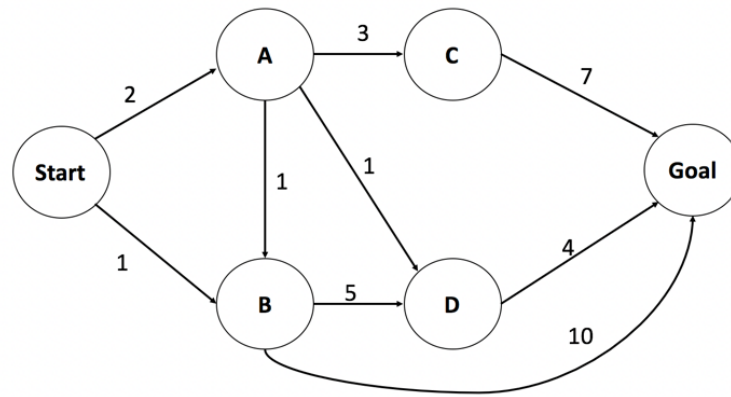


1st Homework

March 8, 2017



1. Answer the following questions about the search problem shown above.
Break any ties alphabetically. (10 points)
 - a) What path would depth-first graph search return for this search problem? Draw the tree structure and give the path. (2 points)
 - b) What path would breadth-first graph search return for this search problem? Draw the tree structure and give the path. (2 points)
 - c) What path would uniform cost graph search return for this search problem? Draw the tree structure and give the path. (2 points)
 - d) Design a consistent heuristic function for this graph; give $h(n)$ for each node; report the path. (4 points)
2. Write a program for uniform search. (10 points)
 - You will be given a file “input.txt” including graph information. Each line presents an edge consisting of a tuple of start node, end node and cost.
 - Write a single python file taking the provided file as input and generate another file “output.txt” in the same directory.

- The output file should include a path for the input graph resulted from uniform graph search, in such a form $Start \rightarrow A \rightarrow B \rightarrow C \rightarrow Goal$ (no space).

Submission

- Generate a zip file with your student ID as the file name, e.g “14XXXXXXXXXX.zip”. It should include following files.
 - i. hw1.pdf (with solution for question 1)
 - ii. ucs.py
 - iii. input.txt (same as what is provided)
 - iv. output.txt
- Make sure the python file is runnable.
- We will check the code in detail.
- If plagiarism is identified, your score for this assignment will be ZERO.
- The homework is due at **11:59pm on Wednesday, 15 March 2017**.
- Send the zip file to the course email box data130008@163.com, with the title of “hw1-StudentID”.