IMPLEMENTATION OF BLOCKS WORLD PROGRAM

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Program:

```
class BlocksWorld:
    def __init__(self):
        self.state = {
            "A": "B",
            "B": "table",
            "C": "table"
        }
        self.goal = {
            "A": "B",
            "B": "C",
            "C": "table"
        }

    def is_goal_state(self):
        return self.state == self.goal

    def clear_blocks(self):
        on_values = set(self.state.values())
        blocks = set(self.state.keys()) | on_values
        return blocks - set(self.state.keys())

    def move(self, block, destination):
        if block not in self.state:
```

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            return False
        if self.state[block] == destination:
            return False
        if destination != "table" and destination not in self.clear_blocks():
            return False
        if block not in self.clear_blocks():
            # Try to unstack the block above it
            for other, under in self.state.items():
                if under == block:
                    if other in self.clear_blocks():
                        print(f"Temporarily moving {other} from {block} to table to free {block}")
                        self.state[other] = "table"
                        return self.move(block, destination)
                    else:
                        return False
            return False
        print(f"Moving {block} from {self.state[block]} to {destination}")
        self.state[block] = destination
        return True

    def plan_moves(self):
        print("\nInitial State:", self.state)
        steps = 0
        while not self.is_goal_state():
            moved = False
            for block, target in self.goal.items():
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            if self.state[block] != target:
                if self.move(block, target):
                    moved = True
                    break
        if not moved:
            print("No more legal moves toward goal. Stuck.")
            break
        steps += 1
        if steps > 100:
            print("Too many steps. Exiting.")
            break
    print("\nFinal State:", self.state)
    print("Goal Achieved?", self.is_goal_state())


bw = BlocksWorld()
bw.plan_moves()
```

Output:

```
Initial State: {'A': 'B', 'B': 'table', 'C': 'table'}
No more legal moves toward goal. Stuck.

Final State: {'A': 'B', 'B': 'table', 'C': 'table'}
Goal Achieved? False
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=== Code Execution Successful ===
```