

5. AWT package (for windowing) -  
 - syntax  $\Rightarrow$  java.awt.\*;  
 - awt = Abstract Windowing Toolkit (GUI)

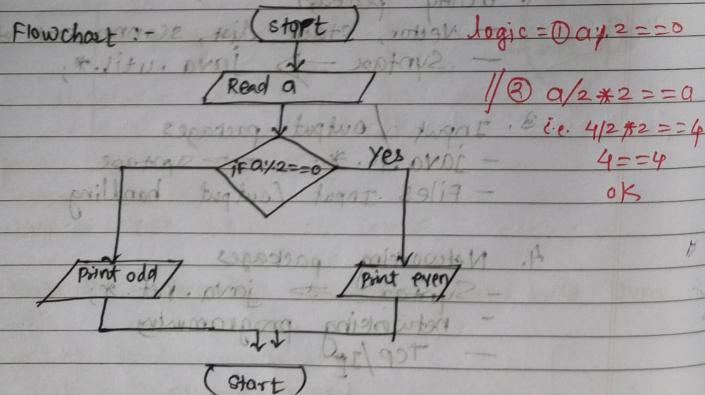
6. Applet package (for browser)  
 Syntax  $\Rightarrow$  java.applet.\*;

7. SQL package  
 Syntax  $\Rightarrow$  java.sql.\*;  
 - database programming

Assignment (1) :- check if the given number is even or odd.

- 1) start program

Algorithm :-  
 1) Read a  
 2) If ( $a \% 2 == 0$ ) then print "Even"  
 then "even" print  
 or "Odd." print  
 3) Stop



Program :-

```
import java.util.Scanner;
class program1 {
```

```
public static void main(String args[]) {
    System.out.println("enter any number");
    Scanner Ab = new Scanner(System.in);
    int a = ab.nextInt();
```

```
if (a % 2 == 0)
```

```
{ System.out.println("Even"); }
```

```
else
```

```
{ System.out.println("Odd"); }
```

Op:- Enter any number

4

Even

(2) write a java program to find the factorial of a given number

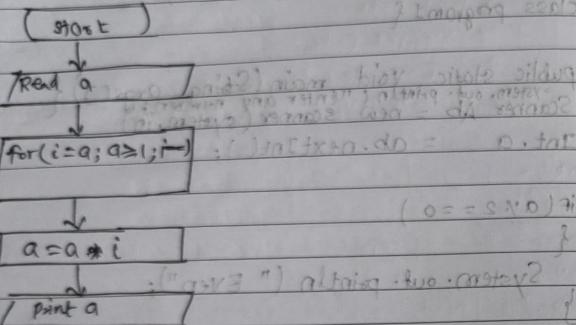
Algorithm :-

- 1) start  
 2) Read a number from user "a";

3) init a =  $a * i$ ; i = 1; i--

- 4) print value of a i.e. factorial of number.  
 5) Stop

Flowchart:-



Program 2

```

import java.util.Scanner;
class Program2fact {
    public static void main(String args[]) {
        int fact = 1;
        System.out.println("Enter any number");
        Scanner ab = new Scanner();
        int a = ab.nextInt(); // 5
        for (int i = 1; i <= a; i++) {
            a = a * i;
        }
        System.out.println("Factorial of " + a + " is = " + a);
    }
}
  
```

```

import java.util.Scanner;
class Factorial {
    public static void main(String args[]) {
    }
}
  
```

```

System.out.println("Enter any number");
Scanner ab = new Scanner(System.in); // 5
int no = ab.nextInt();
int fact = 1;
  
```

```

for (int i = 1; i <= no; i++) {
    fact = fact * i;
}
  
```

```

System.out.println("Factorial is = " + fact);
  
```

O/p:- Enter any number

5

factorial is 120 of 5

3) find a factorial of a number using Recursion.

```
import java.util.Scanner;
class Recursion {
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a number");
        int no = sc.nextInt(); // 6
        no.factorial(6);
        System.out.println("Factorial is " + no.factorial(6));
    }
}
```

int factorial(int x)

```
{  
    int f = 1  
    for (int i = x; i >= 1, i--) {  
        f = f * i;  
    }  
    return f; // -i : i <= 1 : orelse i = i - 1  
}
```

