## Assignment 1

| Course Title: | Fundamentals of AI | Course Code: | CCAI-221 |
|---|---|---|---|
| Weightage: | 5% | Due Date | 10-03-2022 |
| Remarks: | The submission is online, and system will not allow submission after due date. | | |

### Question 1:

Consider the state space graph below. For each of the following search strategies, work out the path returned by the search on the graph shown above. Draw the search tree and return the path. In all cases, assume ties resolve in such a way that states with earlier alphabetical order are expanded first. Note: you may represent the Goal as "G".
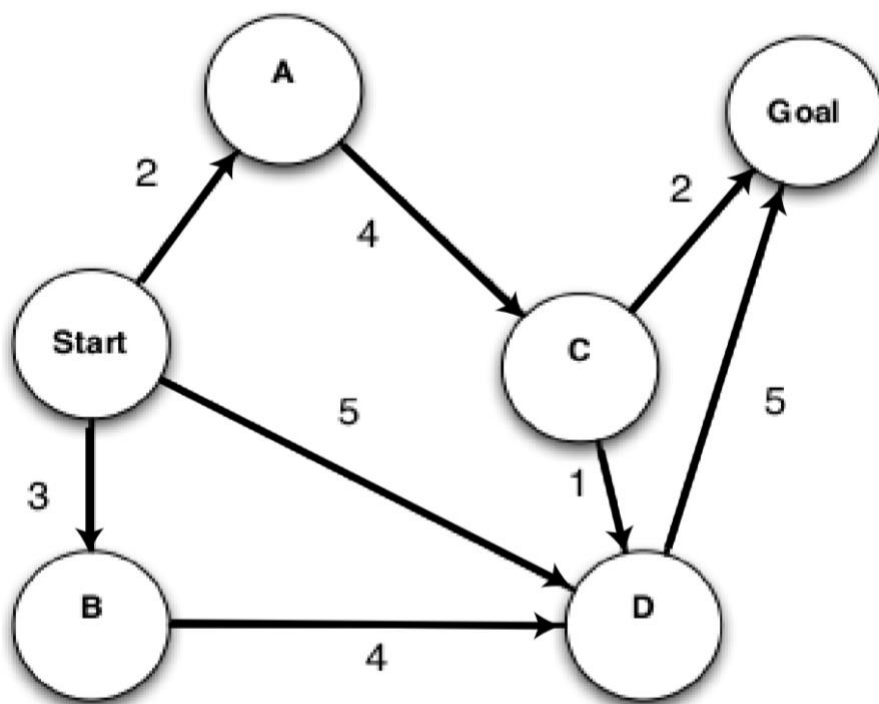


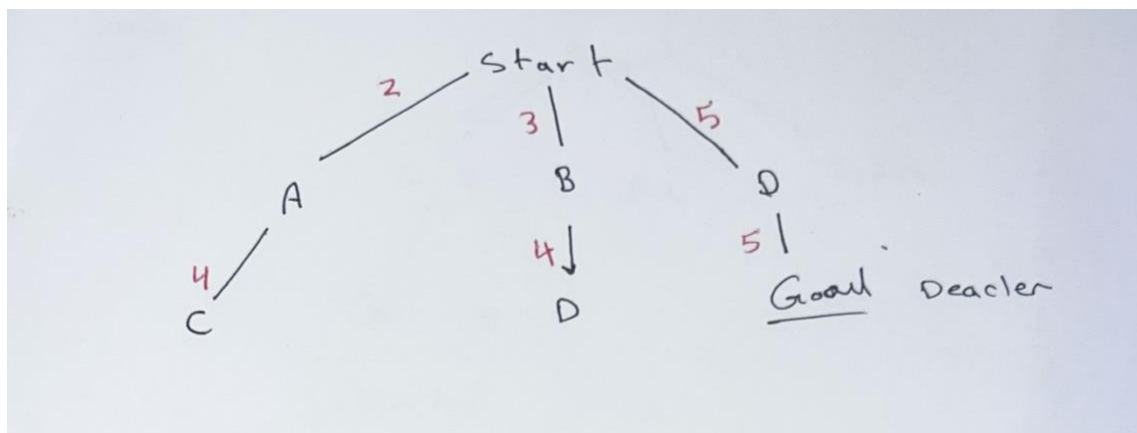| Node | h(n) |
|---|---|
| Start | 10 |
| A | 6 |
| B | 10 |
| C | 2 |
| D | 4 |
| Goal | 0 |

