Lecture Example 3
Breadth First Search

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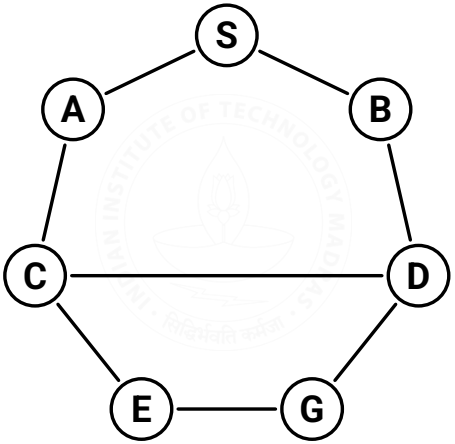
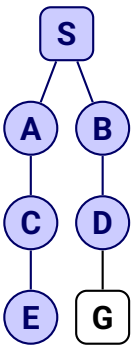
State Space



X	MoveGen(X)
S	[A,B]
A	[S,C]
B	[S,D]
C	[E,D,A]
D	[B,C,G]
E	[C,G]
G	[D,E]

Breadth First Search – Search Tree



Breadth First Search – Solution

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OPEN and CLOSED carry pairs: (NODE,PARENT)

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

1.
NODE        S
close       (S,null)
moveGen     A:B:[]
newNodes    A:B:[]
newPairs    (A,S):(B,S):[]

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

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

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

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

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

4.
NODE        C
close       (C,A)
moveGen     E:D:A:[]
newNodes    E:[]
newPairs    (E,C):[]

OPEN        (D,B):(E,C):[]
CLOSED      (C,A):(B,S):(A,S):(S,null):[]

5.
NODE        D
close       (D,B)
moveGen     B:C:G:[]
newNodes    G:[]
newPairs    (G,D):[]

OPEN        (E,C):(G,D):[]
CLOSED      (D,B):(C,A):(B,S):(A,S):(S,null):[]

6.
NODE        E
close       (E,C)
moveGen     C:G:[]
newNodes    []
newPairs    []

OPEN        (G,D):[]
CLOSED      (E,C):(D,B):(C,A):(B,S):(A,S):(S,null):[]

7.
NODE        G
GOAL        G

OPEN        (G,D):[]
CLOSED      (E,C):(D,B):(C,A):(B,S):(A,S):(S,null):[]

PATH        S:B:D:G:[]
```