



Course: **Artificial Intelligence**

Project Title: **CSP Tile Placement Test Cases**

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## Test Case 1

# Tiles Problem, generated at: Tue Feb 16 23:27:21 EST 2021

# Landscape

```
2 2 1 3 3 4 4 2 2 4 4 2 4 3
 2 1 3 2 2 1 1 2 2 2 3 4 4 4
2 1 2 2 4 3 2 2 2 1 2 2 1 1
 3 2 1 1 1 4 1 3 4 2 1 1 4 1
4 2 3 4 4 4 2 2 3 2 3 2 2 3 2
2 4 1 1 1 1 4 1 1 3 3 2 4 1 2
4 3 1 4 3 3 1 4 1 1 1 4 2 2 4 1 4 3 4
2 1 1 1 4 4 3 4 4 2 3 3 3 4 4
1 3 3 2 2 4 3 3 2 4 1 4 3
 1 3 1 3 2 3 2 1 1 4 3 2 1 2 4 1 3
 3 2 3 4 3 3 1 1 2 3 3 2 1 2 3
1 3 1 1 4 4 4 2 4 4 3 4 1 1 2 2 3 2 3
2 1 1 1 1 2 1 3 2 2 3 3 4 3 4
4 2 2 3 2 1 1 1 4 4 4 3 2 2 2 3
3 1 4 3 1 4 4 1 1 3 1 1 1 2 1 2
3 2 2 4 3 1 1 4 1 3 1 2 3 2 2 2 3 4
 2 2 1 3 3 1 1 3 4 4 2 2 2 4 4
 1 4 3 1 1 3 3 4 3 4 4 4 4 1 1 1
3 2 1 2 3 1 1 3 4 2 4 3 2 4 1
4 3 4 4 3 4 3 2 2 2 1 4 3 4 3 1
```

# Tiles:

{OUTER\_BOUNDARY=6, EL\_SHAPE=7, FULL\_BLOCK=12}

# Targets:

1:18

2:19

3:16

4:17

## Solution Test Case 1

Solution key: ['full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'outer\_block', 'outer\_block', 'outer\_block', 'l\_shape', 'outer\_block', 'l\_shape', 'outer\_block', 'l\_shape', 'l\_shape', 'l\_shape', 'full\_block', 'l\_shape', 'outer\_block', 'l\_shape']

Tiles Used Counts : 7 12 6

Flower Color state : {1: 18, 2: 19, 3: 16, 4: 17}

## Test Case 2

# Tiles Problem, generated at: Tue Feb 16 23:27:21 EST 2021

# Landscape

```
4 4 4 2 1 4 4 3 3 4 2 4 3 4
1 3 2 1 2 4 4 1 3 4 2 2 4 3 1 2 2 1 2
4 3 1 4 1 3 3 3 2 4 2 4 4 2
1 1 1 4 3 4 4 2 4 1 2 4 2 2 3 4 4
2 2 4 2 4 4 1 4 1 3 3 2 4
3 1 1 4 4 1 3 4 3 4 1 4 1 1 3 3
3 4 4 1 2 2 1 1 3 1 1 1 4 1 2
4 3 4 3 1 4 4 4 4 4 4
1 3 3 2 1 2 3 4 3 2 4 2 3 4 4 4 4
2 2 2 1 3 1 3 4 1 1 2 2 3 2 2 1
2 1 2 3 1 3 4 4 2 3 3 2 1 2 1 2
```

2 2 1 1 3   4   1 1 2   2 1 1   1 2 3  
 2 2   1   3 4 1 2 3 4   2 1 4 4 1 1 1  
 4 1 1 3 4 3   4 1   4   4 2 3 2 2 2  
   4 4   2 4 1 2 1   2   3 1 2 4 4 3 4  
 3 1   3 3 2   3 2 1 3 3 4 4   4 2 4 4 3  
 2 4 1 4   3   4 2 3 4 2 2 1 1 3 4  
 2 4 4   3   2 3 3   1 3   4 1 3 1 4 4 4  
 1 4 1 4   1   4   1 3 3 3 3 1 2 1 1   1  
 4   4 1   1 3 1 4 2 4   2 2 3 2   2

