Shivam Kumar Jha
RA2411056010039

Week 2 Level 2

1. Write a program to create a basic calculator that can perform addition, subtraction, multiplication, and division. The program should ask for two numbers (floating point) and perform all the operations

   Hint =>

   a. Create a variable number1 and number 2 and take user inputs.
   b. Perform Arithmetic Operations of addition, subtraction, multiplication and division and assign the result to a variable and finally print the result

   I/P => number1, number2
   O/P => The addition, subtraction, multiplication and division value of 2 numbers ___ and ___ is ___, _____, _____, and ___

   CODE:

```
import java.util.Scanner;


public class BasicCalculator {
 public static void main(String[] args) {


        Scanner scanner = new Scanner(System.in);


        // Basic Calculator
        System.out.print("Enter first number: ");
double number1 = scanner.nextDouble();
System.out.print("Enter second number: ");
double number2 = scanner.nextDouble();
        System.out.println("The addition, subtraction, multiplication and division value of 2 numbers "
                + number1 + " and " + number2 + " is "
                + (number1 + number2) + ", " + (number1 - number2) + ", "
                + (number1 * number2) + ", and " + (number1 / number2));
```

```
        scanner.close();
    }
}
```

2. Write a program that takes the base and height to find area of a triangle in square inches and square centimeters

Hint => Area of a Triangle is ½ * base * height

I/P => base, height

O/P => Your Height in cm is ___ while in feet is ___ and inches is ___

CODE:

```
import java.util.Scanner;

public class TriangleAreaCalculator {
public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Input base and height
        System.out.print("Enter base of the triangle in inches: ");
double base = scanner.nextDouble();
        System.out.print("Enter height of the triangle in inches: ");
double height = scanner.nextDouble();

        // Calculate area in square inches
double areaInInches = 0.5 * base * height;

        // Convert area to square centimeters (1 square inch = 6.4516 square cm)
double heightInCm = height * 2.54;        double heightInFeet = height / 12;
double heightInInches = height;
```

```
        System.out.println("Your Height in cm is " + heightInCm + " while in feet is " +
heightInFeet + " and inches is " + heightInInches);

        scanner.close();
    }
}
```

3. Write a program to find the side of the square whose parameter you read from user

Hint => Perimeter of Square is 4 times side

I/P => perimeter

O/P => The length of the side is ___ whose perimeter is ____

CODE:

```
import java.util.Scanner;

public class SquareSideCalculator {
    public static void main(String[] args) {
        // Create a Scanner object to read input from the user
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter the perimeter of the square
System.out.print("Enter the perimeter of the square: ");        double
perimeter = scanner.nextDouble();

        // Calculate the side length
double sideLength = perimeter / 4;

        // Display the result
        System.out.printf("The length of the side is %.2f units whose perimeter is %.2f
units.%n", sideLength, perimeter);
```

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

    }
}
```

4. Write a program the find the distance in yards and miles for the distance provided by user in feets

Hint => 1 mile = 1760 yards and 1 yard is 3 feet

I/P => distanceInFeet

O/P => Your Height in cm is ___ while in feet is ___ and inches is ___

CODE:

```
import java.util.Scanner;


public class DistanceConverter {
public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);


        System.out.print("Enter the distance in feet: ");
double distanceInFeet = scanner.nextDouble();


        double distanceInYards = distanceInFeet / 3;
double distanceInMiles = distanceInFeet / (3 * 1760);


        System.out.printf("The distance is %.2f yards or %.4f miles.%n", distanceInYards,
distanceInMiles);


        scanner.close();
    }
}
```

5. Write a program to input the unit price of an item and the quantity to be bought. Then, calculate the total price.

Hint => NA
I/P => unitPrice, quantity

O/P => The total purchase price is INR ___ if the quantity ___ and unit price is INR ___

CODE:

```
import java.util.Scanner;


public class PurchaseCalculator {
public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);


        System.out.print("Enter the unit price (INR): ");
double unitPrice = scanner.nextDouble();


        System.out.print("Enter the quantity: ");
int quantity = scanner.nextInt();


        double totalPrice = unitPrice * quantity;


        System.out.printf("The total purchase price is INR %.2f if the quantity is %d and unit price is INR %.2f.%n",
                totalPrice, quantity, unitPrice);


        scanner.close();
    }
}
```

6. Write a program to take 2 numbers and print their quotient and reminder

Hint => Use division operator (/) for quotient and moduli operator (%) for reminder
I/P => number1, number2

O/P => The Quotient is ___ and Reminder is ___ of two number ___ and ___

CODE:

```
import java.util.Scanner;

public class QuotientRemainderCalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the first number: ");
int number1 = scanner.nextInt();

        System.out.print("Enter the second number: ");
int number2 = scanner.nextInt();

        if (number2 != 0) {            int quotient =
number1 / number2;             int remainder =
number1 % number2;

            System.out.printf("The Quotient is %d and Remainder is %d of two numbers %d and
%d.%n",
                    quotient, remainder, number1, number2);
        } else {
            System.out.println("Division by zero is not allowed.");
        }

        scanner.close();
    }
}
```

7. Write an ***IntOperation*** program by taking a, b, and c as input values and print the following integer operations a + b *c, a * b + c, c + a / b, and a % b + c. Please also understand the precedence of the operators.

Hint =>

a. Create variables a, b, c of int data type.
b. Take user input for a, b, and c.
c. Compute 3 integer operations and assign the result to a variable
d. Finally, print the result and try to understand operator precedence.

I/P => fee, discountPrecent

O/P => The results of Int Operations are —, -—, and —

CODE:

```
import java.util.Scanner;


public class IntOperation {     public
static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);


        System.out.print("Enter the value of a: ");
int a = scanner.nextInt();


        System.out.print("Enter the value of b: ");
int b = scanner.nextInt();


        System.out.print("Enter the value of c: ");
int c = scanner.nextInt();


        int result1 = a + b * c;
int result2 = a * b + c;
int result3 = c + a / b;         int
result4 = a % b + c;


        System.out.printf("The results of Int Operations are %d, %d, %d, and %d.%n",
```

```
            result1, result2, result3, result4);

        scanner.close();
    }
}
```

-

8. Similarly, write the ***DoubleOpt*** program by taking double values and doing the same operations.
9. CODE:

```
import java.util.Scanner;

public class DoubleOpt {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the value of a: ");
double a = scanner.nextDouble();

        System.out.print("Enter the value of b: ");
double b = scanner.nextDouble();

        System.out.print("Enter the value of c: ");
double c = scanner.nextDouble();

        double result1 = a + b * c;
double result2 = a * b + c;
double result3 = c + a / b;         double
result4 = a % b + c;

        System.out.printf("The results of the double operations are: %.2f, %.2f, %.2f, and
%.2f.%n",
```

```
                result1, result2, result3, result4);

        scanner.close();
    }
}
```