Practices - Section 5

Practice 5-1: Determining color in the visible spectrum

Overview

Write an interactive Java program, `ColorRange.java`, which when given a wavelength in nanometers will return the corresponding color in the visible spectrum.

Color	Wavelength (nm)
Violet	380-450
Blue	450-495
Green	495-570
Yellow	570-590
Orange	590-620
Red	620-750

Task

You must implement the following using a suitable `if` decision statement.

1. Prompt the user to enter the wavelength, the wavelength should be of type `double`.
2. For each range (e.g. 380-450) the number on the left is included in the range, but the number on the right is not included in the range.
3. If the input value is not found on the visible spectrum then state that the wavelength is not within the visible spectrum.
4. Expected Output:

a.
```
Enter a color code
630
The color is Red
```

b.
```
Enter a color code
25.0
The entered wavelength is not a part of the visible spectrum
```

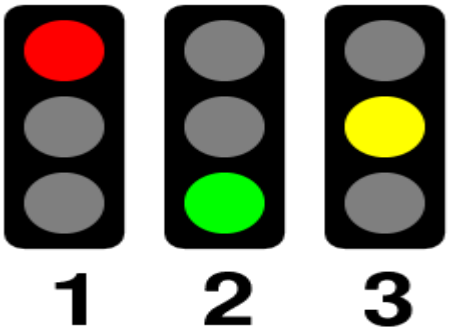
c.
```
Enter a color code
750.5
The entered wavelength is not a part of the visible spectrum
```

The `ProblemSet5_1` project is available to help you get started.

Problem 5-2: Determining the next color for a stop light

Overview

The normal behavior for a stop light is to cycle from Red to Green to Yellow to Red (and continues with this pattern). Write a java program `StopLight.java`, which will determine the next color of a stop light in this pattern, Red to Green to Yellow to Red based on the current stop light provided by the user.



Task

You must implement the following using a suitable `if` decision statement.

1. Have the user enter the value for the `currentColor`.
2. Compute the next color stop light based on the `currentColor`.
3. Alert the user for any invalid value of color.

Expected Output:

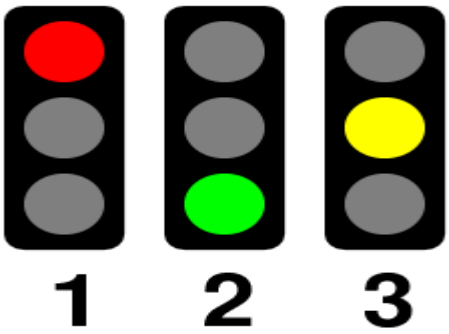
```
a. Enter a color code
   1
   Next Traffic Light is green
b. Enter a color code
   3
   Next Traffic Light is red
c. Enter a color code
   0
   Invalid color
d. Enter a color code
   4
   Invalid color
```

The `ProblemSet5_2` project is available to help you get started.

Problem 5-3: Determining the next color for a stop light using `switch`

Overview

Re-write practice 5-2 using `switch` statement.



Task

Implement practice 5-2 using `switch` statement and ensure the program alert users if they've entered any invalid value.

The `ProblemSet5_3` project is available to help you get started.