Practice Assignment: City Map Example
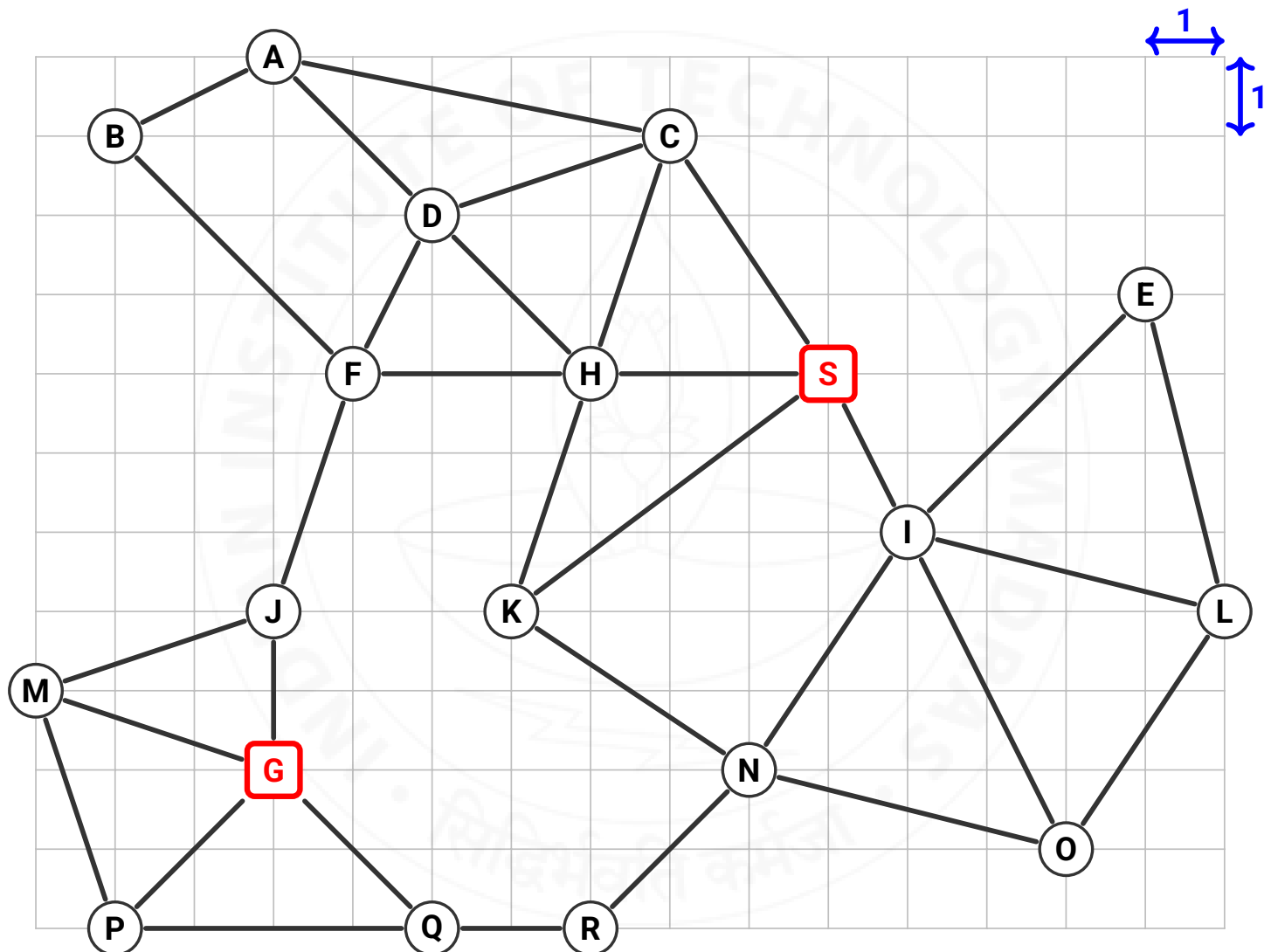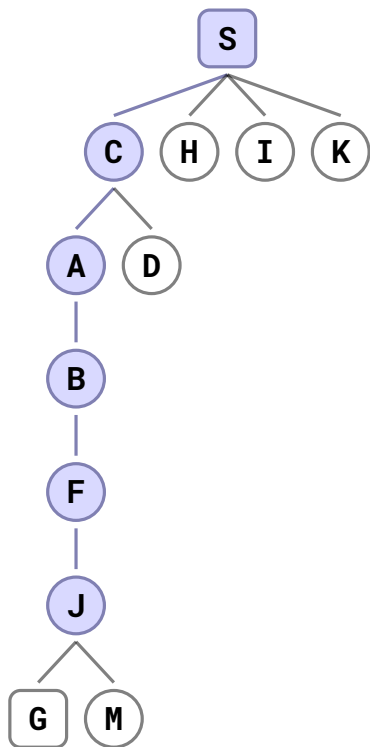# Depth First Search

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State Space

MoveGen returns nodes in ALPHABETICAL ORDER.

Search Tree

Solution

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OPEN and CLOSED carry pairs: (NODE,PARENT)

OPEN        (S,null):[]
CLOSED      []

1.
NODE        S
close       (S,null)
moveGen     C:H:I:K:[]
newNodes    C:H:I:K:[]
newPairs    (C,S):(H,S):(I,S):(K,S):[]

OPEN        (C,S):(H,S):(I,S):(K,S):[]
CLOSED      (S,null):[]

2.
NODE        C
close       (C,S)
moveGen     A:D:H:S:[]
newNodes    A:D:[]
newPairs    (A,C):(D,C):[]

OPEN        (A,C):(D,C):(H,S):(I,S):(K,S):[]
CLOSED      (C,S):(S,null):[]

3.
NODE        A
close       (A,C)
moveGen     B:C:D:[]
newNodes    B:[]
newPairs    (B,A):[]

OPEN        (B,A):(D,C):(H,S):(I,S):(K,S):[]
CLOSED      (A,C):(C,S):(S,null):[]

4.
NODE        B
close       (B,A)
moveGen     A:F:[]
newNodes    F:[]
newPairs    (F,B):[]

OPEN        (F,B):(D,C):(H,S):(I,S):(K,S):[]
CLOSED      (B,A):(A,C):(C,S):(S,null):[]

5.
NODE        F
close       (F,B)
moveGen     B:D:H:J:[]
newNodes    J:[]
newPairs    (J,F):[]

OPEN        (J,F):(D,C):(H,S):(I,S):(K,S):[]
CLOSED      (F,B):(B,A):(A,C):(C,S):(S,null):[]

6.
NODE        J
close       (J,F)
moveGen     F:G:M:[]
newNodes    G:M:[]
newPairs    (G,J):(M,J):[]

OPEN        (G,J):(M,J):(D,C):(H,S):(I,S):
            (K,S):[]

CLOSED      (J,F):(F,B):(B,A):(A,C):(C,S):
            (S,null):[]

7.
NODE        G
GOAL        G

OPEN        (G,J):(M,J):(D,C):(H,S):(I,S):
            (K,S):[]

CLOSED      (J,F):(F,B):(B,A):(A,C):(C,S):
            (S,null):[]

PATH        S:C:A:B:F:J:G:[]
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