BT6270: Computational Neuroscience

The details of Assignment-1 are given below

Assignment description:

We have attached the MATLAB code which simulates the Hodgkin Huxley model. You need to run, and modify this code so as to find and plot the following:

1. Threshold values for the external applied currents I_1, I_2, and I_3 in which shift of dynamical behavior from one to another is seen, such as *no AP, finite number of AP's, Continuous firing and then followed by distortion resulting in no more APs*.
2. A graph which depicts the firing rate (frequency) as you change the applied external current (i.e. I_{ext} vs. Firing rate (f)). You can make this plot either in Matlab or Python.

General Instructions:

- A valid submission requires a compressed zip or tar file named as "<ROLLNO>A1.zip" containing the following files:
  - A detailed report which includes the values asked for, the assumptions made, your observations, and the plots required.
  - The Matlab /python code used to generate the plot required (I_{ext} vs f).
  - Any other user defined functions which would be required for this main code to run.
- Please email the TAs the completed assignment (zip or rar file) with the subject: " BT6270: Assignment - 1". The email IDs of the Tas are given below,

- Please note this is an individual assignment. Please do not share your assignment with other students.

Please note the deadline for Assignment-1 is 04/09/2023, 23:59. Delay in submitting the assignment will only be accepted if found valid, and should be informed to one of the TAs at least 3 days before the due date.