

## Jfo section 5:

### Colour range

#### Program:

```
import java.util.Scanner;

public class ColorRange {
    public static void main(String[] args) {
        // Create a Scanner object for user input
        Scanner scanner = new Scanner(System.in);

        // Define the valid range for each color component
        int minRange = 0;
        int maxRange = 255;

        // Prompt user to enter RGB values
        System.out.print("Enter the Red component (0-255): ");
        int red = scanner.nextInt();

        System.out.print("Enter the Green component (0-255): ");
        int green = scanner.nextInt();

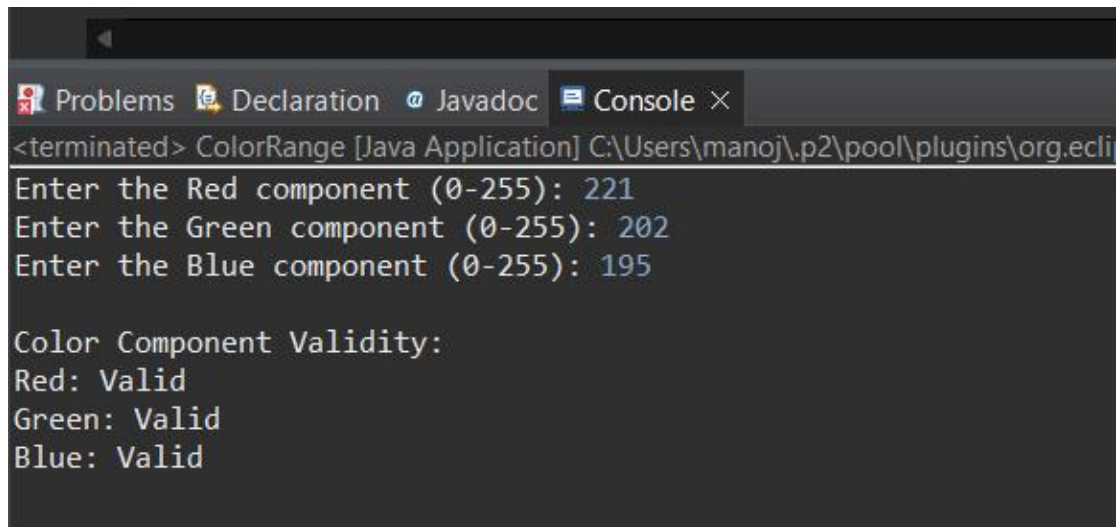
        System.out.print("Enter the Blue component (0-255): ");
        int blue = scanner.nextInt();

        // Check if the RGB values are within the specified range
        boolean isValidRed = red >= minRange && red <= maxRange;
        boolean isValidGreen = green >= minRange && green <= maxRange;
        boolean isValidBlue = blue >= minRange && blue <= maxRange;

        // Display results
        System.out.println("\nColor Component Validity:");
        System.out.println("Red: " + (isValidRed ? "Valid" : "Invalid"));
        System.out.println("Green: " + (isValidGreen ? "Valid" : "Invalid"));
        System.out.println("Blue: " + (isValidBlue ? "Valid" : "Invalid"));

        // Close the scanner
        scanner.close();
    }
}
```

## Result:



```
<terminated> ColorRange [Java Application] C:\Users\manoj\.p2\pool\plugins\org.ecl
Enter the Red component (0-255): 221
Enter the Green component (0-255): 202
Enter the Blue component (0-255): 195

Color Component Validity:
Red: Valid
Green: Valid
Blue: Valid
```

## TrafficLightChecker Class

PROGRAM:

```
import java.util.Scanner;
```

```
public class TrafficLightChecker {
    // Enum to define traffic light states
    private enum TrafficLight {
        RED, YELLOW, GREEN
    }

    // Method to get the next traffic light based on the current light
    private static TrafficLight getNextLight(TrafficLight current) {
        switch (current) {
            case RED:
                return TrafficLight.GREEN;
            case YELLOW:
                return TrafficLight.RED;
            case GREEN:
                return TrafficLight.YELLOW;
            default:
                throw new IllegalArgumentException("Unexpected value: " + current);
        }
    }

    // Method to display the traffic light status
    private static void displayStatus(TrafficLight light) {
        switch (light) {
            case RED:
                System.out.println("The light is RED. Please stop.");
                break;
            case YELLOW:
                System.out.println("The light is YELLOW. Prepare to stop.");
                break;
        }
    }
}
```

```

        case GREEN:
            System.out.println("The light is GREEN. You may go.");
            break;
    }
}

public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);

    // Prompt user for the initial traffic light state
    System.out.print("Enter the current traffic light color (RED, YELLOW, GREEN): ");
    String input = scanner.next().toUpperCase();

    TrafficLight currentLight;
    try {
        // Convert the input string to TrafficLight enum
        currentLight = TrafficLight.valueOf(input);
    } catch (IllegalArgumentException e) {
        System.out.println("Invalid color entered. Please enter RED, YELLOW, or GREEN.");
        scanner.close();
        return;
    }

    // Display the current light status
    displayStatus(currentLight);

    // Determine the next traffic light state
    TrafficLight nextLight = getNextLight(currentLight);

    // Display the next light status
    System.out.println("The next light will be: " + nextLight);
    displayStatus(nextLight);

    // Close the scanner
    scanner.close();
}
}

