Introduction to Data Analysis and Machine Learning with Python

Homework 1

March 11 2024
Due: March 18 2024 8AM ET

Please submit only the answers to the questions, not your code.

1. Please confirm that you have Python 3 installed on your laptop/computer [10 points]
    a. Yes, I have Python installed
    b. No, I have not installed Python

2. Write a short Python script that calculates the square root of a positive number [40 points]
    a. Using the number 5 as initial guess, how many iterations does your code need to calculate sqrt(10) to a precision of better than 10^{-6}? Calculate the precision as (numpy.sqrt(10) - your_result)/numpy.sqrt(10).

3. Write a Python script that reads the file "data_HW1.txt". The file has 8 columns of data. Use the numpy function numpy.std() to calculate the standard deviation of each of the 8 columns separately [50 points]
    a. What is the standard deviation for column 1?
    b. Which column has the largest standard deviation?