



```
if __name__ == "__main__":  
    tic_tac_toe()
```

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2) Vacuum cleaner

Step 1: Take user input for the initial state of
* Enter the initial position of the vacuum cleaner ^{Room A & B}
* Enter the state (Dirt or clean) for the 2 rooms A & B

Step 2: create a "state" function which shows the vacuum position

Step 3: create a function "clean" → checks if both the rooms are clean

Step 4: create a function called "move right" & "move left"

if vacuum_pos == A move to B

if vacuum_pos == B move to A

Step 5: create function called suck

if self.state["vacuum_pos"] == "B"

if self.state["room_A"] == "dirty":

self.state["room_A"] = "clean"

print("cleaning room A")

else:

print("cleaning room B")

Step 6: if 2 rooms are cleaned ~~break~~ break the loop & print "both the rooms are cleaned"



```
class VacuumCleaner:
```

```
    def __init__(self):
```

```
        self.state = {}
```

```
        "vacuum_pos" : input("Enter the initial position  
of the vacuum cleaner (A or B):  
").upper(),
```

```
        "room A" : input("Is Room A dirty or clean?").lower(),
```

```
        "room B" : input("Is Room B dirty or clean?").lower(),
```

```
    }
```

```
    def show_state(self):
```

```
        print(f"Vacuum Position : {self.state['vacuum_pos']},
```

```
Room A : {self.state['room A']}, Room B :
```

```
{self.state['room B']}")
```

```
    def is_clean(self):
```

```
        return self.state["room A"] == "clean" and self.  
state["room B"] == "clean"
```

```
    def move_right(self):
```

```
        if self.state["vacuum_pos"] == "A":
```

```
            self.state["vacuum_pos"] = "B"
```

```
            print("Moving to Room B")
```

```
    def move_left(self):
```

```
        if self.state["vacuum_pos"] == "B":
```

```
            self.state["vacuum_pos"] = "A"
```

```
            print("Moving to Room A")
```

```
    def suck(self):
```

```
        if self.state["vacuum_pos"] == "A":
```

```
            if self.state["room A"] == "dirty":
```

```
                self.state["room A"] = "clean"
```

```
                print("Cleaning Room A")
```

```
            elif self.state["vacuum_pos"] == "B":
```

```
                if self.state["room B"] == "dirty":
```

```
                    self.state["room B"] = "clean"
```

```
                    print("Cleaning Room B")
```




```
def run(self):
    while not self.is_clean():
        self.show_state()
        if self.state["vacuum_pos"] == "A":
            if self.state["room A"] == "dirty":
                self.suck()
            else:
                self.move_right()
        elif self.state["vacuum_pos"] == "B":
            if self.state["room B"] == "dirty":
                self.suck()
            else:
                self.move_left()
    print("Both rooms are clean now!")
    self.show_state()
```

Vacuum = VacuumCleanser()

Vacuum.run()

O/p:

Enter the initial position of the vacuum (A or B): a

Is Room A dirty or clean? clean

Is Room B dirty or clean? dirty

Vacuum Position: A Room A: clean, Room B: dirty

Moving to Room B

Vacuum Position: B, Room A: clean, Room B: dirty

Cleaning Room B

Both rooms are clean now!

Vacuum position: B, Room A: clean

~~clean~~

11/10/21

```
Enter the initial position of the vacuum cleaner (A or B): a
Is Room A dirty or clean? clean
Is Room B dirty or clean? dirty
Vacuum Position: A, Room A: clean, Room B: dirty
Moving to Room B
Vacuum Position: B, Room A: clean, Room B: dirty
Cleaning Room B
Both rooms are clean now!
Vacuum Position: B, Room A: clean, Room B: clean

=== Code Execution Successful ===
```