Machine Learning tasks

In this semester, some Python tasks will be given within the scope of Machine Learning. The student is required to complete the following 10 Python tasks and prepare a video presentation in which they explain the codes they will prepare for each of them. The student can upload the videos into MS Teams or YouTube.

Each video presentation should be at most 5 minutes. The student's face must be visible in all video presentations. In the videos, the student should first introduce himself, such as “Hello, I am Umut Orhan from Cukurova University, Department of Computer Engineering”. Then he/she quickly tells the title of the project, if any, the dataset details, and the libraries the used. He/she should then run the application and comment on the results in a few sentences. In supervised methods, the dataset should be divided by 2-fold cross validation.

Task 1. The student uses both K-Means (ignoring the class column in the data) and K-NN on a sample dataset, and then interprets the results.

Task 2. The student uses both ID3 and C4.5 to create a decision tree on a sample dataset, then interprets the results.

Task 3. The student uses both Naive Bayes and Linear Regression to classify a sample dataset, then interprets the results.

Task 4. The student uses the ANFIS model to make a decision (regression or classification) on a sample dataset, then interprets the results.

Task 5. The student uses the Multi-Layer Perceptron Neural Network model to make a decision on two sample datasets (one for regression and one for classification), then interprets the results.

Task 6. The student uses one of Q-Learning or TD-Learning to make a decision for any problem, then interprets the results.

Task 7. The student uses Radial Basis Function Neural Network to classify three sample datasets, then interprets the results by comparing them.

Task 8. The student uses Support Vector Machine to classify three sample datasets, then interprets the results by comparing them.

Task 9. The student uses CNN to classify three sample image datasets, then interprets the results by comparing them.

Task 10. The student uses LSTM to classify three sample string corpora, then interprets the results by comparing them.

Students can ask questions about course just by attending live classes or MS Teams. Emails about the course will not be answered.