a. Depth-first search
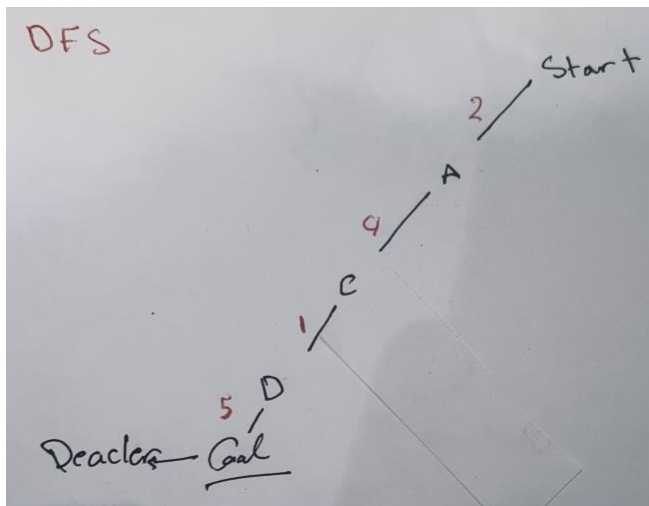
Complete path: START, A ,C ,D , Goal .
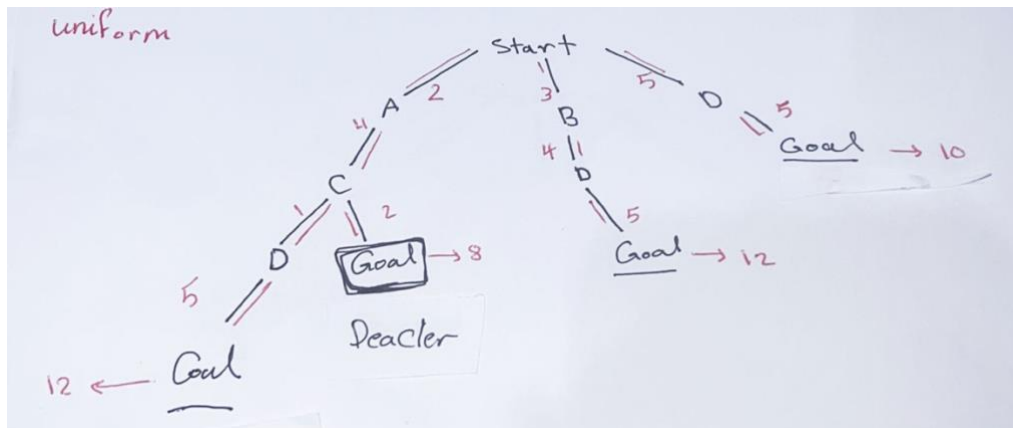
Returned path: Start ,A,C,D,Goal .

b. Breadth-first search



Complete path: Start,A ,B,D,C,Goal.

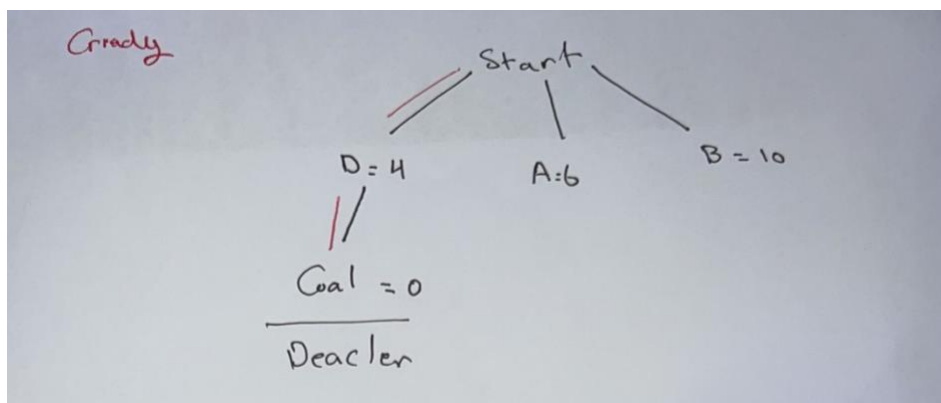Returned path: Start , D , Goal.

c. Uniform-cost search

Complete path: Start, A, B , D , C, Goal ,

Returned path: Start , A, C,Goal

d. Greedy search



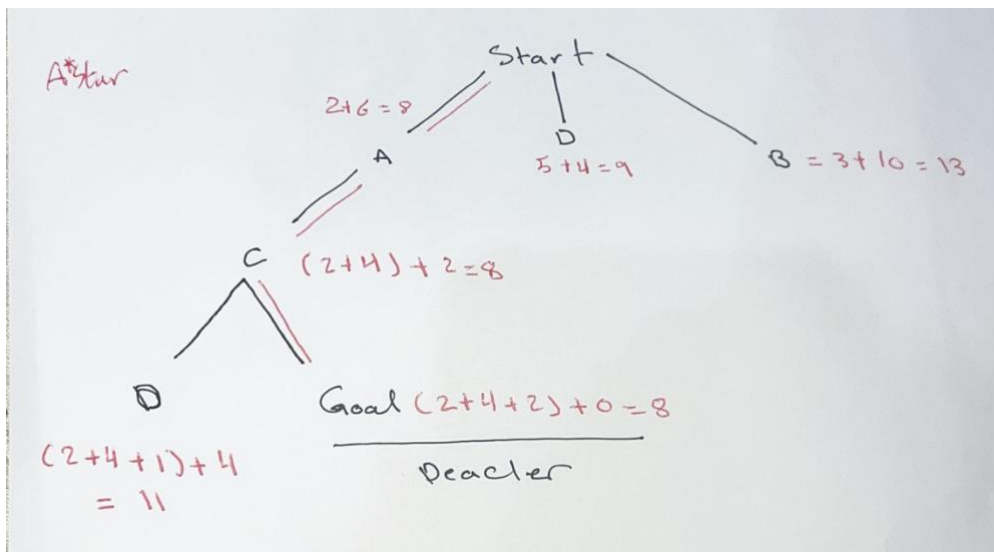Complete path: Start, D , Goal

Returned path: Start ,D, Goal

e. A-star search

Complete path: Start, A,D,B ,C, Goal



A*tur

2+6 = 8

Start

A

D
5+4=9

B = 3+ 10 = 13

C (2+4) + 2=8

D

Goal (2+4+2) +0 = 8

Deacler

(2+4+1)+4
= 11

Returned path: Start ,A,C ,Goal