

## P01 Puzzle Uninformed Search BFS Sample Run

### Test 1:

Enter number of rows and columns: 3

Enter Start State row by row: 1 3 5 4 2 0 7 8 6

1 3 5

4 2 0

7 8 6

Enter Goal State row by row: 1 2 3 4 5 6 7 8 0

1 2 3

4 5 6

7 8 0

\*\*\*\*Solution Found\*\*\*\*

Nodes Expanded = 57

1 3 5

4 2 0

7 8 6

up

1 3 0

4 2 5

7 8 6

left

1 0 3

4 2 5

7 8 6

down

1 2 3

4 0 5

7 8 6

right

1 2 3

4 5 0

7 8 6

down

1 2 3

4 5 6

7 8 0

Moves = 5

Enter number of rows and columns: 3

7 8 0

7 8 0

.....

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Enter number of rows and columns: 2
```

0 3

3 0

Nodes Expanded = 2

0 3

right

3 0

Moves = 1

#### Test 4:

Enter number of rows and columns: 3

Enter Start State row by row: 1 3 4 8 6 2 7 0 5

1 3 4

8 6 2

7 0 5

Enter Goal State row by row: 1 2 3 8 0 4 7 6 5

1 2 3

8 0 4

7 6 5

\*\*\*\*Solution Found\*\*\*\*

Nodes Expanded = 51

1 3 4

8 6 2

7 0 5

up

1 3 4

8 0 2

7 6 5

right

1 3 4

8 2 0

7 6 5

up

1 3 0

8 2 4

7 6 5

left

1 0 3

8 2 4

7 6 5

down

1 2 3

8 0 4

7 6 5

Moves = 5

Test 5:

Enter number of rows and columns: 3

Enter Start State row by row: 1 2 3 4 0 6 7 5 8

1 2 3

4 0 6

7 5 8

Enter Goal State row by row: 1 2 3 4 5 6 7 8 0

1 2 3

4 5 6

7 8 0

\*\*\*\*Solution Found\*\*\*\*

Nodes Expanded = 6

1 2 3

4 0 6

7 5 8

down

1 2 3

4 5 6

7 0 8

right

1 2 3

4 5 6

7 8 0

Moves = 2

### Test 6:

Enter number of rows and columns: 4

Enter Start State row by row: 1 2 3 4 5 6 0 8 9 10 7 12 13 14 11 15

1 2 3 4

5 6 0 8

9 10 7 12

13 14 11 15

Enter Goal State row by row: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 0

1 2 3 4

5 6 7 8

9 10 11 12

13 14 15 0

\*\*\*\*Solution Found\*\*\*\*

Nodes Expanded = 16

1 2 3 4

5 6 0 8

9 10 7 12

13 14 11 15

down

1 2 3 4

5 6 7 8

9 10 0 12

13 14 11 15

down

1 2 3 4

5 6 7 8

9 10 11 12

13 14 0 15

right

1 2 3 4

5 6 7 8

9 10 11 12

13 14 15 0

Moves = 3

### Test 7:

Enter number of rows and columns: 3

Enter Start State row by row: 1 3 4 5 7 0 8 6 2

1 3 4

5 7 0

8 6 2

Enter Goal State row by row: 1 2 3 4 5 6 7 8 0

1 2 3

4 5 6

7 8 0

\*\*\*\*Solution Found\*\*\*\*

Nodes Expanded = 13408

1 3 4

5 7 0

8 6 2

down

1 3 4

5 7 2

8 6 0

left

1 3 4

5 7 2

8 0 6

\*\*\*\* OTHER MOVES \*\*\*\*

1 2 3

4 0 6

7 5 8

down

1 2 3

4 5 6

7 0 8

right

1 2 3

4 5 6

7 8 0

Moves = 17