50.021 – AI

Kwan Hui

### Week 10 Coding Homework - Planning

[The following notes are compiled from various sources such as textbooks, lecture materials, Web resources and are shared for academic purposes only, intended for use by students registered for a specific course. In the interest of brevity, every source is not cited. The compiler of these notes gratefully acknowledges all such sources.]

Due: 2nd Aug 2021, 11:59pm
Submission: via eDimension

1   Logistic Problem: PDDL Domain File

Read through the PDDL lecture notes ("introtopddl2.pdf") provided in the lecture. Planning tasks in PDDL are based on two main types of files: a domain file and a problem file. In a domain file, you specify the predicates (similar to facts or propositional variables) and actions.
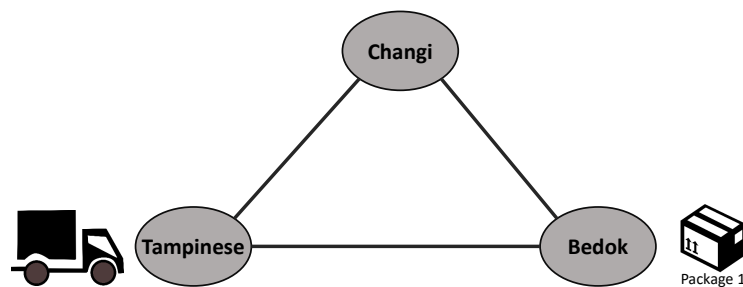
Consider the above logistic problem. There are three locations with a truck and a package. The truck is able to move from one location to another and load/unload the package. Based on this information, do the following:

a.) Define (and submit) a PDDL domain file that describes this type of problem. Hint: the exact locations are not important at this point of time.

2 Logistic Problem: PDDL Problem File

Consider the same logistic problem in Task 1 (Logistic Problem: PDDL Domain File). From this diagram, the truck is at Tampinese, the package is at Bedok. The goal is to deliver the package to Changi. Based on this information and your domain file from Task 1, do the following:

a.) Define (and submit) a PDDL problem file that describes this specific problem.

b.) Using both your PDDL domain file and problem file, solve for this problem using any PDDL solver (such as http://editor.planning.domains/). What is the solution you obtained?

3 Logistic Problem II: PDDL Problem File
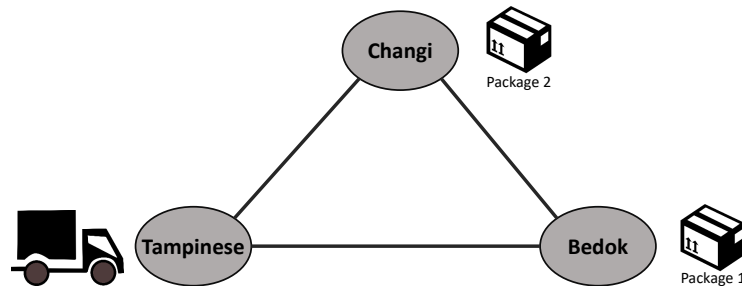
Consider the above logistic problem, with a similar domain as that in Task 1 (Logistic Problem: PDDL Domain File). From this diagram, the truck is at Tampinese, and there are two packages at Bedok (Package 1) and Changi (Package 2). The goal is to deliver package 1 to Changi and package 2 to Bedok. Based on this information and your domain file from Task 1, do the following:

a.) Define (and submit) a PDDL problem file that describes this specific problem.

b.) Using both your PDDL domain file and problem file, solve for this problem using any PDDL solver (such as http://editor.planning.domains/). What is the solution you obtained?