Lab-2

Exercise 1: AgeGuess

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

public class AgeGuessEx1 {
    public static void main(String[] args) {
        // Declare and initialize variables
        int age;
        int ageGuess;

        // Generate a random age between 0 and 100 (inclusive)
        Random rand = new Random();
        age = rand.nextInt(101);

        // Ask the user for a guess
        Scanner scanner = new Scanner(System.in);
        System.out.print("Guess the age: ");
        ageGuess = scanner.nextInt();

        // Display the user's guess and the correct answer
        System.out.println("Your guess: " + ageGuess);
        System.out.println("Correct answer: " + age);

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

Exercise 2: DistCalc

```
import java.util.Scanner;

public class DistCalc {
    public static void main(String[] args) {
        // Declare variables
        double x1, y1, x2, y2, distance;

        // Read the coordinates of two points
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the x coordinate of point 1: ");
        x1 = scanner.nextDouble();
        System.out.print("Enter the y coordinate of point 1: ");
        y1 = scanner.nextDouble();
        System.out.print("Enter the x coordinate of point 2: ");
        x2 = scanner.nextDouble();
        System.out.print("Enter the y coordinate of point 2: ");
        y2 = scanner.nextDouble();

        // Calculate the distance between the two points
        distance = Math.sqrt(Math.pow((x2 - x1), 2) + Math.pow((y2 -
y1), 2));

        // Display the distance with three decimal places
        System.out.printf("The distance between the points is: %.3f%n",
distance);

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

Exercise 3: UserNames

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

public class UserNamesEx3 {
    public static void main(String[] args) {
        // Read the user's first and last name
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter your first name: ");
        String firstName = scanner.nextLine();
        System.out.print("Enter your last name: ");
        String lastName = scanner.nextLine();

        // Generate a random number between 10 and 99
        Random rand = new Random();
        int randomNumber = rand.nextInt(90) + 10;

        // Construct the username
        String username = lastName.substring(0, 4) +
firstName.charAt(0) + randomNumber;

        // Print the username
        System.out.println("Your username is: " + username);

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

Exercise 4: AgeGuess (Modified)

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

public class AgeGuessEx4 {
    public static void main(String[] args) {
        // Declare and initialize variables
        int age;
        int ageGuess;

        // Generate a random age between 0 and 100 (inclusive)
        Random rand = new Random();
        age = rand.nextInt(101);

        // Ask the user for a guess
        Scanner scanner = new Scanner(System.in);
        System.out.print("Guess the age: ");
        ageGuess = scanner.nextInt();

        // Display the user's guess and the correct answer
        System.out.println("Your guess: " + ageGuess);
        System.out.println("Correct answer: " + age);

        // Check if the guess is correct
        if (age != ageGuess) {
            System.out.println("You guessed wrong!");
            // Check if the guess is older or younger
            if (ageGuess < age) {
                System.out.println("You guessed younger.");
            } else {
                System.out.println("You guessed older.");
            }
        }

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

Exercise 5: FloatEqu

```
public class FloatEquEx5 {
    public static void main(String[] args) {
        // Declare and initialize variables
        double var1 = (1.0 / 10) * (1.0 / 10);
        double var2 = 1.0 / 100;

        // Check if the variables are equal
        if (var1 == var2) {
            System.out.println("EQUAL");
        } else {
            System.out.println("NOT EQUAL");
        }

        // Check if the variables are approximately equal
        double tolerance = 0.0001;
        if (Math.abs(var1 - var2) < tolerance) {
            System.out.println("APPROXIMATELY EQUAL");
        } else {
            System.out.println("NOT APPROXIMATELY
EQUAL");
        }
    }
}
```

Exercise 6: NumDisplay

```
import java.util.Scanner;

public class NumDisplay {
    public static void main(String[] args) {
        // Prompt the user to enter a number between 0 and 9
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number between 0 and 9: ");
        int num = scanner.nextInt();

        // Display the corresponding word using a switch statement
        switch (num) {
            case 0:
                System.out.println("zero");
                break;
            case 1:
                System.out.println("one");
                break;
            case 2:
                System.out.println("two");
                break;
            case 3:
                System.out.println("three");
                break;
            case 4:
                System.out.println("four");
                break;
            case 5:
                System.out.println("five");
                break;
            case 6:
                System.out.println("six");
                break;
            case 7:
                System.out.println("seven");
                break;
            case 8:
                System.out.println("eight");
                break;
            case 9:
                System.out.println("nine");
                break;
            default:
                System.out.println("Invalid number! Please enter a
number between 0 and 9.");
        }

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