# 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;

1. Proper Program Name and Class Name
2. Follow proper indentation
3. **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

// 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);

}

}

1. **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

// 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 = "Velore", 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 =>**

1. Create a variable number1 and number2 and take user inputs.
2. 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 \_\_\_

import java.util.Scanner;

public class BasicCalculator {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter first number: ");

double number1 = sc.nextDouble();

System.out.print("Enter second number: ");

double number2 = sc.nextDouble();

double addition = number1 + number2;

double subtraction = number1 - number2;

double multiplication = number1 \* number2;

double division = number2 != 0 ? number1 / number2 : Double.NaN; // avoid division by zero

System.out.println("The addition, subtraction, multiplication, and division value of 2 numbers "

+ number1 + " and " + number2 + " is "

+ addition + ", "

+ subtraction + ", "

+ multiplication + ", "

+ division);

sc.close();

}

}

1. 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 ½ \* base \* 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 \_\_\_

import java.util.Scanner;

import java.util.Scanner;

public class TriangleArea {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter base in cm: ");

double base = sc.nextDouble();

System.out.print("Enter height in cm: ");

double height = sc.nextDouble();

double areaSqCm = 0.5 \* base \* height;

double areaSqIn = areaSqCm / (2.54 \* 2.54);

System.out.println("The Area of the triangle in sq in is " + areaSqIn +

" and sq cm is " + areaSqCm);

sc.close();

}

}

public class TriangleArea {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter base in cm: ");

double base = input.nextDouble();

System.out.print("Enter height in cm: ");

double height = input.nextDouble();

double areaSqCm = 0.5 \* base \* height;

double areaSqIn = areaSqCm / (2.54 \* 2.54);

System.out.println("The Area of the triangle in sq in is " + areaSqIn +

" and in sq cm is " + areaSqCm);

input.close();

}

}

1. 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 \_\_\_\_

import java.util.Scanner;

public class SquareSide {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the perimeter of the square: ");

double perimeter = input.nextDouble();

double side = perimeter / 4;

System.out.println("The length of the side is " + side +

" whose perimeter is " + perimeter);

input.close();

}

}

1. 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 \_\_\_

import java.util.Scanner;

public class FeetToYardsMiles {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the distance in feet: ");

double distanceInFeet = input.nextDouble();

double distanceInYards = distanceInFeet / 3;

double distanceInMiles = distanceInYards / 1760;

System.out.println("The distance in yards is " + distanceInYards +

" while the distance in miles is " + distanceInMiles);

input.close();

}

}

1. 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 \_\_\_

import java.util.Scanner;

public class TotalPurchasePrice {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the unit price (INR): ");

double unitPrice = input.nextDouble();

System.out.print("Enter the quantity: ");

int quantity = input.nextInt();

double totalPrice = unitPrice \* quantity;

System.out.println("The total purchase price is INR " + totalPrice +

" if the quantity " + quantity +

" and unit price is INR " + unitPrice);

input.close();

}

}

1. 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 \_\_\_

import java.util.Scanner;

public class QuotientRemainder {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the first number: ");

int number1 = input.nextInt();

System.out.print("Enter the second number: ");

int number2 = input.nextInt();

int quotient = number1 / number2;

int remainder = number1 % number2;

System.out.println("The Quotient is " + quotient +

" and Remainder is " + remainder +

" of two numbers " + number1 + " and " + number2);

input.close();

}

}

1. 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 =>**

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

**I/P =>** fee, discountPrecent

**O/P =>** The results of Int Operations are \_\_\_, \_\_\_, and \_\_\_

import java.util.Scanner;

public class IntOperation {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter value for a: ");

int a = input.nextInt();

System.out.print("Enter value for b: ");

int b = input.nextInt();

System.out.print("Enter value for c: ");

int c = input.nextInt();

int result1 = a + b \* c;

int result2 = a \* b + c;

int result3 = c + a / b;

int result4 = a % b + c;

System.out.println("The results of Int Operations are "

+ result1 + ", " + result2 + ", " + result3 + ", and " + result4);

input.close();

}

}

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

import java.util.Scanner;

public class DoubleOpt {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the first number: ");

double number1 = input.nextDouble();

System.out.print("Enter the second number: ");

double number2 = input.nextDouble();

double addition = number1 + number2;

double subtraction = number1 - number2;

double multiplication = number1 \* number2;

double division = number1 / number2;

System.out.println("The addition, subtraction, multiplication and division value of 2 numbers "

+ number1 + " and " + number2 + " is "

+ addition + ", " + subtraction + ", " + multiplication + ", and " + division);

input.close();

}

}