ARTIFICIAL INTELLIGENCE LAB

CSE 4618
Lab Report 1

Hasin Mahtab Alvee
210042174
Department of CSE
B.Sc in Software Engineering

June 11, 2025

Contents

1 Introduction

We were tasked to implement uninformed search as - DFS, BFS, UCS etc. A `utils.py` file is provided, that includes basic data structures like **Stack**, **Queue** and **Priority Queue** for us to use. We had to update the implement the searching algorithms inside the `search.py` file.

2 Environment Setup

I used `pyEnv` to setup python 3.6.8, and created a virtual environment to run the python scripts.

3 Problem Statements

3.1 Finding fixed food using DFS

A **Stack** and a **Set** of `visited` nodes is used to implement the DFS. I start by pushing the start state to the stack and the visited set. Each time I check, if the next state is the goal state or not, based on this I finally return the actions once it finds the goal state.

3.2 Implement BFS

In BFS, I only changed the fringe to be a **Queue** instead of the Stack.

3.3 Varying the Cost Function

For the varying cost functions, I used the UCS algorithm. Here, I used a priority queue, so that, I can compute the traversal cost to find the most cost efficient path.

4 Challenges

I faced issues at the first DFS test cases, as I mistakenly printed some sanity checks inside the methods, which resulted in the failure of test cases.