WORKSHOP: ROBOTIC PATHWAY PLANNING

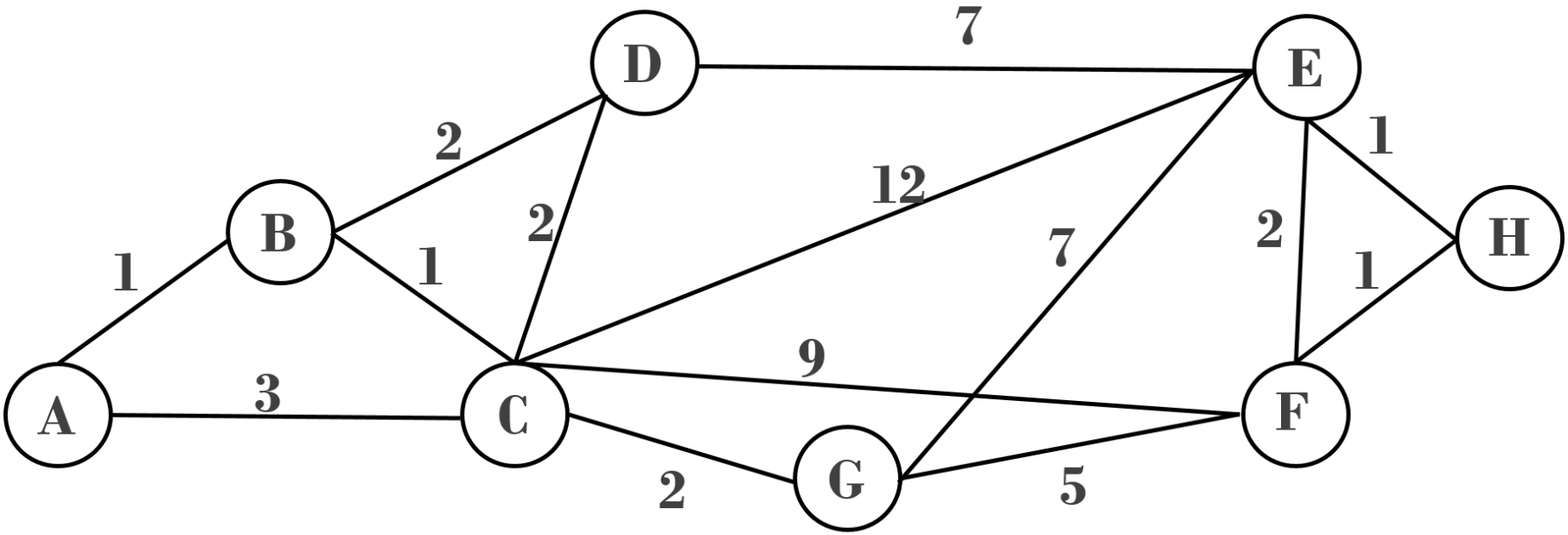
FEB 2023

Total Slides: 6

Workshop – Question 1

- The campus canteen's manager decides to use a mobile robot to delivery food to students. The robot waiter can move along the shortest path to delivery food to the served table as well as to avoid all the obstacles.
- To simply the problem, the graph representative of the canteen is provided in the next slide.
- Please apply Dijkstra searching algorithm to find the shortest path from the starting location A to the destination location H. please complete the following tasks:
  1. Write down the steps (you may create the table to help you to find the shortest path)
  2. Write down the final path
  3. Calculate the total distance.

