

Best Programming Practice

1. All values as variables including Fixed, User Inputs, and Results
2. Avoid Hard Coding of variables wherever possible
3. Proper naming conventions for all variables

```
String name = "Eric";  
double height = input.nextDouble();  
double totalDistance = distanceFromToVia + distanceViaToFinalCity;
```

4. Proper Program Name and Class Name
5. Follow proper indentation

1. **Sample Program 1** - Write a program to display Sam with Roll Number 1, Percent Marks 99.99, and the result 'P' indicates Pass('P') or Fail ('F').

IMP => Follow Good Programming Practice demonstrated below in all Practice Programs

Java

```
// Creating Class with name DisplayResult indicating the purpose is to display  
// result. Notice the class name is a Noun.  
class DisplayResult {  
    public static void main(String[] args) {  
  
        // Create a string variable name and assign value Sam  
        String name = "Sam";  
  
        // Create a int variable rollNumber and assign value 1  
        int rollNumber = 1;  
  
        // Create a double variable percentMarks and assign value 99.99  
        double percentMarks = 99.99;  
  
        // Create a char variable result and assign value 'P' for pass  
        char result = 'P';  
  
        // Display the result  
        System.out.println("Displaying Result:\n" +name+ " with Roll Number " +  
                           rollNumber+ " has Scored " +percentMarks+  
                           "% Marks and Result is " +result);  
    }  
}
```

- Sample Program 2** - Eric Travels from Chennai to Bangalore via Vellore. From Chennai to Vellore distance is 156.6 km and the time taken is 4 Hours 4 Mins and from Vellore to Bangalore is 211.8 km and will take 4 Hours 25 Mins. Compute the total distance and total time from Chennai to Bangalore

Java

```
// Create TravelComputation Class to compute the Distance and Travel Time
class TravelComputation {

    public static void main(String[] args) {

        // Create a variable name to indicate the person traveling
        String name = "Eric";

        // Create a variable fromCity, viaCity and toCity to indicate the city
        // from city, via city and to city the person is travelling
        String fromCity = "Chennai", viaCity = "Vellore", toCity = "Bangalore";

        // Create a variable distanceFromToVia to indicate the distance
        // between the fromCity to viaCity
        double distanceFromToVia = 156.6;

        // Create a variable timeFromToVia to indicate the time taken to
        // travel from fromCity to viaCity in minutes
        int timeFromToVia = 4 * 60 + 4;

        // Create a variable distanceViaToFinalCity to indicate the distance
        // between the viaCity to toCity
        double distanceViaToFinalCity = 211.8;

        // Create a variable timeViaToFinalCity to indicate the time taken to
        // travel from viaCity to toCity in minutes
        int timeViaToFinalCity = 4 * 60 + 25;

        // Create a variable totalDistance to indicate the total distance
        // between the fromCity to toCity
        double totalDistance = distanceFromToVia + distanceViaToFinalCity;

        // Create a variable totalTime to indicate the total time taken to
        // travel from fromCity to toCity in minutes
        int totalTime = timeFromToVia + timeViaToFinalCity;
    }
}
```

```
// Print the travel details
System.out.println("The Total Distance travelled by " + name + " from " +
    fromCity + " to " + toCity + " via " + viaCity +
    " is " + totalDistance + " km and " +
    "the Total Time taken is " + totalTime + " minutes");
    }
}
```

Level 2 Practice Programs

1. Write a program to create a basic calculator for 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 number2 and take user inputs.
- b. Perform Arithmetic Operations of addition, subtraction, multiplication, and division 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 ____

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

Hint => Area of a Triangle is $\frac{1}{2} \times \text{base} \times \text{height}$ and 1 in = 2.54 cm

I/P => base, height

O/P => The Area of the triangle in sq in is ____ and sq cm is ____

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

Hint => Perimeter of the Square is 4 times the side

I/P => perimeter

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

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

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

I/P => distanceInFeet

O/P => The distance in yards is ____ while the distance in miles is ____

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 ____

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

Hint => Use division operator (/) for quotient and moduli operator (%) for remainder

I/P => number1, number2

O/P => The Quotient is ____ and Remainder is ____ of two number ____ and ____

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 =>

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

I/P => fee, discountPrecent

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

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