Task 1 :- Basic Conditional statements and Looping programs

a) Give 5 numbers, how many are even or odd

Aim :- To design an algorithm and java program that takes 5 numbers as input and determines how many of them are even and how many are odd.

Algorithm :-

step 1 :- start

step 2 : Intialize two counters

step 3 : Read 5 numbers from the user.

step 4 : For each number

* If the number % 2 == 0 → increment even count
* else → increment odd count

step 5 :- Display even count and odd count

step 6 :- Stop

Program :-

```
import java.util.Scanner;
Public class EvenOdd counter{
Public static void main (String[] args) {
   Scanner Sc = new Scanner (System.in);
int even count =0, odd count =0;
   int [] numbers = new int[5];
System.out.println ("Enter 5 numbers: ");
   for (int i=0; i<5; i++){
   numbers [i] %2 ==0) {
   }else {
```

input:-

Enter 5 numbers:

12, 15, 9, 4, 3

output:-

Total Even numbers: 2

Total odd numbers: 3

```
System.out.println("Total Even Numbers: "+evenCount);
System.out.println("Total odd numbers: "+oddCount);
sc.close();
}
}
```

Result:- The given program was successfully verified and executed

b) Sum of last digit of two given numbers

Aim:- To write a program that finds the sum of the last digits of two given numbers.

Algorithm:

1) Start
2) Input two numbers, say a and b.
3) Find the last digit of 'a' using a%.10
4) Find the last digit of 'b' using b%.10
5) Add there two last digits
6) output the result
7) stop

Program:-

```
import java.util.scanner;
Public class Last Digit sum {
Public static void main (string [] args ){
 Scanner Sc = new Scanner (System.in);
 System.out.print("Enter first number:");
    int a = sc.next Int ();
System .out. print ("Enter second number:");
    int b= sc.next Int();
     int last Digit A= a%.10;
     int last Digit B = b%.10;
  int sum = last Digit A + last Digit B;
System.out.println ("sum of last digit="+sum);

sc. close ();
}
}
```

Result:- Thus, the sum of the last digit is Obtained

Input:-

enter first number : 22

enter second number : 28

Output:-

sum of last digits = 10

c) To check whether a given number is prime

Aim:- To design and implement a java program that determines whether a user - integer is a prime number.

Algorithm:-

1) start
2) initialize an integer variable flag initialized to
3) Read an integer number from the user
4) If num <=1 , set flag =0
5) If n>1 , start a loop with a counter ; begin at 2
6) if n% i==0
7) If flag ==1 display Is prime
8) Stop

Program:-

```
import . java.until . scanner;
Clas Is prime{
public static void main (string [] args){
Scanner Sc = new Scanner (system.in );
System. out. print (" Enter a number:");
int num =sc . next Int ();
int flag =1;
if(num <=1){
    flag =0;
} else{
        for (int i=2; i <=num /2 ; i++) {
          if (num % i==0) {
              flag =0;
              break;
          }
        }
```

Input:

Enter a number: 61

output:-

Not a prime number

```
}
if (flag ==1){
  System.out.Println(" Prime number");
}else {
    System.out.println(" Not a prime number");
}
}
}
```

Result:

The given Program was succesfully verified

d) Factorial of a number

Aim:- To calculate the factorial of a given number a, (which positive integer using an iterative approch.

$$n! = n(n-1) \cdot (n-2) \cdots 1$$

Algorithm:

1) start
2) Read an integer num from the user.
3) set fact = 1
4) intialize i=1 to i<=num
→ multiply fact by i and get the fact value with new value.
5) After the loops ends, fact contians the factorial of num print the result
6) stop.

Program:-

```
import java.util.Scanner;
class Factorial{
    public static void main(String[] args){
Scanner sc = new Scanner(System.in);
System.out.print("enter a number:");
  int num = sc.nextInt();
  int fact = 1;
for (int i=1; i<= num, i++){
      fact = fact * fact * i;
}
  System.out.println("Factorial of "+num+" is :"+
                                        fact);
}
}
```

Result:-

Hence the above java code was Succesfully.

Input:-

enter a number :42

output:-

factorial of 42 is :0

e) N^{th} Fibonacci

Aim:- To develop a java program that reads an integer N from the user and prints the N^{th} Fibonacci number using an iterative approach.

Algorithm:-

1) start
2) the user to enter the value of n
3) Intialize variable a=0 , b=1 , c
4) If n=1 then output a
   If n=2 then output b.
5) Repeat from i=3 to n , c=a+b , a=b , b=c
6) End.

Program:-

```
import java.util.Scanner;
class Nth Fibonacci{
public static void main(String[] args){
    Scanner sc = new Scanner (System.in);
    System.out.print("Enter value of N :");
    int n = sc.nextInt();
    int a=0 , b=1 , c;
    if (n==1){
    System.out.println("Nth Fibonacci number is:"
                        +a);
    } else if (n==2){
    System.out.println("Nth Fibonacci number is :
                        "+b);

    } else {
        for (int i=3 , i<=n ; i++){
            c = a+b;
```

Input :-

Enter a number n=56

output:-

nth Fibonacci number is : 225resolution

```
        System.out.println("Nth Fibonacci number
                            is : "+b);
    }
}
```

VEL TECH	
EX No.	1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (3)	3
VIVA VOCE (3)	3
RECORD (4)	4
TOTAL (15)	15
SIGN WITH DATE	03/02/24

Result:- Hence the java program was succesfully executed.