# CS 379 Introduction to Artificial Intelligence
Homework 01 – 50 points

**Instructions:**
- The homework is due before **11:00 PM on Tuesday, October 4**
- You can complete the assignment in pairs.
- You must submit a "ZIP folder containing multiple code files, one file for each of the three questions and one pdf file for the last question". Please write the descriptive answers for your coding questions as multiline comments.
- You must name your ZIP folder with both of your names. For example, name format should be something like "SravyaK_KhangH".
- You can choose any programming language of your choice. However, make sure you and your partner agree on one programming language.

Assignment:
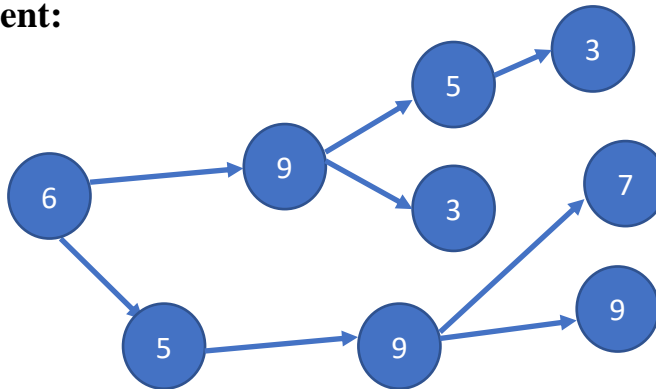
1. Write two different search programs to find a path such that the sum of nodes is equal to 27. Which among the two algorithms found the path quicker? Why?
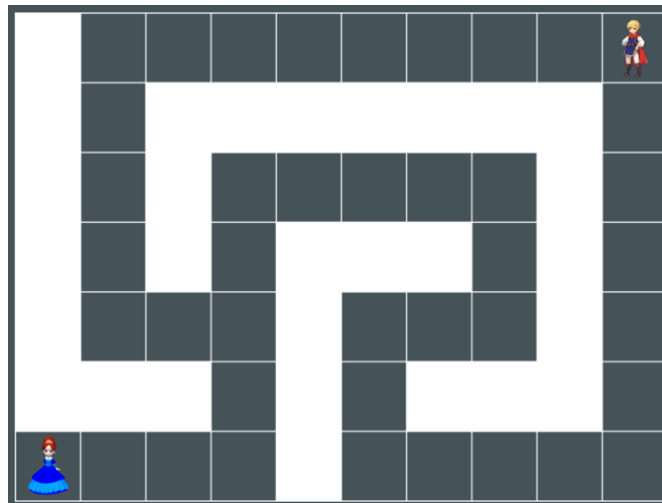
2. For the above in class example, create a graph structure as you deem fit. Implement the greedy BFS and A* search. Identify if your manual paths are similar to the ones obtained in code. (Use Manhattan distance as heuristic)
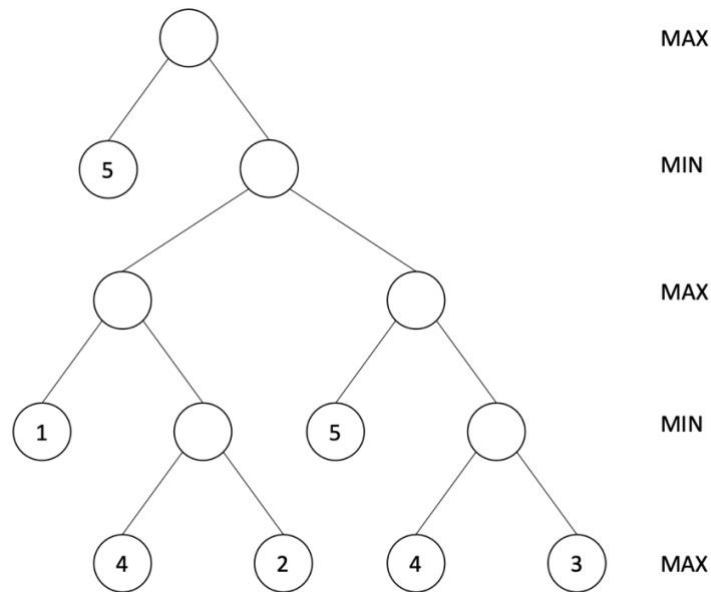
3. For the game tree above, write code to give out a minmax value. Which nodes are pruned by using alpha-beta pruning?
4. Describe the Hill climbing algorithm and elaborate on its advantages and disadvantages in plain language. (No code necessary)

Evaluation criteria:
- Each of the questions are graded as below:
  - Question 1: 15
  - Question 2: 15
  - Question 3: 15
  - Question 4: 5
- You will be evaluated on readability of your code and its performance and descriptive answers.