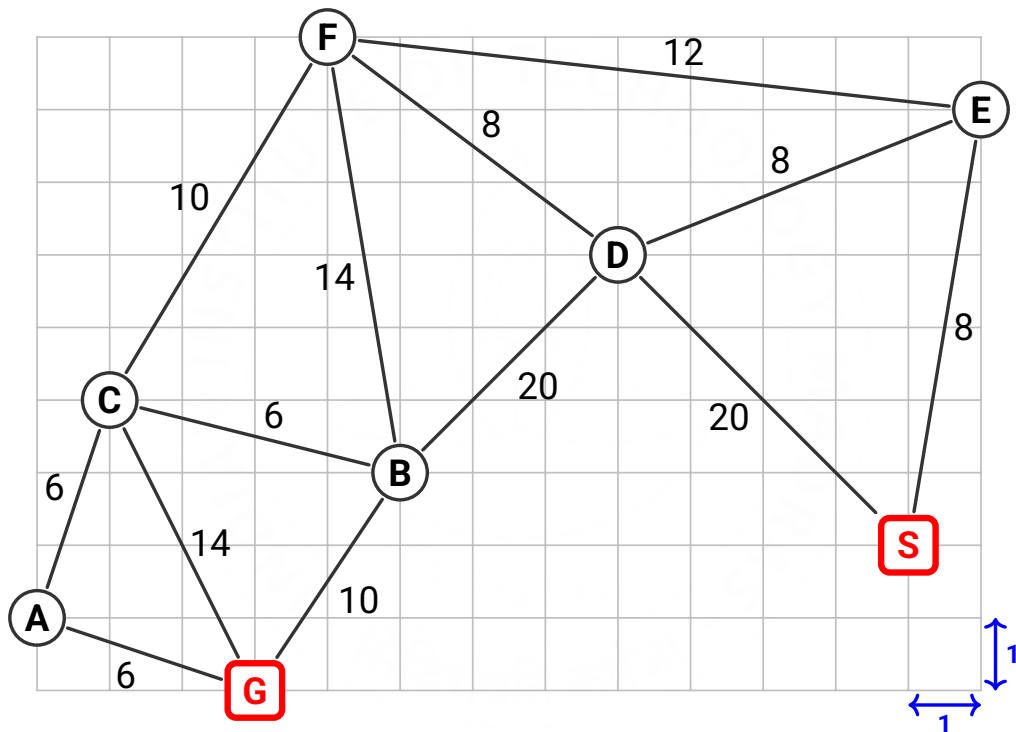# Practice Assignment: City Map Example 2
wA* (w=3) Search
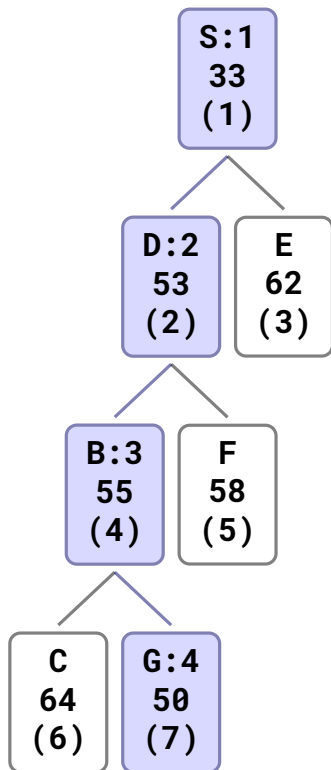
Prepared by S. Baskaran

State Space

MoveGen returns nodes in ALPHABETICAL ORDER.

Search Tree

```
                    S:1
                    33
                    (1)
                   /    \
                D:2      E
                53       62
                (2)      (3)
               /   \
            B:3     F
            55      58
            (4)     (5)
           /   \
          C     G:4
          64    50
          (6)   (7)
```

Solution

$f = g + w * h$, where $w = 3$.

```
OPEN and CLOSED carry tuples: (NODE,PARENT,f,g,h)

OPEN       (S,null,33,0,11):[]
CLOSED     []

1.
NODE       S
close      (S,null,33,0,11)
moveGen    D:E:[]
new-open   (D,S,53,20,11)
new-open   (E,S,62,8,18)

OPEN       (D,S,53,20,11):(E,S,62,8,18):[]

CLOSED     (S,null,33,0,11):[]

2.
NODE       D
close      (D,S,53,20,11)
moveGen    B:E:F:S:[]
new-open   (B,D,55,40,5)
new-open   (F,D,58,28,10)

OPEN       (B,D,55,40,5):(F,D,58,28,10):
           (E,S,62,8,18):[]

CLOSED     (D,S,53,20,11):(S,null,33,0,11):[]

3.
NODE       B
close      (B,D,55,40,5)
moveGen    C:D:F:G:[]
new-open   (C,B,64,46,6)
new-open   (G,B,50,50,0)

OPEN       (G,B,50,50,0):(F,D,58,28,10):
           (E,S,62,8,18):(C,B,64,46,6):[]

CLOSED     (B,D,55,40,5):(D,S,53,20,11):
           (S,null,33,0,11):[]

4.
NODE       G
close      (G,B,50,50,0)
GOAL       G

OPEN       (F,D,58,28,10):(E,S,62,8,18):
           (C,B,64,46,6):[]

CLOSED     (G,B,50,50,0):(B,D,55,40,5):
           (D,S,53,20,11):(S,null,33,0,11):[]

PATH       S:D:B:G:[]

PATH COST  50
```