

Lab 02

```
1 class CoffeeMachine:
2     def __init__(self):
3         self.state = "Idle"
4         self.water_level = 100
5         self.beans_level = 100
6
7     def transition_to_idle(self):
8         self.state = "Idle"
9         print("Transitioned to Idle state.")
10
11    def transition_to_brewing(self):
12        self.state = "Brewing"
13        print("Transitioned to Brewing state.")
14
15    def transition_to_serving(self):
16        self.state = "Serving"
17        print("Transitioned to Serving state.")
18
19    def transition_to_maintenance(self):
20        self.state = "Maintenance"
21        print("Transitioned to Maintenance state.")
22
23    def handle_event(self, event):
24        if self.state == "Idle":
25            if event == "select_coffee_type":
26                if self.water_level >= 20 and self.beans_level >= 10:
27                    self.transition_to_brewing()
28                else:
29                    self.transition_to_maintenance()
30            elif self.state == "Brewing":
31                # Simulating brewing process
32                print("Brewing coffee...")
33                self.transition_to_serving()
34            elif self.state == "Serving":
35                print("Coffee served.")
36                self.transition_to_idle()
37            elif self.state == "Maintenance":
38                if event == "refill_water_and_beans":
39                    self.water_level = 100
40                    self.beans_level = 100
41                    print("Water and beans refilled.")
42                    self.transition_to_idle()
43
44
45    # Testing the FSM
46    coffee_machine = CoffeeMachine()
47    print("Initial state:", coffee_machine.state)
48    coffee_machine.handle_event("select_coffee_type")
49    print("Current state:", coffee_machine.state)
```

```
50 | coffee_machine.handle_event("refill_water_and_beans")
51 | print("Current state:", coffee_machine.state)
```

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