CodInClub

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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);
    }
}
```

2. **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

```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 = "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 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.*;
class P1{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		double number1 = sc.nextDouble();
		double number2 = sc.nextDouble();
		double quotient = number1/number2;
		double remainder = number1%number2;
		System.out.println("The Quotient is "+ quotient +" and
Remainder is " + remainder + " of two number " + number1 +" and "+number2);
	}
}
```

2. 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 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 —-

```
import java.util.*;
class P2{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		int a = sc.nextInt();
		int b = sc.nextInt();
		int c = sc.nextInt();
		int op1 = a+b*c;
		int op2 = a*b+c;
		int op3 = c+a/b;
		int op4 = a%b+c;
		System.out.println("The results of Int Operations are "+op1+",
"+op2+", "+op3+", and "+op4);
	}
}
```

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

```
import java.util.*;
class P3{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		double a = sc.nextDouble();
		double b = sc.nextDouble();
		double c = sc.nextDouble();
		double op1 = a+b*c;
		double op2 = a*b+c;
		double op3 = c+a/b;
		double op4 = a%b+c;
		System.out.println("The results of Int Operations are
"+op1+", "+op2+", "+op3+", and "+op4);
	}
}
```

4. Write a TemperaturConversion program, given the temperature in Celsius as input outputs the temperature in Fahrenheit

   Hint =>

   a. Create a ***celsius*** variable and take the temperature as user input
   b. Use the Formulae Celsius to Fahrenheit: (°C × 9/5) + 32 = °F and assign to ***farenheitResult*** and print the result

   I/P => celcius

   O/P => The ____ celsius is _____ fahrenheit

```
import java.util.*;
class P4{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		double celsius = sc.nextDouble();
		double farenheitResult = celsius*((double)9/5)+32;
		System.out.println("The "+ celsius +" celsius is "+
farenheitResult +" fahrenheit");
	}
}
```

5. Write a TemperaturConversion program, given the temperature in Fahrenheit as input outputs the temperature in Celsius

   Hint =>

   c. Create a ***fahrenheit*** variable and take the user's input
   d. User the formulae to convert Fahrenheit to Celsius: (°F − 32) x 5/9 = °C and assign the result to ***celsiusResult*** and print the result

   I/P => fahrenheit

   O/P => The ____ fahrenheit is _____ celsius

```
import java.util.*;
class P5{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		double fahrenheit = sc.nextDouble();
		double celsiusResult = (fahrenheit-32)*((double)5/9);
		System.out.println("The "+fahrenheit+" fahrenheit is
"+celsiusResult+" celsius");
	}
}
```

6. Create a program to find the total income of a person by taking salary and bonus from user

   Hint =>

   a. Create a variable named salary and take user input.
   b. Create another variable bonus and take user input.
   c. Compute income by adding salary and bonus and print the result

   I/P => salary, bonus
   O/P => The salary is INR ___ and bonus is INR ___. Hence Total Income is INR ___

```
import java.util.*;
class P6{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		double salary = sc.nextDouble();
		double bonus = sc.nextDouble();
		double totalIncome = salary+bonus;
		System.out.println("The salary is INR "+salary+" and bonus is
INR "+bonus+". Hence Total Income is INR "+totalIncome);
	}
}
```

7. Create a program to swap two numbers

   Hint =>

   a. Create a variable number1 and take user input.
   b. Create a variable number2 and take user input.
   c. Swap number1 and number2 and print the swapped output

   I/P => number1, number2
   O/P => The swapped numbers are ___ and ___

```
import java.util.*;
class P7{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		//taking inputs
		int number1 = sc.nextInt();
		int number2 = sc.nextInt();
		//swapping two numbers
		number1 = number1+number2;
		number2 = number1-number2;
		number1 = number1-number2;
		System.out.println("The Swapped numbers are "+number1+" and
"+number2);
	}
}
```

8. Rewrite the Sample Program 2 with user inputs

   Hint =>

   a. Create variables and take user inputs for name, fromCity, viaCity, toCity
   b. Create variables and take user inputs for distances fromToVia and viaToFinalCity in Miles
   c. Create Variables and take time taken
   d. 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.*;
class P8{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		String name = sc.next();
		String fromCity = sc.next();
		String viaCity = sc.next();
		String toCity = sc.next();
		double distanceFromToVia = sc.nextDouble();
		int timeFromToVia = sc.nextInt();
		double distanceViaToFinalCity = sc.nextDouble();
		int timeViaToFinalCity = sc.nextInt();
		double totalDistance = distanceFromToVia +
distanceViaToFinalCity;
		int totalTime = timeFromToVia + timeViaToFinalCity;
		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");
	}
}
```

9. An athlete runs in a triangular park with sides provided as input by the user in meters. If the athlete wants to complete a 5 km run, then how many rounds must the athlete complete

   Hint => The perimeter of a triangle is the addition of all sides and rounds is distance/perimeter

   I/P => side1, side2, side3
   O/P => The total number of rounds the athlete will run is ___ to complete 5 km

```
import java.util.*;
class P9{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		int side1 = sc.nextInt();
		int side2 = sc.nextInt();
		int side3 = sc.nextInt();
		int totalRounds = 5000/(side1+side2+side3);
		System.out.println("The total number of rounds the athele will
run is "+totalRounds+" to complete 5km");
	}
}
```

10. Create a program to divide N number of chocolates among M children.

    Hint =>
    a. Get an integer value from user for the numberOfchocolates and numberOfChildren.
    b. Find the number of chocolates each child gets and number of remaining chocolates
    c. Display the results

    I/P => numberOfchocolates, numberOfChildren
    O/P => The number of chocolates each child gets is ___ and the number of remaining chocolates are ___

```java
import java.util.*;
class P10{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		int numberOfChocolates = sc.nextInt();
		int numberOfChildren = sc.nextInt();
		//number of chocolates each child gets
		int chocolatesEach = numberOfChocolates/numberOfChildren;
		//remaining chocolates
		int remainChocolates = numberOfChocolates%numberOfChildren;
		//printing the result
		System.out.println("The number of chocolates each child gets is
"+chocolatesEach+" and the number of remaining chocolates are
"+remainChocolates);
	}

}
```

11. Write a program to input the Principal, Rate, and Time values and calculate Simple Interest.

    Hint => Simple Interest = Principal * Rate * Time / 100

    I/P => principal, rate, time
    O/P => The Simple Interest is ___ for Principal ___, Rate of Interest ___ and Time __

```
import java.util.*;
class P11{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		//taking inputs
		double principal = sc.nextDouble();
		double rate = sc.nextDouble();
		double time = sc.nextDouble();
		//calculating simple interest
		double simpleInterest = (principal*time*rate)/100;
		//printing results
		System.out.println("The Simple Interest is "+simpleInterest+"
for Principal "+ principal +", Rate of Interest "+ rate +" and Time
"+time);

	}
}
```

12. Create a program to convert weight in pounds to kilograms.

    Hint => 1 pound = 2.2 kg

    I/P => weight

    O/P => The weight of the person in pound is ___ and in kg is ___

```
import java.util.*;
class P12{
	public static void main(String[] args){
		Scanner sc = new Scanner(System.in);
		double pounds = sc.nextDouble();
		double kilograms = 2.2*pounds;
		System.out.println("The weight of the person in pound is "+
pounds +" and in kg is "+kilograms);
	}

}
```