

CS 411 - Artificial Intelligence I
Fall 2021
Assignment 10 – Graduate Section
Department of Computer Science, University of Illinois at Chicago

Total Points: 50

Write a program to implement the decision tree learning algorithm given in figure 19.5 in chapter 19 of AIMA textbook using information gain as the importance function. (described in page 662). Print the resulting decision tree.

Prune the resulting decision tree using chi-squared pruning technique described in chapter 19.3.4. (You can use existing libraries for chi-square tests). Set alpha value for chi-square test 0.05

Training Data

<https://github.com/aimacode/aima-data/blob/master/restaurant.csv>

Programming Language

Java, Python or C++

Grading Rubric

- Read CSV into data structure for training => 10
- Decision Tree Implementation => 20
 - Recursively split dataset =>10
 - Information Gain Calculation => 10
- Print the resulting decision tree => 10
- Chi-square pruning => 10