

Level 2 Practice Programs

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.

```
import java.util.Scanner;
public class BasicCalculator{
    public static void main(String[] args){
        //Declaring variables
        float a, b, add, sub, prod, div;

        //Taking input
        Scanner input = new Scanner(System.in);
        System.out.print("Enter value of a : ");
        a = input.nextFloat();
        System.out.print("Enter value of b : ");
        b = input.nextFloat();

        //Solving using Arithmetic Operations and Conditional Statements
        add = a+b;
        if (a>b){
            sub = a-b;
        } else{
            sub = b-a;
        }
        prod = a*b;
        if (a>b){
            div = a/b;
        } else {
            div = b/a;
        }

        //Printing output
        System.out.println("Addition : " +add);
        System.out.println("Subtraction : " +sub);
        System.out.println("Multiplication : " +prod);
        System.out.println("Division : " +div);
    }
}
```

```

C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>javac BasicCalculator.java

C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>java BasicCalculator
Enter value of a : 55.2
Enter value of b : 91.7
Addition : 146.9
Subtraction : 36.499996
Multiplication : 5061.84
Division : 1.6612318

```

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

```

import java.util.Scanner;
public class AreaOfTriangle{
    public static void main(String[] args){
        Scanner input = new Scanner(System.in);
        //Declaring Variables
        int h,b;
        System.out.print("Enter the height in inches : ");
        h = input.nextInt();
        System.out.print("Enter the base in inches : ");
        b = input.nextInt();

        //Calculation and Conversion
        double area_in_inches = 0.5*h*b;
        double area_in_cm = area_in_inches*6.4516;

        //Printing Output
        System.out.println("Area in centimeters : " +area_in_cm+ " sqcm");
        System.out.println("Area in inches : " +area_in_inches+ " sqinches");
    }
}

```

```

C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>javac AreaOfTriangle.java

C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>java AreaOfTriangle
Enter the height in inches : 66
Enter the base in inches : 45
Area in centimeters : 9580.626 sqcm
Area in inches : 1485.0 sqinches

```

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

```
import java.util.Scanner;
public class SqPerimeter{
    public static void main (String[] args){
        Scanner input = new Scanner(System.in);

        //Declaring Variables
        int x, p;
        System.out.print("Enter the Perimeter : ");
        p = input.nextInt();

        //Calculation
        x = p/4;

        //Printing output
        System.out.print("The length of the side is " +x+ " cm, whose perimeter is : " +p+ " cm");
    }
}
```

```
C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>javac SqPerimeter.java
```

```
C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>java SqPerimeter
Enter the Perimeter : 24
The length of the side is 6 cm, whose perimeter is : 24 cm
```

- Write a program to find the distance in yards and miles for the distance provided by the user in feet.

```
import java.util.Scanner;
public class DistanceModify{
    public static void main(String[] args){
        Scanner input = new Scanner(System.in);

        //Declaring Variables
        float d_in_feet, d_in_yards, d_in_miles;

        System.out.print("Enter the distance in feet : ");
        d_in_feet = input.nextFloat();

        //Calculations
        d_in_yards = d_in_feet/3;
        d_in_miles = d_in_yards/1760;

        //Printing Output
        System.out.println("Your height in feet is : " +d_in_feet+ " ft, while in yards is : " +d_in_yards+ " yd, and miles is : " +d_in_miles+ " miles");
    }
}
```

```
C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>javac DistanceModify.java
```

```
C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>java DistanceModify
Enter the distance in feet : 50
Your height in feet is : 50.0 ft, while in yards is : 16.666666 yd, and miles is : 0.009469696 miles
```

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

```

import java.util.Scanner;
public class TotalPrice{
    public static void main(String[] args){
        Scanner input = new Scanner(System.in);

        //Declaring Variables
        int unit_price, quantity, total_price;

        System.out.print("Enter the Price : ");
        unit_price = input.nextInt();
        System.out.print("Enter the quantity : ");
        quantity = input.nextInt();

        //Calculating
        total_price = unit_price*quantity;

        //Printing Output
        System.out.println("The total purchase price is INR " +total_price+ " if the quantity is " +quantity+ " and unit price is INR " +unit_price);
    }
}

```

C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>javac TotalPrice.java

C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>java TotalPrice

Enter the Price : 300

Enter the quantity : 2

The total purchase price is INR 600 if the quantity is 2 and unit price is INR 300

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

```

import java.util.Scanner;
public class QnR{
    public static void main(String[] args){

        //Declaring Variables
        int a,b;
        int q,r;
        System.out.print("Enter the value of a : ");
        a = input.nextInt();
        System.out.print("Enter the value of b : ");
        b = input.nextInt();

        //Using conditional statements
        if(a>b){
            q = a/b;
            r = a%b;
        }else{
            q = b/a;
            r = b%a;
        }

        //Printing output
        System.out.println("The Quotient is " +q+ " and the Remainder is " +r);
    }
}

```

```
C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>javac QnR.java

C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>java QnR
Enter the value of a : 17
Enter the value of b : 6
The Quotient is 2 and the Remainder is 5
```

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.

```
import java.util.Scanner;
public class Operations{
    public static void main(String[] args){
        Scanner input = new Scanner(System.in);

        //Declaring Variables
        int a,b,c,d,e,f,g;
        System.out.print("Enter the values of a : ");
        a = input.nextInt();
        System.out.print("Enter the values of b : ");
        b = input.nextInt();
        System.out.print("Enter the values of c : ");
        c = input.nextInt();

        //Calculations
        d = a + b * c;
        e = a * b + c;
        f = c + a / b;
        g = a % b + c;

        //Printing output
        System.out.println("The result of 1st operation is : " +d);
        System.out.println("The result of 2nd operation is : " +e);
        System.out.println("The result of 3rd operation is : " +f);
        System.out.println("The result of 4th operation is : " +g);
    }
}
```

```

C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>javac Operations.java

C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>java Operations
Enter the values of a : 5
Enter the values of b : 6
Enter the values of c : 7
The result of 1st operation is : 47
The result of 2nd operation is : 37
The result of 3rd operation is : 7
The result of 4th operation is : 12

```

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

```

import java.util.Scanner;
public class Operations_2{
    public static void main(String[] args){
        Scanner input = new Scanner(System.in);

        //Declaring Variables
        double a,b,c,d,e,f,g;
        System.out.print("Enter the values of a : ");
        a = input.nextDouble();
        System.out.print("Enter the values of b : ");
        b = input.nextDouble();
        System.out.print("Enter the values of c : ");
        c = input.nextDouble();

        //Calculations
        d = a + b * c;
        e = a * b + c;
        f = c + a / b;
        g = a % b + c;

        //Printing output
        System.out.println("The result of 1st operation is : " +d);
        System.out.println("The result of 2nd operation is : " +e);
        System.out.println("The result of 3rd operation is : " +f);
        System.out.println("The result of 4th operation is : " +g);
    }
}

```

```
C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>javac Operations_2.java
```

```
C:\Users\Shounak Roy\Desktop\JAVA\LEVEL 2>java Operations_2
```

```
Enter the values of a : 7.2
```

```
Enter the values of b : 6.4
```

```
Enter the values of c : 9.1
```

```
The result of 1st operation is : 65.44
```

```
The result of 2nd operation is : 55.180000000000001
```

```
The result of 3rd operation is : 10.225
```

```
The result of 4th operation is : 9.899999999999999
```