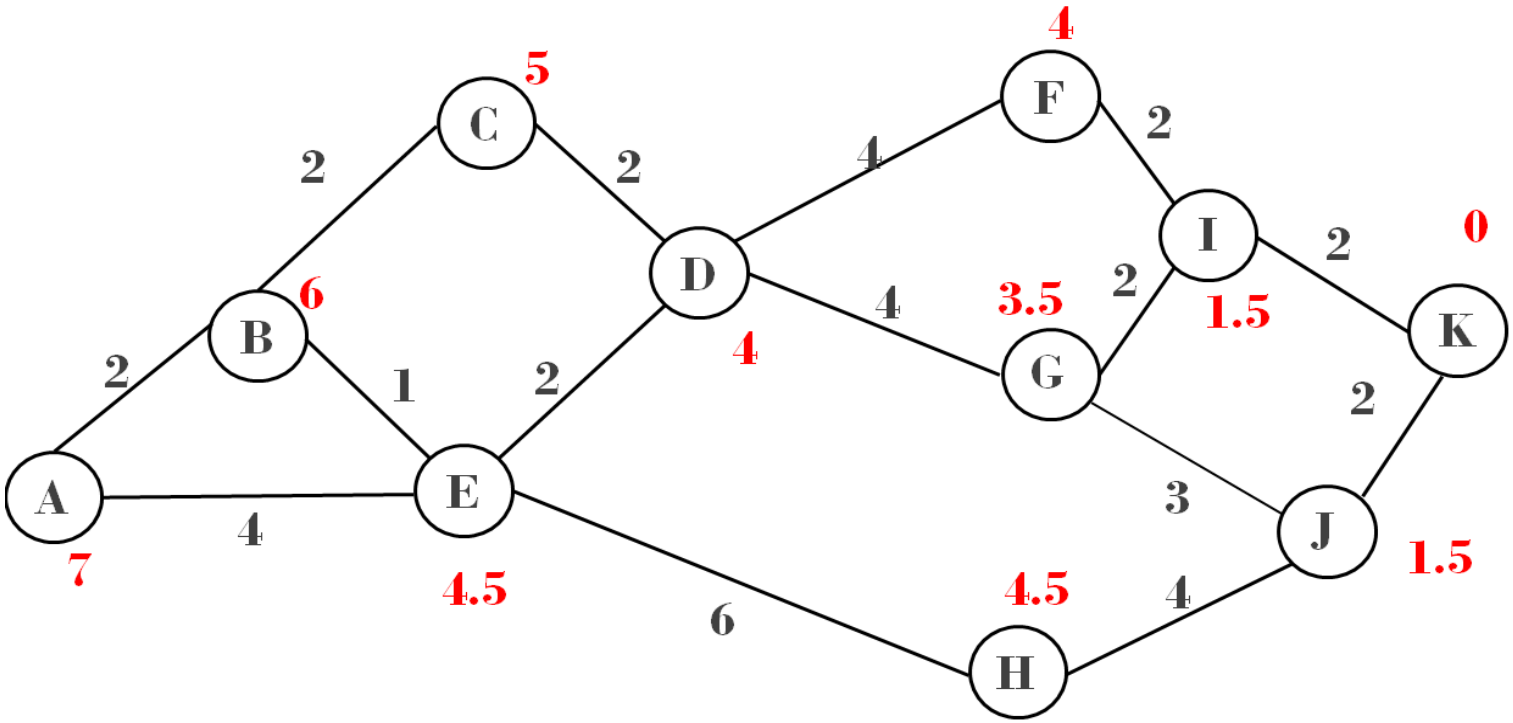
Graph representative of the canteen



Workshop - Question 2

- Jonathan is a restaurant owner and wants to use a mobile robot to deliver food to the customers. As a robotic engineer, you are to help Jonathan to complete the path planning function for the robot waiter, so it can move along the shortest path to deliver the food to the served table, as well as avoiding obstacles.
- The mapping graph of the restaurant is shown in the figure below. It is an undirected, weighted graph. Assume the robot waiter needs to deliver food from the food collection counter (Node A) to the served table (Node K). The number in red colour represents the Heuristic distance from the food collection counter to the served table. Apply the A * search algorithm to find the shortest path from the food collection counter (Node A) to the served table (Node K).
- please complete the following tasks:
  1. Write down the steps (you may create the table to help you to find the shortest path)
  2. Write down the final path
  3. Calculate the total distance.

Graph representative of the restaurant



Workshop submission

- Name the file as “Workshop_RoboticPathPlanning_your name” and upload it to CANVAS, you can upload either word or pdf file.