```

## RESULT:

```

Problems Declaration Javadoc Console ×
<terminated> TrafficLightChecker [Java Application] C:\Users\manoj\.p2\pool\plugins\org.eclipse.justj.o
Enter the current traffic light color (RED, YELLOW, GREEN): RED
The light is RED. Please stop.
The next light will be: GREEN
The light is GREEN. You may go.

```

## TRAFFICLIGHTSWITCH:

PROGRAM:

```
import java.util.Scanner;

public class TrafficLightSwitch {
    // Enum to define traffic light states
    private enum TrafficLight {
        RED, YELLOW, GREEN
    }

    // Method to get the next traffic light based on the current light
    private static TrafficLight getNextLight(TrafficLight current) {
        switch (current) {
            case RED:
                return TrafficLight.GREEN;
            case YELLOW:
                return TrafficLight.RED;
            case GREEN:
                return TrafficLight.YELLOW;
            default:
                throw new IllegalArgumentException("Unexpected value: " + current);
        }
    }

    // Method to display the traffic light status
    private static void displayStatus(TrafficLight light) {
        switch (light) {
            case RED:
                System.out.println("The light is RED. Please stop.");
                break;
            case YELLOW:
                System.out.println("The light is YELLOW. Prepare to stop.");
                break;
            case GREEN:
                System.out.println("The light is GREEN. You may go.");
                break;
        }
    }

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Prompt user for the initial traffic light state
        System.out.print("Enter the current traffic light color (RED, YELLOW, GREEN): ");
        String input = scanner.next().toUpperCase();

        TrafficLight currentLight;
        try {
            // Convert the input string to TrafficLight enum
            currentLight = TrafficLight.valueOf(input);
        } catch (IllegalArgumentException e) {
            System.out.println("Invalid color entered. Please enter RED, YELLOW, or GREEN.");
            scanner.close();
            return;
        }
    }
}
```

```
}

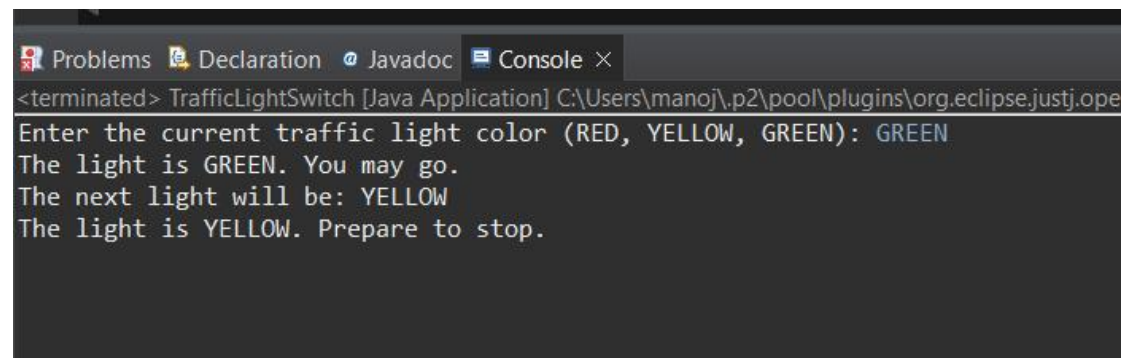
// Display the current light status
displayStatus(currentLight);

// Determine the next traffic light state
TrafficLight nextLight = getNextLight(currentLight);

// Display the next light status
System.out.println("The next light will be: " + nextLight);
displayStatus(nextLight);

// Close the scanner
scanner.close();
}
}
```

RESULT:



The screenshot shows the Eclipse IDE's Console window. The title bar includes tabs for Problems, Declaration, Javadoc, and Console. The console output is as follows:

```
<terminated> TrafficLightSwitch [Java Application] C:\Users\manoj\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64.jdk-17.0.2-10202208\bin\java.exe
Enter the current traffic light color (RED, YELLOW, GREEN): GREEN
The light is GREEN. You may go.
The next light will be: YELLOW
The light is YELLOW. Prepare to stop.
```