

CS 411 - Artificial Intelligence I  
Fall 2021  
Assignment 7 - Graduate Section  
Department of Computer Science, University of Illinois at Chicago

Total Points: 50

Write a program to define an MDP problem for a generic grid world (e.g. figure 17.1 of AIMA Textbook 4<sup>th</sup> edition page 563) and use **value iteration** (figure 17.6) to print the values of states in each iteration. After termination of the value iteration, the final policy should be printed.

Next, implement a **modified policy iteration** (policy iteration algorithm is provided in figure 17.9 and modified policy iteration is discussed on page 578) to calculate and print the optimal policy.

The description of MDP (T, R, gamma, and epsilon) should be loaded from the text file as input. You can use the sample input format included with the assignment or use your own. Also, include a write-up describing the format of the input file and how to run the program.

Programming Language

Java, Python or C++

Grading Rubric

Parse input text into MDP class => 5

Value Iteration => 15

Print values of states in each iteration=> 5

Policy Iteration => 15

Print final policy => 5

Writeup => 5