0, 9.0, 11.0, 13.0]