4) Swap two numbers without using the third variable approach.

class Swap{

public static void main(String args[]){

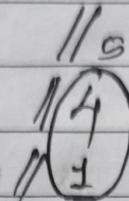
int a=4;

int b=1;

a=a^b;

b=a^b;

a=a^b;



$a \rightarrow 4 \rightarrow 0100$

$b \rightarrow 1 \rightarrow 0001$

$a \rightarrow 5 \rightarrow 0101$

$b \rightarrow 1 \rightarrow 0001$

$a \rightarrow 5 \rightarrow 0100$

$a \rightarrow 5 \rightarrow 0101$

~~System.out.println(a + " " + b); } }~~

$(a \rightarrow 5 \rightarrow 0101)$

~~logic @ a = a+b; ("writing // in s.t. explain") 902~~

~~b = a-b; // 34~~

~~b = a-b; // 1~~

~~a = a\*b; // 4~~

~~b = a/b; // 4~~

~~a = a/b; // 1~~

~~writing a better code built on compare logic with if else to check whether the value is even or odd~~

~~((0==1) == 0) || ((0==1 == 0) == 0) || ((0 == 1) & (0 == 0)) == 0~~

~~((0==1) == 1) == 0~~

5) How to check whether the given number is positive or negative in java.

```
class positivenegative {  
    public static void main(String args[]) {  
        int a = 500;  
        if (a > 0)  
        {  
            System.out.println("Number is positive");  
        }  
        else if (a < 0)  
        {  
            System.out.println("Number is Negative");  
        }  
        else  
        {  
            System.out.println("Number is neither positive or negative");  
        }  
    }  
}
```

6) Write a java program to find whether a given number ~~year~~ is ~~positive~~ ~~negative~~ leap or not.

```
int year = 1600;  
if ((year % 4 == 0) && (year == 400)) || (year != 100)  
{  
    System.out.println("Leap year");  
}  
else  
{  
    System.out.println("Non-leap year");  
}
```

- 7) Write a java program to print 1 to 10 without using loop.

```
class Loop{
    public static void main( String args[] ){
        int n = 1;
        if( n <= 10 )
        {
            System.out.println( n );
            n++;
        }
    }
}
```

- 8) Write a java program to print the digit of a given number.

```
int a = 1234;
while( a != 0 )
{
    int r1;
    r1 = a % 10;
    System.out.println( r1 );
    a = a / 10;
}
```

- Q) Write a java program to print all the factors of given number.

```

import java.util.Scanner;
class factors {
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a number");
        int no = sc.nextInt();
        for (int i = 1; no >= i; i++) {
            if (no % i == 0)
                System.out.println("factor = " + i);
        }
    }
}
  
```

O/p:- Enter a number 9

factor = 1

factor = 3

factor = 9

- Q) write a java program to find the sum of digits of given number.

```

import java.util.Scanner;
class SumOfDigits {
    
```

```

    public static void main(String args[]) {
        
```

```

Scanner sc = new Scanner(System.in);
System.out.println ("Enter a number");
int no = sc.nextInt(); // q258
int r1, sum = 0;
while (no != 0) // q258
{
    r1 = no % 10; // 8      5      4      2      9
    sum = sum + r1; // 8      13     15     24
    no = no / 10; // q25 ) ; q2 > 3 ; 9 - 3 ) 0
}
System.out.println ("SumOfDigits = " + sum);

```

O/p: — Enter a number q258

SumOfDigits = 24

- Write a java program to find a smallest of 3 numbers. (a,b,c)

```

class Smallest {
    public static void main (String args[]){
        int a = 9;
        int b = 12;
        int c = 7;
        if (a > c) // 9 > 7
        {
            if (a > b) // 9 > 12
            {
                System.out.println ("b is smallest");
            }
            else if (b > c) // 12 > 7
            {
                System.out.println ("c is smallest");
            }
            else
                System.out.println ("b is highest");
        }
        else if (a <= b)
        {
            if (b > c)
                System.out.println ("c is smallest");
            else
                System.out.println ("b is highest");
        }
        else
            System.out.println ("a is highest");
    }
}

