**SECTION : 5**

**Practice 5-1: Determining color in the visible spectrum**

**Overview**

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

**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.

**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

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

import java.util.Scanner;

public class Main

{

public static void main(String[] args)

{

double n;

Scanner x =new Scanner(System.in);

n=x.nextDouble();

if(n>=380&&n<450)

System.out.println("The Color is Violet");

else if(n>=450&&n<495)

System.out.println("The Color is Blue");

else if(n>=495&&n<570)

System.out.println("The Color is Green");

else if(n>=570&&n<590)

System.out.println("The Color is Yellow");

else if(n>=590&&n<620)

System.out.println("The Color is Orange");

else if(n>=620&&n<750)

System.out.println("The Color is Red");

else

System.out.println("The entered wavelength is not a part of the visible spectrum");

}

}

**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 TrafficLightChecker.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**

import java.util.Scanner;

public class Main

{

public static void main(String[] args)

{

int n;

Scanner x =new Scanner(System.in);

n=x.nextInt();

if(n==1)

System.out.println("Next Traffic Light is green");

else if(n==2)

System.out.println("Next Traffic Light is yellow");

else if(n==3)

System.out.println("Next Traffic Light is red");

else

System.out.println("Invalid color");

}

}

**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.

import java.util.Scanner;

public class Main

{

public static void main(String[] args)

{

int n;

Scanner x =new Scanner(System.in);

n=x.nextInt();

switch(n)

{

case 1:

System.out.println("Next Traffic Light is green");

break;

case 2:

System.out.println("Next Traffic Light is yellow");

break;

case 3:

System.out.println("Next Traffic Light is red");

break;

default:

System.out.println("Invalid color");

}

}

}