

## Experiment No: 7

Aim: Planning for blocks world problem

Theory:

Initial state

D
B
C

A

A
B
C
D

goal state

Q.1. A on table  
B on C  
C on Table

A on B  
B on C  
C on D

D on B

- The blocks world problem is one of the most famous planning domains in artificial intelligence.
- The goal state is to build one or more vertical stacks of blocks ~~disturb~~ the initial state into the goal state.
  - Only one block may be moved at a time, but it may be placed either on the table or on top of another block.
  - A block may not be moved if there is another block on top of it.
  - The world represented as a set of blocks and their positions. Each block has a unique identifier, and the state is defined by the arrangement of blocks on the table or on other blocks.



- The goal state specifies the desired arrangement of blocks.
- The following actions are performed in

- 1) Move ( $x, y$ ) : Move block  $x$  from its current position to the top of block  $y$  or an empty location on the table.
- 2) Stack ( $x, y$ ) : Place block  $x$  on top of  $y$ .
- 3) Unstack ( $x, y$ ) : Remove block  $x$  from the top of block  $y$ .

The block world problem helps illustrate concepts of planning and problem-solving and is often used as a starting point for discussing the computational complexity of planning tasks.

### Conclusion

- ⇒ Understanding and solving the block world problem provides insights into the challenges and strategies involved in automated planning, which is crucial in various fields.

*Shikha*