Assignment 1 [100 Points]

Due February 8, 2023 at 11:59 PM

Problem 1 - Write a Python class named as MLE (70 points) Write a class to calculate Maximum Likelihood Estimator for 1D Gaussian Distribution $N \sim (\mu, \sigma^2)$. Download the initial code file MU.py and data file data1.txt from Canvas. There is a class named as MU in the file. MU is able to estimate mean of Gaussian Distribution.

1. Your class needs to inherit the given class. [10 points]
2. Your class contains one function to estimate variance of Gaussian Distribution. [30 points]
   Hint: $\sigma^2 = \frac{1}{N} \sum_{i=1}^{N} (x_i - \mu)^2$
3. Write code to load data from file data1.txt [10 points]
4. The data given is from some Gaussian Distribution with unknown parameters. Call YOUR class to estimate mean and variance. DON'T call MU to estimate μ. [20 Point]
5. Rename your file as P1-[your accessID].py.
6. Make a screenshot of your result and rename your screenshot as P1-[your accessID].png

Problem 2 - Jupyter Notebook [30 points] Build a Jupyter notebook, name it as P2-[Your AccessID].ipynb.

1. Write code in your notebook to load the data from salary_data.csv and print fifth row of data. [10 Points]
2. Plot data, column 'YearsExperience 'as X axis and 'Salary 'as Y axis. [20 Points]
   Hint: use matplotlib.pyplot.
   Check this website: https: //matplotlib.org/users/pyplottutorial.html

Submit all your files (individually and don't zip) to Canvas.