

2 Finite state machine

In this task you are required to implement finite state machine in python or C++. Read up what finite state machines are and implement a vending machine using FSM logic with the following description:

- The vending machine will show a list of juices available along with their price
- User will enter his choice of drink (the four letter code).
- The user will enter the amount of money he will feed the vending machine, if the amount entered is exact as the cost of the juice, no change is returned, otherwise return the change to the user after vending the juice.
- Initialise each variety of juice to 50. Once the 50 cans are exhausted, display suitable warning message to the user asking him to choose some other juice.
- If all the cans are exhausted, the user needs to type in REFILL to replenish stocks of all the juices, and only then can he use the machine.

Basically you need to define states of the vending machine and device appropriate transition conditions between the different states so as to complete the task. You are not supposed to use if-else statements since the essence of using finite state machine is to avoid clumsy if-else branchings and ease of addition of any new state just by defining a couple of new transition conditions. The different types of drinks and their respective costs are provided below:

Sl. no.	Drink	Code	Cost
1	Pepsi	PEPS	30
2	Mountain Dew	MDEW	30
3	Dr. Pepper	DPEP	50
4	Coke	COKE	20
5	Gatorade	GATO	20
6	Diet Coke	DCOK	30
7	Minute Maid	MINM	25
8	Tropicana	TROP	30

Note: You can refer to the following sources to get a starting point for understanding FSMs:

- Rise of finite state machines
- Implementing a finite state machine in C++
- Understanding finite state machines