File: blocksworld\_project.py

**Execution Procedure - To Run file:**

**Linux:**

'python blocksworld\_project.py <number of blocks> <number of stacks>'

This command is to be used when the python file is accessible in the current working directory. Else, the path needs to be provided and executed as below:

‘python <file\_location/>blocksworld\_project.py <number of blocks> <number of stacks>'

**Enthought Canopy/Idle Environments:**

‘%run blocksworld\_project.py <number of blocks> <number of stacks>

If the python file is not in the current Python Working Directory, then the complete path must be provided and then executed as below:

‘%run <file\_location/>blocksworld\_project.py <number of blocks> <number of stacks>’

**Example Program Trace 1:**

%run "C:/Users/abm11/Personal/Tamu\_MS/Courses/Sem\_3/AI/Projects/blocksworld\_project.py" 5 3

The Initial State is:

1 | ['C', 'E']

2 | ['D', 'A']

3 | ['B']

Iteration no.= 1 Queue = 0 Depth = 0

Iteration no.= 2 Queue = 5 Depth = 1

Iteration no.= 3 Queue = 8 Depth = 2

Iteration no.= 4 Queue = 9 Depth = 3

Iteration no.= 5 Queue = 12 Depth = 4

Iteration no.= 6 Queue = 15 Depth = 5

Iteration no.= 7 Queue = 18 Depth = 6

Iteration no.= 8 Queue = 19 Depth = 7

Iteration no.= 9 Queue = 22 Depth = 8

Iteration no.= 10 Queue = 25 Depth = 9

Iteration no.= 11 Queue = 26 Depth = 10

Goal State reached: Success !!

The total number of iterations are:11

The frontier size is:26

Total execution time = 0.00800013542175 s.

Goal State reached at a depth of 10

Initial State:

1 | ['C', 'E']

2 | ['D', 'A']

3 | ['B']

Sequence of moves according to obtained search path is:

Next Move:

1 | ['C']

2 | ['D', 'A']

3 | ['B', 'E']

Next Move:

1 | []

2 | ['D', 'A']

3 | ['B', 'E', 'C']

Next Move:

1 | ['A']

2 | ['D']

3 | ['B', 'E', 'C']

Next Move:

1 | ['A']

2 | ['D', 'C']

3 | ['B', 'E']

Next Move:

1 | ['A']

2 | ['D', 'C', 'E']

3 | ['B']

Next Move:

1 | ['A', 'B']

2 | ['D', 'C', 'E']

3 | []

Next Move:

1 | ['A', 'B']

2 | ['D', 'C']

3 | ['E']

Next Move:

1 | ['A', 'B', 'C']

2 | ['D']

3 | ['E']

Next Move:

1 | ['A', 'B', 'C', 'D']

2 | []

3 | ['E']

Next Move:

1 | ['A', 'B', 'C', 'D', 'E']

2 | []

3 | []

**Example Trace 2:**

%run "C:/Users/abm11/Personal/Tamu\_MS/Courses/Sem\_3/AI/Projects/blocksworld\_project.py" 6 3

The Initial State is:

1 | ['C', 'A']

2 | ['B', 'E']

3 | ['F', 'D']

Iteration no.= 1 Queue = 0 Depth = 0

Iteration no.= 2 Queue = 5 Depth = 1

Iteration no.= 3 Queue = 8 Depth = 1

Iteration no.= 4 Queue = 11 Depth = 1

Iteration no.= 5 Queue = 14 Depth = 1

Iteration no.= 6 Queue = 17 Depth = 2

Iteration no.= 7 Queue = 18 Depth = 3

Iteration no.= 8 Queue = 21 Depth = 4

Iteration no.= 9 Queue = 23 Depth = 5

Iteration no.= 10 Queue = 26 Depth = 6

Iteration no.= 11 Queue = 27 Depth = 7

Iteration no.= 12 Queue = 30 Depth = 8

Iteration no.= 13 Queue = 33 Depth = 9

Iteration no.= 14 Queue = 36 Depth = 10

Iteration no.= 15 Queue = 37 Depth = 11

Goal State reached: Success !!

The total number of iterations are:15

The frontier size is:37

Total execution time = 0.0090000629425 s.

Goal State reached at a depth of 11

Initial State:

1 | ['C', 'A']

2 | ['B', 'E']

3 | ['F', 'D']

Sequence of moves according to obtained search path is:

Next Move:

1 | ['C']

2 | ['B', 'E']

3 | ['F', 'D', 'A']

Next Move:

1 | []

2 | ['B', 'E', 'C']

3 | ['F', 'D', 'A']

Next Move:

1 | ['A']

2 | ['B', 'E', 'C']

3 | ['F', 'D']

Next Move:

1 | ['A']

2 | ['B', 'E']

3 | ['F', 'D', 'C']

Next Move:

1 | ['A']

2 | ['B']

3 | ['F', 'D', 'C', 'E']

Next Move:

1 | ['A', 'B']

2 | []

3 | ['F', 'D', 'C', 'E']

Next Move:

1 | ['A', 'B']

2 | ['E']

3 | ['F', 'D', 'C']

Next Move:

1 | ['A', 'B', 'C']

2 | ['E']

3 | ['F', 'D']

Next Move:

1 | ['A', 'B', 'C', 'D']

2 | ['E']

3 | ['F']

Next Move:

1 | ['A', 'B', 'C', 'D', 'E']

2 | []

3 | ['F']

Next Move:

1 | ['A', 'B', 'C', 'D', 'E', 'F']

2 | []

3 | []