Consider the following scenario: You are tasked with implementing a lava 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 separate thread. The traffic light should follow the sequence of Red (5 seconds) -> Green (10 seconds) -> Yellow (2 seconds) -

> Red, and so on,

Write a lava program that uses multithreading to implement the traffic light system with the following requirements:

1. Define three classes, RedlightThread, GreenlightThread, and YellowtightThread, 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 to handle the interruptedException,

3. Implement the run) method for each thread to print the name of the color (e.B, "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 concurrently.

5. In the main program, create instances of RedlightThread, GreenlightThread, and YellowlightThread, and start them using the start) method.

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

```
package com.mycompany.trafficlight;

public class RedLightThread extends Thread

{

   private final int red_duration=5000;


   @Override

   public void run()

   {

      try
```

```
        {
            while(true)
            {
                System.out.println("Red Light");
                Thread.sleep((red_duration));
            }
        } catch(InterruptedException e)
        {
            e.printStackTrace();
        }
    }
}


package com.mycompany.trafficlight;
public class GreenLightThread extends Thread
{
    private final int green_duration=10000;

    @Override
    public void run()
    {
        try
        {
            while(true)
            {
                System.out.println("Green Light");
```

```
            Thread.sleep(green_duration);
          }
       } catch(InterruptedException e)
       {
          e.printStackTrace();
       }
    }
}
```

```
package com.mycompany.trafficlight;
public class YellowLightThread extends Thread
{
   private final int yellow_duration=2000;

   @Override
   public void run()
   {
      try
      {
         while(true)
         {
            System.out.println("Yellow Light");
            Thread.sleep(yellow_duration);
         }
      } catch(InterruptedException e)
```

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


package com.mycompany.trafficlight;
public class TrafficLight {

    public static void main(String[] args)
    {
        try
        {
        RedLightThread redThread=new RedLightThread();
        GreenLightThread greenThread=new GreenLightThread();
        YellowLightThread yellowThread=new YellowLightThread();

        redThread.start();
        greenThread.start();
        yellowThread.start();

        while(true)
        {

        }
    } catch(Exception e)
```

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