

Online 3

Time: 25 minutes

We need to create a traffic light system that follows a simple cycle with three colors: red, yellow, and green. Here's how it should work:

- When the system starts, the light should be red.
- The red light should stay on for 5 seconds.
- After 5 seconds, the light should switch to yellow for 2 seconds.
- After 2 seconds, the light should switch to green for 10 seconds.
- After 10 seconds, the light should go back to red, and the cycle starts over.

Your task is to design and build this traffic light system using an appropriate design pattern to make it efficient and easy to manage.

For timing control you can use the code segment below:

```
try {
    Thread.sleep(1000); // Wait for 1 seconds
} catch (InterruptedException e) {
    Thread.currentThread().interrupt();
}
```