Last Lab Sheet(2023.07.27)

consider the following scenario:you are tasked with implementing a java program to simulate a simple traffic light system using multithreading.

the traffic light consists of three colors.Red,Yellow and Green.

Each color should be represented by a seperate thread.The traffic light should follow the sequence of Red(5 second),Green(10 seconds),

Yellow(2 seconds),Red and soon.

Write a java programme that uses multithreading to implement the traffic light system with the following requirements

1)Define the classes,RedLightThread,GreenLightThread and YellowLightThread each

representing a thread for the corresponding color.

2)Each thread should run in a loop to simulate the sequence of traffic light

colors and use the Thread.sleep()method to control the duration of each color.The Thread.sleep() method should be called inside

a try-catch block handle the interrupted Exception.

3)Implement the run()method for each thread to print the name of the color (e.g."Red Light","Green Light", or "Yellow Light")

when it is active and sleep for the specified duration for that color.

4)Use the Thread.start()method to start each thread and ensure they run concorrently.

5)In the main programme ,creat instances of RedLightThread,GreenLightThread and YellowLightThread and start them using the start() method.

6)The program should run indefinitely,simulating the traffic light sequence in a loop.

MAIN

```
package com.mycompany.trafficlightdemo;
public class TrafficLightDemo {

   public static void main(String[] args)

     {
      RedLightThread redLightThread = new RedLightThread();
      GreenLightThread greenLightThread = new GreenLightThread();
      YellowLightThread yellowLightThread = new YellowLightThread();

      redLightThread.start();
      greenLightThread.start();
      yellowLightThread.start();
   }
   }
```

CLASS

```
package com.mycompany.trafficlightdemo;
public class RedLightThread extends Thread
{
  @Override
   public void run() {
      while (true) {
         System.out.println("Red Light");
         try {
            Thread.sleep(5000); // 5 seconds
         } catch (InterruptedException e) {
```

```
            e.printStackTrace();
        }
    }
  }
}
```

CLASS

```
package com.mycompany.trafficlightdemo;
public class GreenLightThread extends Thread
{
   @Override
   public void run() {
      while (true) {
         System.out.println("Green Light");
         try {
            Thread.sleep(10000); // 10 seconds
         } catch (InterruptedException e) {
            e.printStackTrace();
         }
      }
   }
}
```

CLASS

```
package com.mycompany.trafficlightdemo;
public class YellowLightThread extends Thread
{
    @Override
   public void run() {
      while (true) {
```

```
            System.out.println("Yellow Light");
            try {
                Thread.sleep(2000); // 2 seconds
            } catch (InterruptedException e) {
                e.printStackTrace();
            }
        }
    }
}
```