```
 1 C:\Users\Wasti\Documents\PyCharm\Assignment02\venv\
   Scripts\python.exe C:/Users/Wasti/Documents/PyCharm/
   Assignment02/main.py
 2 Col = 10
 3 row = 14
 4 S-Col = 0
 5 S-row = 2
 6 G-Col = 9
 7 G-row = 12
 8 Heuristic Values by Manhattan distance
 9 [9, 8, 7, 6, 5, 4, 3, 2, 1, 1]
10 [9, 8, 7, 6, 5, 4, 3, 2, 1, 'G']
11 [9, 8, 7, 6, 5, 4, 3, 2, 1, 1]
12 [9, 8, 7, 6, 5, 4, 3, 2, 2, 2]
13 [9, 8, 7, 6, 5, 4, 3, 3, 3, 3]
14 [9, 8, 7, 6, 5, 4, 4, 4, 4, 4]
15 [9, 8, 7, 6, 5, 5, 5, 5, 5, 5]
16 [9, 8, 7, 6, 6, 6, 6, 6, 6, 6]
17 [9, 8, 7, 7, 7, 7, 7, 7, 7, 7]
18 [9, 8, 8, 8, 8, 8, 8, 8, 8, 8]
19 [9, 9, 9, 9, 9, 9, 9, 9, 9, 9]
20 ['S', 10, 10, 10, 10, 10, 10, 10, 10, 10]
21 [11, 11, 11, 11, 11, 11, 11, 11, 11, 11]
22 [12, 12, 12, 12, 12, 12, 12, 12, 12, 12]
23 -------------------------------------------------------
   --
24
25
26
27
28
29  :Greedy Best First Search:
30 Path :
31 S ->3,0 ->4,0 ->5,0 ->6,1 ->6,2 ->6,3 ->7,4 ->8,5 ->9
   ,6 ->10,7
32 ->11,7 ->12,8 ->12,9 -> G
33
34 Path to goal Found
35 Total cost to achive goal is 25
36 0  0  0  0  0  0  0  0  0  0
37 0  0  0  1  1  0  0  0  #  G
38 0  0  0  1  1  0  0  #  1  1
39 0  0  0  0  0  0  0  #  0  0
40 0  1  1  0  0  0  #  0  0  1
```

```
41 0  0  0  0  0  #  0  0  1  0
42 0  0  0  0  #  1  1  0  0  0
43 0  #  #  #  0  1  1  0  0  0
44 #  1  0  1  0  1  1  0  0  0
45 #  1  0  1  0  1  1  0  0  0
46 #  0  0  0  0  0  0  0  0  0
47 S  0  0  0  0  0  0  0  0  0
48 0  1  0  0  0  1  1  0  0  0
49 0  0  0  0  0  1  1  0  0  0
50
51 ------------------------------------------------
52
53
54
55
56        :A* Search:
57 Path :
58 S ->3,0 ->4,0 ->5,0 ->6,0 ->7,0 ->8,0 ->9,0 ->10,0 ->
   11,0 ->12,0
59 ->13,0 ->13,1 ->13,2 ->13,3 ->13,4 ->13,5 ->13,6 ->13
   ,7 ->13,8 ->13,9
60 ->12,1 ->12,2 ->13,1 ->11,1 ->11,2 ->12,1 ->10,1 ->10
   ,2 ->10,3 ->10,4
61 ->10,5 ->11,5 ->12,5 ->12,6 ->12,7 ->12,8 ->12,9 -> G

62 Path to goal Found
63 Total cost to achive goal is 37
64 #  #  #  #  #  #  #  #  #  #
65 #  #  #  1  1  #  #  #  #  G
66 #  #  #  1  1  #  0  0  1  1
67 #  #  #  #  #  #  0  0  0  0
68 #  1  1  0  0  0  0  0  0  1
69 #  0  0  0  0  0  0  0  1  0
70 #  0  0  0  0  1  1  0  0  0
71 #  0  0  0  0  1  1  0  0  0
72 #  1  0  1  0  1  1  0  0  0
73 #  1  0  1  0  1  1  0  0  0
74 #  0  0  0  0  0  0  0  0  0
75 S  0  0  0  0  0  0  0  0  0
76 0  1  0  0  0  1  1  0  0  0
77 0  0  0  0  0  1  1  0  0  0
78
79 ------------------------------------------------
80
```

```
 81
 82
 83
 84         :IDA* Search:
 85 Itration No = 0
 86 Itration No = 1
 87 Itration No = 2
 88 Itration No = 3
 89 Itration No = 4
 90 Itration No = 5
 91 Itration No = 6
 92 Itration No = 7
 93 Itration No = 8
 94 Itration No = 9
 95 Itration No = 10
 96 Itration No = 11
 97 Path:
 98 S ->3,0 ->4,0 ->5,0 ->6,0 ->7,0 ->8,0 ->9,0 ->10,0
      ->11,0 ->12,0
 99 ->12,1 ->12,2 ->11,1 ->11,2 ->12,1 ->10,1 ->10,2 ->
    10,3 ->10,4 ->10,5
100 ->11,5 ->12,5 ->12,6 ->12,7 ->12,8 ->12,9 G
101
102
103  Path to goal Found in 11th itration
104 Total cost to achive goal is 26
105 0  0  0  0  0  0  0  0  0  0
106 #  #  #  1  1  #  #  #  #  G
107 #  #  #  1  1  #  0  0  1  1
108 #  #  #  #  #  #  0  0  0  0
109 #  1  1  0  0  0  0  0  0  1
110 #  0  0  0  0  0  0  0  1  0
111 #  0  0  0  0  1  1  0  0  0
112 #  0  0  0  0  1  1  0  0  0
113 #  1  0  1  0  1  1  0  0  0
114 #  1  0  1  0  1  1  0  0  0
115 #  0  0  0  0  0  0  0  0  0
116 S  0  0  0  0  0  0  0  0  0
117 0  1  0  0  0  1  1  0  0  0
118 0  0  0  0  0  1  1  0  0  0
119
120 ------------------------------------------------
121
122
```

```
123
124 Process finished with exit code 0
125
```