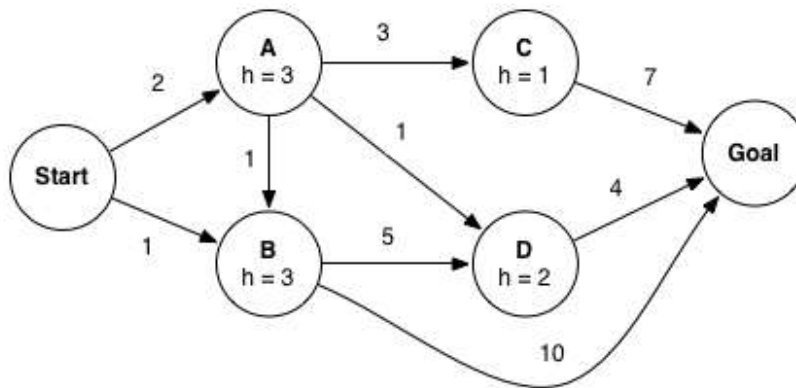# hw1_search_q4_a*_graph_search
Question 4: A* Graph Search

0.0/8.0 points (graded)

Consider A* graph search on the graph below. Arcs are labeled with action costs and states are labeled with heuristic values. Assume that ties are broken alphabetically (so a partial plan S->X->A would be expanded before S->X->B and S->A->Z would be expanded before S->B->A.

In what order are states expanded by A* graph search? You may find it helpful to execute the search on scratch paper.

- ⊙ Start, A, B, C, D, Goal

- ⊙ Start, A, C, Goal

- ⊙ Start, B, A, D, C, Goal ✔

- ⊙ Start, A, D, Goal

- ⊙ Start, A, B, Goal

What path does A* graph search return?

Start-A-C-Goal

Start-B-Goal

Start-A-D-Goal ✔

Start-A-B-Goal

Start-A-B-D-Goal

Step 1: Expand S
Fringe: (S-A, 5), (S-B, 4)
Closed Set: S

Step 2: Expand S-B
Fringe: (S-A, 5), (S-B-D, 8), (S-B-G, 11)
Closed Set: S, B

Step 3: Expand S-A
Fringe: (S-B-D, 8), (S-B-G, 11), (S-A-D, 5), (S-A-C, 6)
Closed Set: S, B, A

Step 4: Expand S-A-D
Fringe: (S-B-D, 8), (S-B-G, 11), (S-A-C, 6), (S-A-D-G, 7)
Closed Set: S, B, A, D

Step 5: Expand S-A-C
Fringe: (S-B-D, 8), (S-B-G, 11), (S-A-D-G, 7), (S-A-C-G, 13)
Closed Set: S, B, A, D, C

Step 6: Expand S-A-D-G, finding the goal
Closed Set: S, B, A, D, C, G
Return: Start-A-D-Goal

Submit

ⓘ Answers are displayed within the problem