# Tiles:

{OUTER\_BOUNDARY=6, EL\_SHAPE=11, FULL\_BLOCK=8}

# Targets:

1:27

2:22

3:15

4:35

## Solution Test Case 2

Solution key: ['full\_block', 'full\_block', 'full\_block', 'full\_block', 'l\_shape', 'full\_block', 'outer\_block',  
 'full\_block', 'l\_shape', 'outer\_block', 'l\_shape', 'outer\_block', 'l\_shape', 'full\_block', 'l\_shape', 'l\_shape',  
 'l\_shape', 'full\_block', 'l\_shape', 'outer\_block', 'l\_shape', 'outer\_block', 'outer\_block', 'l\_shape', 'l\_shape']

Tiles Used Counts : 11 8 6

Flower Color state : {1: 27, 2: 22, 3: 15, 4: 35}

### Test Case 3

# Tiles Problem, generated at: Tue Feb 16 23:27:21 EST 2021

# Landscape

```
4 2 1 2 2 3 1 4 2 2 4 2 1 3 3 2 2
4 1 2 2 2 1 4 4 3 2 2 2 1 4 2 3
4 2 1 2 4 3 2 4 1 4 1 3 1 2 4 4
1 2 1 1 4 2 2 3 4 1 2 1 3 4
4 4 1 4 1 4 2 2 4 2 4 4 2 2 2 1
4 4 2 3 4 1 1 1 4 1 4 2 1 3 4 3
1 2 4 3 4 3 2 2 1 1 4 3 2 1 3
4 3 1 2 3 2 4 3 3 4 3 3 1 4
3 4 1 2 4 1 3 2 2 1 4 2 1 3 2
3 2 1 2 1 4 2 2 4 4 2 3 1
2 4 2 1 1 3 1 3 1 2 4 1 4 4 4 2 4
1 4 1 4 2 4 1 4 1 3 4 3 3 4 2 2 4
1 4 4 3 1 3 1 3 1 1 3 3 3 4 3 4
3 4 1 1 1 1 1 3 4 1 1 3 2 2 1 4 1 4
2 2 4 2 3 2 3 3 2 2 2 4 3 4 2 4 2
2 3 2 2 3 1 2 1 3 3 2 3 1 1 1
1 2 3 1 2 4 1 2 4 3 4 3 1 3
3 4 2 4 2 4 3 1 1 2 3 3 3 3 4 4 4
3 4 3 3 1 1 3 3 3 2 2 3 1 3 1
2 1 4 4 3 3 1 3 4 3 2 1 2 1 4 3 4 3
```

# Tiles:

{OUTER\_BOUNDARY=8, EL\_SHAPE=6, FULL\_BLOCK=11}

# Targets:

1:12

2:17

3:19

4:21

### Solution Test Case 3

Solution key: ['full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'outer\_block', 'full\_block', 'outer\_block', 'l\_shape', 'outer\_block', 'outer\_block', 'outer\_block', 'l\_shape', 'outer\_block', 'l\_shape', 'l\_shape', 'outer\_block', 'l\_shape', 'outer\_block', 'l\_shape']

