Lab 4

Variable and Calculation 2

Name-Surname…….....Student No.....Section (LAB)……

Lab instruction

1. Open VS code or JAVA IDE in your computer.
2. Create a new java class name ComputeChange.java, then write the following code.

```
1  import java.util.Scanner;
 2
 3  public class ComputeChange {
 4    public static void main(String[] args) {
 5      // Create a Scanner
 6      Scanner input = new Scanner(System.in);
 7
 8      // Receive the amount
 9      System.out.print(
10        "Enter an amount in double, for example, 11.56: ");
11      double amount = input.nextDouble();
12
13      int remainingAmount = (int)(amount * 100);
14
15      // Find the number of one dollars
16      int numberOfOneDollars = remainingAmount / 100;
17      remainingAmount = remainingAmount % 100;
18
19      // Find the number of quarters in the remaining amount
20      int numberOfQuarters = remainingAmount / 25;
21      remainingAmount = remainingAmount % 25;
22
23      // Find the number of dimes in the remaining amount
24      int numberOfDimes = remainingAmount / 10;
25      remainingAmount = remainingAmount % 10;
26
27      // Find the number of nickels in the remaining amount
28      int numberOfNickels = remainingAmount / 5;
29      remainingAmount = remainingAmount % 5;
30
31      // Find the number of pennies in the remaining amount
32      int numberOfPennies = remainingAmount;
33
34      // Display results
35      System.out.println("Your amount " + amount + " consists of");
36      System.out.println("    " + numberOfOneDollars + " dollars");
37      System.out.println("    " + numberOfQuarters + " quarters");
38      System.out.println("    " + numberOfDimes + " dimes");
39      System.out.println("    " + numberOfNickels + " nickels");
40      System.out.println("    " + numberOfPennies + " pennies");
41    }
42  }
```

3. Compile and run the program. Enter example input e.g. 11.56

4. From the ComputeChange.java, to fix possible accuracy when converting a double value to an int value. Enter the input as a integer whose last two digit represent the cents. For example, the input 1156 represent 11 dollars and 56 cents.

**********CHECK POINT #1**********

String type variable

```java
import java.util.Scanner;
public class Name {
    public static void main(String[] args) {
       //Declare and assign variable in string type
        String name;
        String nickName = "ball";

        //Read the String by scanner
        Scanner input = new Scanner(System.in);
        System.out.print("Enter your name: ");
        name = input.next();

        //Print the data in String
        System.out.println("Your name is "+name);
        System.out.println("Your nick name is "+nickName);
    }

}
```

5. Write the Java program that reads the following information and prints a payroll statement:

Employee,s name(e.g., Smith)

Number of hours worked in a week (e.g., 10)

Hourly pay rate (e.g., 6.75)

Federal Tax withholding rate(percent) (e.g., 20%)

State tax withholding rate(percent)(e.g., 9%)

Example output

```
Employee's name : Smith
Hours work" 10.0 hour
Pay rate: $6.75
Gross pay : $67.5
Deductions:
        Federal withholding (20.0%) : $13.5
        State withholding (9.0%) : $6.07
        Total Deduction: $19.57
Net pay: $47.92
```

**********CHECK POINT #2**********

6. Write a program that reads in inveatment amount, annual interest rate, and number of year.

The program will display the feature investment value using the follow formular:

Hint: use `Math.pow(a,b)` in the program

$$future\ investment\ value = investment\ amount \times (1 + monthly\ interest\ rate)^{number\ of\ year \times 12}$$

For example, amount is 1000, annual interest rate 3.25%, number of year 1, the future investment value is 1032.98

**********CHECK POINT #3**********

7. Write and execute a Java program that calculates and displays the volume and surface area of a sphere that has a radius of 2.57 inches. The relevant formula is Volume = (4 /3 * pi * r3) and Surface = 4 * pi * r2. Where pi is the value 3.1416. Use the variable name radius and surface in your program.

**********CHECK POINT #4**********

----------End of Lab----------