```

- 12) How to add two numbers without using the arithmetic operators in java.

```
class addition {
    public static void main(String args[]) {
        int a = 5;
        int b = 4;
        for(i=1; i<=b; i++)
        {
            a++;
        }
        System.out.println("sum is = "+a);
    }
}
```

O/P:- sum is = 9

- 13) Write a java program to reverse a given number.

e.g. 5421

O/P:- 1245

```
import java.util.Scanner;
class Reverse{
```

```
public static void main(String args[]){
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter a number");
    int no = sc.nextInt();
    while(no!=0)
```

```
{
```

```
int r;
```

GCD logic

$n_1 = no \% 10;$   
int rev = rev \* 10 + r;  
 $n_0 = no / 10;$

$n_1 = n_0 \% 10;$   
SOP( $n_1$ );  
 $n_0 = n_0 / 10;$

}

// 1 2 4 5  
// 1 2 4 5  
// 542 54 5 0

O/p:- Enter a number 542

reverse number = 1245

14) Write a java program to find GCD of given numbers.

```
import java.util.Scanner;
class Gcd {
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter first number");
    int no1 = sc.nextInt(); // 18
    System.out.println("Enter second number");
    int no2 = sc.nextInt(); // 45
    int gcd = 1;
    for (int i = 1; i <= num1 && i <= num2; i++) {
        if (num1 % i == 0 && num2 % i == 0)
            gcd = i;
    }
    System.out.println("GCD of " + num1 + " and " + num2 + " = " + gcd);
}
```

O/p:- Enter first number

45

Enter second number

18

GCD of 45 and 18 = 9

15) Write a java programs of Lcm of two given numbers using.

Class Lcm{

```
public static void main(String args[]) {  
    System.out.println("Enter two numbers");  
    int n01 = 45;  
    int n02 = 18;  
    int gcd = 1;
```

```
for (i=1; i<=n01 && i<=n02; i++)
```

```
{  
    if (n01 % i == 0 && n02 % i == 0)
```

```
        gcd = i;
```

```
} // Lcm = (num1 * num2) / gcd;
```

```
int lcm = (num1 * num2) / gcd;
```

```
System.out.println("Lcm of " + n01 + " and " + n02 + " = " + lcm);
```

```
}
```

o/p:- Enter two numbers.

Lcm of 45 and 18 = 90.

16) Write a java programs of LCM of two given numbers using prime factors method.

```
import java.util.Scanner;
class PrimeFactor {
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a number");
        int no = sc.nextInt();
        for (int i = 2; i <= no; i++) {
            while (no % i == 0) {
                System.out.print(i + " ");
                no = no / i;
            }
        }
    }
}
```

O/p: → Enter a number  
18  
2 3 3

(17) check whether the given number is pallindrome or not.

E.g. I/p 2321

→ O/p 12321

```

import java.util.Scanner;
class Palindrome {
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter any number");
        int no = sc.nextInt();
        int rev = 0, r1;
        while (no != 0) {
            r1 = no % 10;
            rev = rev * 10 + r1;
            no = no / 10;
        }
        if (rev == no)
            System.out.println("Palindrome of given number = " + rev);
        else
            System.out.println("Not a palindrome");
    }
}
  
```

18) To print the following even series:-  
2 4 6 8 10 12 14 16.....

```

import java.util.Scanner;
class Even {
    public static void main(String args[]) {
        Scanner sc = sc.nextInt();
    }
}
  
```

Scanner sc = new Scanner(System.in);  
int no = sc.nextInt(); // 28

```
for (i=2; i<=no; i+=2)
{
    if (i%2 == 0) // 2 4 6 8 10 12 14 16...28
    {
        sop(i);
    }
}
```

O/p:- Enter number 28

2 4 6 8 10 12 14 16 18 20 22 24 26 28

- 19) To print the following odd series.

1 3 5 7 9.....

```
class odd{
    public static void main(String args[]){
        int no = 15
        for (i=1; i<=no; i++)
        {
            if (i%2 != 0)
            {
                sop(i);
            }
        }
    }
}
```

O/p:- 1 3 5 7 9 11 13 15

OK