COMSATS University Islamabad, Abbottabad Campus

Department of Computer Science

Class: BSE 4C

Date: 25-Sep-2025

Marks 15

Instructor: Maleeha Khalid Khan

Assignment 1

Group Assignment: Only 3 group members are allowed in a group

Q1: Solve using BFS, DFS, Greedy and A*, step by step execution should be done and every step should be clearly mentioned?

Start Node is A

graph = {

'A': [('B', 2.2), ('E', 3.3)],

'B': [('C', 1.8), ('F', 4.2), ('A', 2.2)],

'C': [('D', 5.5), ('G', 1.1)],

'E': [('A', 3.3), ('H', 2.5)],

'F': [('E', 4.2), ('B', 4.2), ('G', 3.0), ('I', 1.5)],

'G': [('C', 1.1), ('F', 3.0), ('J', 6.0)],

'H': [('E', 2.5), ('I', 2.1), ('K', 7.0)],

'I': [('F', 1.5), ('H', 2.1), ('J', 3.5)],

'J': [('G', 6.0), ('I', 3.5)],

'K': [('H', 7.0)] }

heuristics = { 'A': 8.0, 'B': 7.0, 'C': 6.0, 'D': 7.0, 'E': 6.0, 'F': 3.0, 'G': 4.0, 'H': 2.0, 'J': 1.0, 'K': 3.0, 'I': 0.0 }

Q2: "Develop a Python-based implementation of a goal-based agent. The implementation should clearly state its assumptions about the environment's state space, specify a well-defined goal, and demonstrate the agent's behavior in achieving that goal."