CDAC Mumbai

Lab Assignment: Flowchart and Java Programming

Lab Assignment No – 03

Problem 1: Sum of Two Numbers (Using a Method)

Problem Statement: Write a Java program that includes a method to calculate the sum of two numbers.

1. Create a method sumOfTwoNumbers() that takes two integers as parameters, calculates their sum, and returns the result.
2. In the main method, use the Scanner class to prompt the user to enter two integers.
3. Pass the user inputs to the sumOfTwoNumbers() method and print the sum.

Code-

```
  import java.util.Scanner;
public class SumOfTheTwoNumber{
 public static int sumOfTheTwoNumber(int num1, int num2)
   {
    return num1+ num2;
   }
  public static void main(String []args){
   Scanner sc = new Scanner(System.in);
   System.out.println("Enter a 1st number:");
   int num1 = sc.nextInt();

    System.out.println("Enter a 2nd number");
   int num2 = sc.nextInt();

   int result =sumOfTheTwoNumber(num1,num2);
   System.out.println("Sum Of The Two Number : " + result);
}
}
```

Output:

```
Enter a 1st number:
12
```

Enter a 2nd number
12

Sum Of The Two Number : 24

2: Simple Age Checker (Using a Method)

Problem Statement: Write a Java program that includes a method to check the age category.
1. Create a method checkAgeCategory() that takes an integer (age) as a parameter and prints whether the user is a minor, adult, or senior citizen.
2. In the main method, use the Scanner class to prompt the user to enter their age.
3. Pass the user's age to the checkAgeCategory() method.

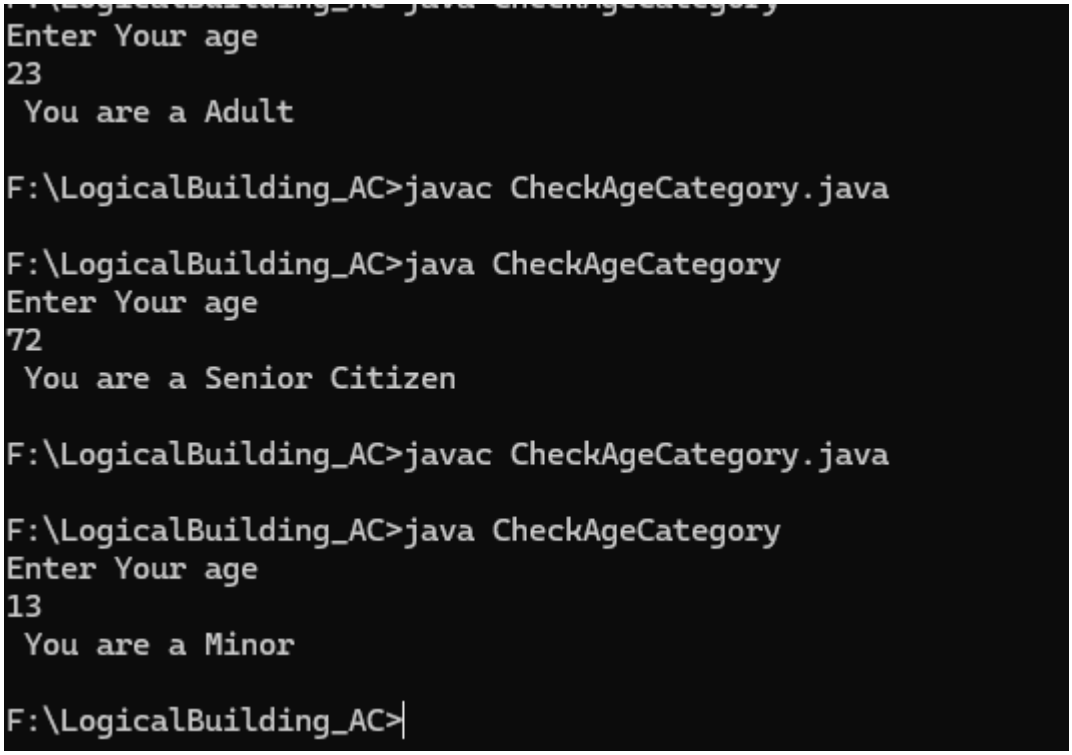
Sample Input:
Enter your age: 30
Expected Output:
You are an adult.

