

CS580 (Shehu, A.) – Assignment 3

- Due date: April 20, 2016
- As before, you can be in a team with at most another student from the class. You are allowed to discuss the assignment only with your team member or the professor.

Planning

In this project, you will gain experience with classical planning. First, download and install the FastDownward package following the instructions from

<http://www.fast-downward.org/ObtainingAndRunningFastDownward>

It is probably easier to compile the code on a Linux Ubuntu machine.

1 Running Benchmarks

Follow the instructions found here

<http://www.fast-downward.org/Ip planners>

on how to run some of the fast planners available in the package.

As part of your project, you need to run one planner on three different benchmarks (choose any three from the available benchmarks). Report the solution found by the planner in each case.

2 Creating your Own Benchmark

Write in PDDL the problem where the robot has to pick up objects and transfer them to desired locations. More specifically, you are given several rooms R_1, \dots, R_n . Some of the rooms are connected with each other. There are several objects O_1, \dots, O_m , with at most one object per room. A robot is located in one of the rooms. You are also given goal rooms G_1, \dots, G_m for each of the objects. The robot can pick up only one object at a time. There can be at most one object in a room. If the robot has picked up an object, it can only go to a room that has no other objects.

You will need to first write the domain file which defines the predicates and the actions necessary to solve this problem. You need to provide definitions for the following functions: MoveWithoutObject, MoveWithObject, Pickup, Release.

You also need to write a problem instance file which defines the initial and goal state. The problem instance should correspond to the picture shown in the next page.



Robot has to transfer object O1 in room R7, object O2 in room R2, and object O3 in room R9. Black rectangles represent walls.

You should submit your PDDL files as well as a solution found by the planner. Zip all and name: Last-Name1_LastName2_Assign3Solution.zip Submit on blackboard. Multiple submissions are allowed. Only last one will be graded.