**Assignment 1**

**Date: 03.03.2023**

**Submission date: 13.03.2023**

**Write Algorithm or Flowchart for the following programs.**

1. Check if the given number is EVEN or ODD.
2. Start the program.
3. input the number.
4. if n%2==0 then the number is even.
5. else number is odd.
6. display the output.
7. Stop
8. Write a Java Program to find the Factorial of a given number.

**1-** Start  
**2-** Read a number n  
**3-**Initialize i = 1, fact = 1

4- if i<= n go to step 4 otherwise go to 7  
**5-**Calculate fact = fact \* i  
**6-** Increment the i by 1 (i++) and go to step 3  
**7-** Print fact  
**8-**Stop

1. Find the Factorial of a number using Recursion.

1-Start

2-Read number num

3-Call factorial(num)

4-If no<0 then return -1

Else if no=0 then return 1

Else

return(no\*factorial(no-1))

5-Print factorial fact

6-stop

1. Swap two numbers without using the third variable approach.

1- start.

2- enter x, y.

3- print x, y.

4- x = x + y.

5- y= x - y.

6- x =x - y.

7- print x, y.

8- end.

1. How to check whether the given number is Positive or Negative in Java?

1- Start

2- enter the number.

3- If the number is greater than Zero then print “The number is Positive”

4-else print, “The number is Negative”

5-Stop

1. Write a Java Program to find whether a given number is Leap year or NOT.

INPUT YEAR

Y is divisible by4

No

NOT a Leap Year

yes

Y is divisible by 100

No

Leap Year

yes

Y is divisible by 400

NOT a Leap Year

No

yes

Leap Year

1. Write a Java Program to Print 1 To 10 Without Using Loop.

i=1, n=10

Print i

Add 1 to i

yes

No

i<=n

1. Write a Java Program to print the digits of a Given Number.

1- Start

2- enter number

3- If number not equal to 0 Go to 4 , else Go to 8

4- digit = number % 10

5- number = number / 10

6- print digit

7- Repeat 3

8- Stop

1. Write a Java Program to print all the Factors of the Given number.

Declare i,n

Enter n

for(i=1;i<=n;i++)

If(n%==i)

Print n

1. Write a Java Program to find the sum of the digits of a given number.

1- Input the number(n)

2-Declare sum and initialize it to 0.

3-while (number > 0)

4-sum = sum + n % 10;

5-n = n/10;

6-Return sum

7-stop

1. Write a Java Program to find the smallest of 3 numbers (a,b,c)

1-start

2-read (a,b,c)

3-if (a<b and a<c) than smallest=a

4-else if (b<a and b<c) than smallest=b

5-else smallest=c;

6-print smallest number

7-stop

1. How to add two numbers without using the arithmetic operators in Java?

1-start

2-enter 2 numbers x,y

3-while ( y!=0 )

4- carry=x&y; x=x^y; y=carry<<1

5-print sum

6-stop

1. Write a java program to Reverse a given number.

1-Start.

2-enter number n

3-take variable res to store the reversed number. Set res=0

4-while(n!=0)

5- reverse = (reverse \* 10) + n%10;

7- n /= 10; go to 4

8-print reversed number

9-Stop.

1. Write a Java Program to find the GCD of two given numbers. Write a Java Program to print all the Factors of the Given number
2. Write a java program to LCM of TWO given numbers.

1-Start.

2-Input num1,num2.

3-Loop: counter i in range 2 to minimum of num1 and num2.

4-If num1%i==0; Go to 5, else go to 7

5-If num2%i==0; Go to 6, else go to 7

6-Print i is LCM.

7-Stop.

1. Write a java program to LCM of TWO given numbers using the Prime Factors method.
2. Check whether the Given Number is a Palindrome or NOT.

1- Start

2-Read the input number

3-Declare and initialize the variable reverse and assign input to a temp variable temp=n

4- Start the while loop until n!=0 becomes false

rem = n % 10

reverse\*= 10 + rem

n = n / 10

5 - Check if reverse == temp

6- If its true then the number is a palindrome

7- If not, the number is NOT a palindrome

1. Write a Java Program to print all the Prime Factors of the Given Number.
2. To print the following series EVEN number Series 2 4 6 8 10 12 14 16 .....

1-start

2-Input upper limit from user. Store it in variable n

3-Run a loop from 1, that runs till n, increment the loop counter by 1

4-for(i=1,i<n,i++);

5-check even condition.  if(i % 2 == 0), then print the value of i

6-stop

1. To print the following series ODD number Series 1 3 5 7 9 11 13...

1-start

2-Input upper limit from user. Store it in variable n

3-Run a loop from 1, that runs till n, increment the loop counter by 1

4-for(i=1,i<n,i++);

5-check even condition. if(i % 2 != 0), then print the value of i

6-stop