Code:

```
import java.util.Scanner;

public class CheckAgeCategory{

  public static String checkAgeCategory(int age){

   if(age<=22)

    { return "Minor";}


    else if (age<=60)

    { return"Adult";}


    else{

       return "Senior Citizen";

     }

}


public static void main(String args[]){

 Scanner sc = new Scanner(System.in);

 System.out.println("Enter Your age");
```

```
 int age = sc.nextInt();


 String ageCheck = checkAgeCategory(age);
  System.out.println(" You are a " + ageCheck);
}
}
```

Output:



Problem 3: Print Even Numbers (Using while Loop)

Problem Statement: Write a Java program that prints all even numbers between 1 and 50 using a while loop.

1. Create a method printEvenNumbers() that prints all even numbers from 1 to 50.
2. Use a while loop to iterate from 1 to 50 and print the even numbers.

Sample Output:

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50

Code:

```
import java.util.Scanner;

public class PrintEvenNumbers{

 public static void printEvenNumbers()

{

 int i= 1;

 while(i<=50){

  if(i%2==0){

    System.out.print(i + " ");

    }

i++;

}

}


 public static void main(String args[]){

 System.out.println("All Even numbers from 1 to 50 is :");

printEvenNumbers();

 }

}
```

Output:

```
F:\LogicalBuilding_AC>javac PrintEvenNumbers.java

F:\LogicalBuilding_AC>java PrintEvenNumbers
All Even numbers from 1 to 50 is :
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
F:\LogicalBuilding_AC>
```

Problem 4: User Input for Positive Numbers (Using do-while Loop)

Problem Statement: Write a Java program that repeatedly asks the user to enter a positive number.

1. Create a method askForPositiveNumber() that uses a do-while loop to ask the user for a number until they enter a positive number.

2. Use the Scanner class to take the user's input.
3. Once a positive number is entered, the program should display the number.

Sample Input:
Enter a positive number: -5
Enter a positive number: 0
Enter a positive number: 8
Expected Output:
You entered a positive number: 8

Code:

```
import java.util.Scanner;

public class AskForPositiveNumber{

public static int askForPositiveNumber(Scanner sc){

int number;


do{

  System.out.println("Enter a positive number:");

  number = sc.nextInt();

}

while(number<=0);

return number;

}




public static void main(String[]args){

Scanner sc = new Scanner(System.in);

int result = askForPositiveNumber(sc);

System.out.println("Your entered a positive number:"+result);

}

}
```

Output:

Enter a positive number:

-8

Enter a positive number:

0

Enter a positive number:

-9

Enter a positive number:

9

Your entered a positive number:9

Problem 5: Print Multiplication Table (Using for Loop)

Problem Statement: Write a Java program that prints the multiplication table for a given number (e.g., number 5) using a for loop. The program should:

1. Create a method printMultiplicationTable() that takes a number as a parameter and prints its multiplication table from 1 to 10.
2. Use a for loop to iterate through numbers 1 to 10 and print the multiplication results.

Sample Input:

Enter a number: 5

Expected Output:

5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50

Code:

```
public class PrintMultiplicationTable{
```

```
public static void printMultiplicationTable(int number){
 for(int i =1; i<=10;i++){
   System.out.println(number + " " + i + "="+(number*i));
}
}

public static void main(String []args){
  int number = 5 ;
  printMultiplicationTable(number);
}
}
```

Output

5X1=5

5X2=10

5X3=15

5X4=20

5X5=25

5X6=30

5X7=35

5X8=40

5X9=45

5X10=50

Problem 6: Calculate the Sum of Numbers from 1 to N (Using for Loop)

Problem Statement: Write a Java program that calculates the sum of all integers from 1 to N (where N is a positive integer) using a for loop. The program should:

1. Create a method calculateSum() that takes a number N and calculates the sum of all integers from 1 to N.
2. Use a for loop to iterate through all integers from 1 to N and add them up.

Sample Input:

Enter a number: 5

Expected Output:

The sum of numbers from 1 to 5 is: 15

Code:

```
import java.util.Scanner;
public class SumFromOneToN {

   public static int calculateSum(int N) {

      int sum = 0;

      for (int i = 1; i <= N; i++) {
         sum += i;
      }

      return sum;
   }

   public static void main(String[] args) {

      Scanner sc = new Scanner(System.in);

      System.out.print("Enter a number: ");
      int number = sc.nextInt();

      int result = calculateSum(number);

      System.out.println("The sum of numbers from 1 to " + number + " is: " + result);
```

```
    }
}
```

Output:

```
Enter a number: 10
The sum of numbers from 1 to 10 is: 55
```