Tiles Used Counts : 6 11 8

Flower Color state : {1: 12, 2: 17, 3: 19, 4: 21}

### Test Case 4

# Tiles Problem, generated at: Tue Feb 16 23:27:21 EST 2021

# Landscape

```
2 4 2 4 4 1 4 2 4 1 1 4 3 2 4 1
2 1 2 4 4 3 2 4 4 1 2 1 3
4 3 1 4 1 3 4 4 4 2 4 1 3
3 3 3 3 1 1 2 3 3 2 2 1 3 3 3 1 3 4
3 3 2 4 3 1 1 2 1 3 1 2 3 3 4 2 3
1 2 4 3 2 4 1 3 4 3 2 4 2 3 3 2 2
3 2 1 4 1 2 1 1 3 4 4 2 3 4 4 1 4
1 2 2 2 4 3 1 2 3 4 2 2 1 3 3
3 1 3 2 1 1 2 1 2 1 2 1 2 4 4 1 4 4
3 3 2 4 1 4 1 4 1 2 3 2 3 2 4 1
```

```

3 4 3 2 2 2 4 3 2 2 3 4
1 2 1 1 1 4 2 3 3 3 1 2 1 2 1 4 1
4 2 1 4 2 3 1 1 4 2 3 2 2 3 1
3 1 3 4 1 2 1 1 2 4 1 1 2 1 3 4 1 4 1
3 3 1 2 1 1 1 1 2 4 2 1 3 3 1 4 4 1
1 3 4 1 2 1 3 2 2 2 2 1 1 2
2 4 1 4 2 4 2 4 3 4 4 3 3 2 3 2 2 1
4 2 3 3 1 3 1 4 4 3 1 4 1 2 1 3 2
4 4 2 1 2 2 3 4 4 2 2 3 2 4
4 3 1 3 2 4 4 3 3 3 1 4 4 1

```

# Tiles:

```
{OUTER_BOUNDARY=9, EL_SHAPE=6, FULL_BLOCK=10}
```

# Targets:

```

1:18
2:16
3:13
4:22

```

## Solution Test Case 4

Solution key: ['full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'outer\_block', 'outer\_block', 'outer\_block', 'outer\_block', 'l\_shape', 'l\_shape', 'outer\_block', 'outer\_block', 'outer\_block', 'outer\_block', 'l\_shape', 'outer\_block', 'l\_shape', 'outer\_block', 'l\_shape', 'l\_shape']

Tiles Used Counts : 6 10 9

Flower Color state : {1: 18, 2: 16, 3: 13, 4: 22}



## Test Case 5

# Tiles Problem, generated at: Tue Feb 16 23:27:21 EST 2021

# Landscape

```
4 4 2 4 4 2 4 4 1 3 1 3 3 2 2 1 3
3 2 4 2 3 4 4 1 4 1 1 3 4 1 4
1 1 3 2 3 4 4 2 3 2 1 3 2 4 2
1 4 1 4 4 1 2 3 1 4 3 1 4
1 2 3 3 4 4 2 1 1 2 4 3 4 2 4 2 4
3 2 3 3 4 4 4 3 1 2 3 4 1 1 4 3 2
1 1 1 2 3 2 3 3 4 1 4 3 3 3 2 3 1
2 2 1 3 3 1 3 1 1 3 3 4 2
2 3 2 1 3 1 4 2 3 3 3 2 2 3 1 3 2
1 1 1 4 1 1 3 4 1 3 3 3 3 4 1
4 2 4 1 4 4 1 1 4 1 4 4 3 4
4 4 1 1 2 3 2 4 1 2 2 3 2 4 3 1
2 1 3 4 1 4 1 2 3 2 3 4 4 3
3 3 2 2 2 3 1 4 4 4 1 1 3 2 1 2
1 3 4 3 3 2 4 2 2 2 3 1 2 1 3
3 3 3 2 1 3 1 1 4 1 4 4 1 1 3 3
3 3 3 4 3 4 3 4 4 1 2 3 3 1 1 3 3 3
4 1 1 3 3 2 4 2 2 3 3 2 2 1 2 4 1 1 2
3 3 2 2 2 2 4 2 2 1 3 4 2 3 3
1 3 4 1 4 4 4 1 1 4 3 4 2 2
```

# Tiles:

{OUTER\_BOUNDARY=2, EL\_SHAPE=11, FULL\_BLOCK=12}

# Targets:

1:23

2:18

3:20

4:18

### **Solution Test Case 5**

Solution key: ['full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block', 'full\_block',  
'l\_shape', 'full\_block', 'outer\_block', 'full\_block', 'l\_shape', 'full\_block', 'outer\_block', 'l\_shape', 'l\_shape',  
'l\_shape', 'full\_block', 'l\_shape', 'l\_shape', 'l\_shape', 'l\_shape', 'l\_shape', 'l\_shape', 'full\_block']

Tiles Used Counts : 11 12 2

Flower Color state : {1: 23, 2: 18, 3: 20, 4: 18}