CS3101: ASSIGNMENT 2

DEADLINE: 23 FEB AT 17:00

Description: Create two different Jupyter notebooks (`ipynb` files). These should be self-contained, and all computations done exclusively in these notebooks. Both notebooks must contain Python code together with Markdown and LaTeX markup describing what is being done with the code. You do not need to explain every line, but do provide some detail on how the code is accomplishing its task.

Notebook 1: Solve the following three tasks.
   (1) Find the two solutions to the quadratic equation:
$$x^2 - 6x + 2 = 0,$$
   and display their values as decimals correct to at least four decimal places.
   (2) Generate a list of 2,024 integers between 42 and 137. Compute the mean, standard deviation, and median of the list.
   (3) For a positive integer n, let
$$s_n = \sum_{k=1}^{n} \frac{1}{k}.$$
   Compute s_n for n equal to 10, 10^2, 10^3, and 10^4.

Notebook 2: Discusses the graphs of linear functions, quadratic functions and cubic functions, using `Matplotlib` to give an example of each. It should be easy for the user to modify the examples to see the graphs of some different functions, say with different coefficients.

Submission: Submit only the two `ipynb` files.

Grading: Some important points about the grading of this assignment.
   • If the Python code raises errors, marks will be deducted.
   • Marks will be deducted for omitting meaningful computations.

Date: January 19, 2024.