Assignment 1

Module: Context Sensing

Problem

Utilizing the in-built sensors in your smartphone, develop a smartphone application that can sense users' context and make predictions. The context could be anything that answers any of the 5 'w's of context (as discussed in the lecture). This is an open problem and students are allowed to select their relevant problem for developing the application.

Some examples for reference:
Using Accelerometer, Gyroscope, and location data to predict the user's activity. Using gyroscope and light data to predict user's activity (gaming/texting/eating).

Guidelines:

1. The application should use more than 1 data modality.
2. The data collected should only involve the application developers. Data from other participants requires informed consent.
3. The data should be collected for 2 or more classes, e.g., sitting, running, walking / eating, gaming, texting/sleeping, awake / etc.
4. The application development should be conducted in the following phases (as done during the class activities) :
   a. Data Collection: Labelled Data should be collected using a data collector smartphone application and uploaded in an online Excel.
   b. Model Training: A Machine Learning model should be trained on the collected data.
   c. Data Prediction: Real-time smartphone data should be predicted by deploying the trained model and connecting the predictor application with the local server.
5. The collector and predictor applications can be submitted as separate apps or as a single app (having 2 different screens).

Grading will be based on:

1. Choice of sensors. The sensing modalities should be relevant - 5 marks
2. Inclusive and robust data collection: The collected data should be robust - 5 marks
3. Validity of the problem: The choice of the problem should be relevant - 5 marks
4. Design and Functionality: The app should be well-designed and functioning properly - 5 marks

Submission

The application(s) should be demonstrated on 29th January. The .aia files must be submitted to Google Classroom on or before 29th January, midnight.

No marks will be awarded unless both the in-class demonstration and the .aia file submission are completed