**CS 6375 Assignment – 1:**

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**PART -1:**

**For depth = 1, . . . , 10, learn decision trees and compute the average training and test errors on each of the three MONK’s probabilitylems. Make three plots, one for each of the MONK’s probability lem sets, plotting training and testing error curves together for each probability lem, with tree depth on the x-axis and error on the y-axis.**

**Output:**

**Chart, line chart

Description automatically generated**

**PART -2:**

**For monks-1, report the learned decision tree and the confusion matrix on the test set for depth=1 and depth=2. A confusion matrix is a table that is used to describe the performance of a classifier on a data set.**

**Output:**

**Text

Description automatically generated**

**PART-3**

**For monks-1, use scikit-learns’s default decision tree algorithm2 to learn a decision tree. Visualize the learned decision tree using graphviz3. Report the visualized decision tree and the confusion matrix on the test set. Do not change the default parameters.**

**Output:**

**Table

Description automatically generated**

**PART-4**

**Repeat steps 2 and 3 with your “own” data set and report the confusion matrices. You can use other data sets in the UCI repository. If you encounter continuous features, consider a simple discretization strategy to pre-process them into binary features using the mean.**

**Output:**

**Table

Description automatically generatedTable

Description automatically generatedTable

Description automatically generatedTable

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Description automatically generated**