Lab worksheet 3: Introduction

Instructions

1. Create a Java project in IntelliJ within your folder and name it using your student number in the following formats: **"OOP_CS_2022_XXX" or "OOP_ET_2022_XXX"**. (Eg: OOP_CS_2022_001, OOP_ET_20222_007)
2. Create distinct packages for each lab worksheet, naming them in the following format "**LW_XX**." (Eg: LW_01)
3. Create distinct classes for each question, naming them "**QX**." (Eg: Q1)
4. Upload your project files to your GitHub repository.

Questions

1. Write a Java program using if statement(s) to find the smallest of three integer inputs without using the min method of the Math class.

2. Rewrite the following if statement, using a switch statement.

Main.java

```
import java.util.Scanner;

public class Main {
   public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.println("0.Magenta");
        System.out.println("1.Cyan");
        System.out.println("2.Red");
        System.out.println("3.Blue");
        System.out.println("4.Green");
        System.out.println("Select one color from the above
list:");
        int selection = scanner.nextInt();

        if (selection == 0)
            System.out.println("You selected Magenta");
        else if (selection == 1)
            System.out.println("You selected Cyan");
        else if (selection == 2)
            System.out.println("You selected Red");
        else if (selection == 3)
            System.out.println("You selected Blue");
        else if (selection == 4)
            System.out.println("You selected Green");
```

Lab worksheet 3: Introduction

```
        else
            System.out.println("Invalid selection");
    }
}
```

3. One million is 10^6 and 1 billion is 10^9. Write a Java program that reads a power of 10 (6, 9, 12, etc.) and displays how big the number is (Million, Billion, etc.). Display an appropriate message for the input value that has no corresponding word. The table below shows the correspondence between the power of 10 and the word for that number.

Power of 10	**Number**
6	Million
9	Billion
12	Trillion
15	Quadrillion
18	Quintillion
21	Sextillion
30	Nonillion
100	Googol

4. Write a Java program that replies either Leap Year or Not a Leap Year, given a year. It is a leap year if the year is divisible by 4 but not by 100 (for example, 1796 is a leap year because it is divisible by 4 but not by 100). A year that is divisible by both 4 and 100 is a leap year if it is also divisible by 400 (for example, 2000 is a leap year, but 1800 is not).

5. **MyJava Lo-Fat Burgers** is the only fast-food establishment in town that provides a computer screen and mouse for its drive-through customers. You are hired as a freelance computer consultant. Write a Java program that lists items for three menu categories: entree, side dish, and drink. The following table lists the items available for each entry and their prices. Choose appropriate methods for input and output.

Entree		**Side Dish**		**Drink**	
Tofu Burger	$3.49	Rice Cracker	$0.79	Cafe Mocha	$1.99
Cajun Chicken	$4.59	No-Salt Fries	$0.69	Cafe Latte	$1.90
Buffalo Wings	$3.99	Zucchini	$1.09	Espresso	$2.49
Rainbow Fillet	$2.99	Brown Rice	$0.59	Oolong Tea	$0.99

6. Write a Java program to print out the numbers 10 through 49 in the following manner,

   10 11 12 13 14 15 16 17 18 19
   20 21 22 23 24 25 26 27 28 29

30 31 32 33 34 35 36 37 38 39
40 41 42 43 44 45 46 47 48 49

7. Write a method that returns the number of digits in an integer argument; for example, 23,498 has five digits. Using this method, write a Java program that repeatedly asks for input and displays the number of digits the input integer has. Stop the repetition when the input value is negative.

8. Write a Java program that prints the multiplication table for a given number N. The table should display the multiplication of N with numbers from 1 to 10.

9. Write a Java program that prints a pattern of asterisks in the shape of a pyramid. The number of rows in the pyramid should be entered by the user.

10. Write a Java program that prompts the user to enter a word or phrase and determines if it is a palindrome. A palindrome is a word, phrase, number, or other sequence of characters that reads the same forward and backward.

11. Write a Java program that generates a random number between 1 and 100 and asks the user to guess it. The program should provide feedback (higher or lower) until the user guesses the correct number.

12. Write a Java program that takes a sentence as input and replaces every occurrence of a specific word with another word. The program should prompt the user for the word to be replaced and the replacement word.