

CSE140: Introduction to Intelligent Systems

Lab assignment

Due date: 01-Sep-2021 11:59PM

1. The dataset (attached as 'Data.xlsx') provides anonymized biodata information for graduates along with their respective skill scores. Specifically, the following information is available for every engineer:
 - a. Scores on Aspiring Minds' AMCAT - a standardized test of job skills. The test includes cognitive, domain and personality assessments.
 - b. Personal information like gender and date of birth.
 - c. Pre-university information like 10th and 12th grade marks, board of education and 12th grade graduation year.
 - d. University information like GPA, college major, college reputation proxy, graduation year and college location.
 - e. The outcome whether the engineer, at the end of graduation gets a "High Salary" (labelled as 1) or "Low Salary" (labelled as 0) in the last column.
2. The task is to make a ML-based prediction system to predict if the graduates will get "high salary" or not. Specifically, you will have to do the following:
 - a. Study the given data thoroughly and then modify it/prepare it considering the end goal at hand - that is classifying whether the student will get a "high salary" or not.
 - b. Divide it into training and testing sets.
 - c. Using the sklearn library, train a logistic regression model using the training data.
 - d. Predict the outcome for the testing data.
 - e. Using the predicted labels and actual labels, find out accuracy, confusion matrix and class-wise accuracies.
 - f. Also, you need to experiment with data preparation - analyze what modifications produce better results and why. Try out different ratios of train-test splits (60-40, 70-30, 90-10 etc.), shuffling the data etc.
 - g. You do not have to connect this data or the prediction system with your career advisory system that you have already built in assignment #1. This can be independent of that. The aim is to get you to build a ML model for prediction of high salary based on training data.
3. Demonstrate the program to your assigned TAs.