

STATE

It was a busy Monday morning at your software development company, and the boss called you into his office.

"I need you to build a traffic light system for a new construction project we're working on," the boss said. "We need it to be able to switch between red, yellow, and green. Also it needs to follow the standard timing for traffic lights. Can you do that for me?"

The traffic light should behave as follows:

- When the traffic light is first turned on, it should be red.
- When the traffic light is red, it should stay red for 5 seconds.
- After 5 seconds, the traffic light should switch to yellow for 2 seconds.
- After 2 seconds, the traffic light should switch to green for 10 seconds.
- After 10 seconds, the traffic light should switch back to red and the process should repeat.

Choose appropriate design patterns to solve the above mentioned problem. Implement your solution in your preferred language.