

## Practical No. 01

Aim: Programs to understand the basic datatypes  
and I/O.

Source code :

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int rollno;
    char name [30];
    long int mobno;
    float percentage;
    char grade;
    clrscr();
    printf ("***** Demonstration of Datatype *****");
    printf (" Enter roll number : \n");
    scanf ("%d", &rollno);
    printf (" Enter name\n");
    scanf ("%s", &name);
    printf (" Enter the mobile number\n");
    scanf ("%d", &mobno);
    printf (" Enter the percentage");
    scanf ("%f", &percentage);
    printf (" Enter grade\n");
    scanf ("%s", &grade);
    printf (" Your roll number is : %d \n", rollno);
}
```

## Output:

26

\* \* \* \* Demonstration of Datatype \* \* \*

Enter roll number:

1765

Enter name

Dhaval

Enter the mobile number

9869387866

Enter the percentage

76

Enter grade

A.

Your roll number is : 1765

Your name is : Dhaval

Your mobile number is : 9869387866

Your percentage is : 76

Your grade is : A

Output

Radius of Circle :

0.1

Area of Circle :

0.0314.

```

        printf("Your name is %s\n", name);
        printf("Your mobile number is : %d\n", mobno);
        printf("Your percentage is : %.f\n", percentage);
        printf("Your grade is : %s\n", grade);
        getch();
    }
}

```

Source code :-

```

#include <stdio.h>
#include <conio.h>

void main()
{
    float rad, area; pie = 3.14; radius = 4.1;
    clrscr();
    printf("Radius of circle : \n");
    scanf("%f", &rad);
    area = pie * radius * radius;
    printf("Area of circle : %f\n", area);
    getch();
}

```

*Sumit Singh*

## Practical No. 2

**Aim:** Write a C program which will show the use of various "different" types of operators.

### # Arithmetic Operator

#### SOURCE CODE

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int num1, num2, add, sub, mul, div;
    clrscr();
    printf("Enter 1st number: ");
    scanf("%d", &num1);
    printf("Enter 2nd number: ");
    scanf("%d", &num2);
    add = num1 + num2;
    printf("Addition of 2 numbers %d \n", add);
    sub = num1 - num2;
    printf("Subtraction of 2 numbers %d \n", sub);
    mul = num1 * num2;
    printf("Multiplication of 2 numbers %d \n", mul);
    div = num1 / num2;
    printf("Division of 2 number %d ", div);

    getch();
}
```

Output:

28

Enter 1<sup>st</sup> number : 8

Enter 2<sup>nd</sup> number : 6

Addition of 2 numbers : 14

~~Subtraction of 2 numbers :~~ 2

Multiplication of 2 numbers : 48

Division of 2 numbers : 1.3333

88

Output:

Enter 1<sup>st</sup> value : 9

Enter 2<sup>nd</sup> value : 8

Enter 3<sup>rd</sup> number : 2

Value 1 is : 0

Value 2 is : 1

Value 3 is : 1

Value 4 is : 0

Value 5 is : 1

## # Logical Operators

```

#include <stdio.h>
#include <conio.h>
void main()
{
    int x, y, z, value1, value2, value3
    value4, value5;
    clrscr();
    printf("Enter 1st value ");
    scanf("%d", &x);
    printf("Enter 2nd value ");
    scanf("%d", &y);
    printf("Enter 3rd number ");
    scanf("%d", &z);
    value1 = (x < y) && (z > y);
    printf("value 1 is : %d \n", value1);
    value2 = (x = y) && (z < y);
    printf("value 2 is : %d \n", value2);
    value3 = (x < y) || (z = y);
    printf("value 3 is : %d \n", value3);
    value4 = !(x == y);
    printf("value 4 is : %d \n", value4);
    value5 = (x == y);
    printf("value 5 is : %d \n", value5);
    getch();
}

```

## # Ternary Operator

```
#include <stdio.h>
```

```
#include <conio.h>
```

```
void main()
```

```
{  
    int a = 100, b = 20, c = 50, big;  
    clrscr();  
    big = a > b ? a : b; // if a > b then assign a to big  
    printf ("The biggest number is: %d", big);  
    getch();  
}
```

Output:

The biggest number is 100.

30

Output:

18

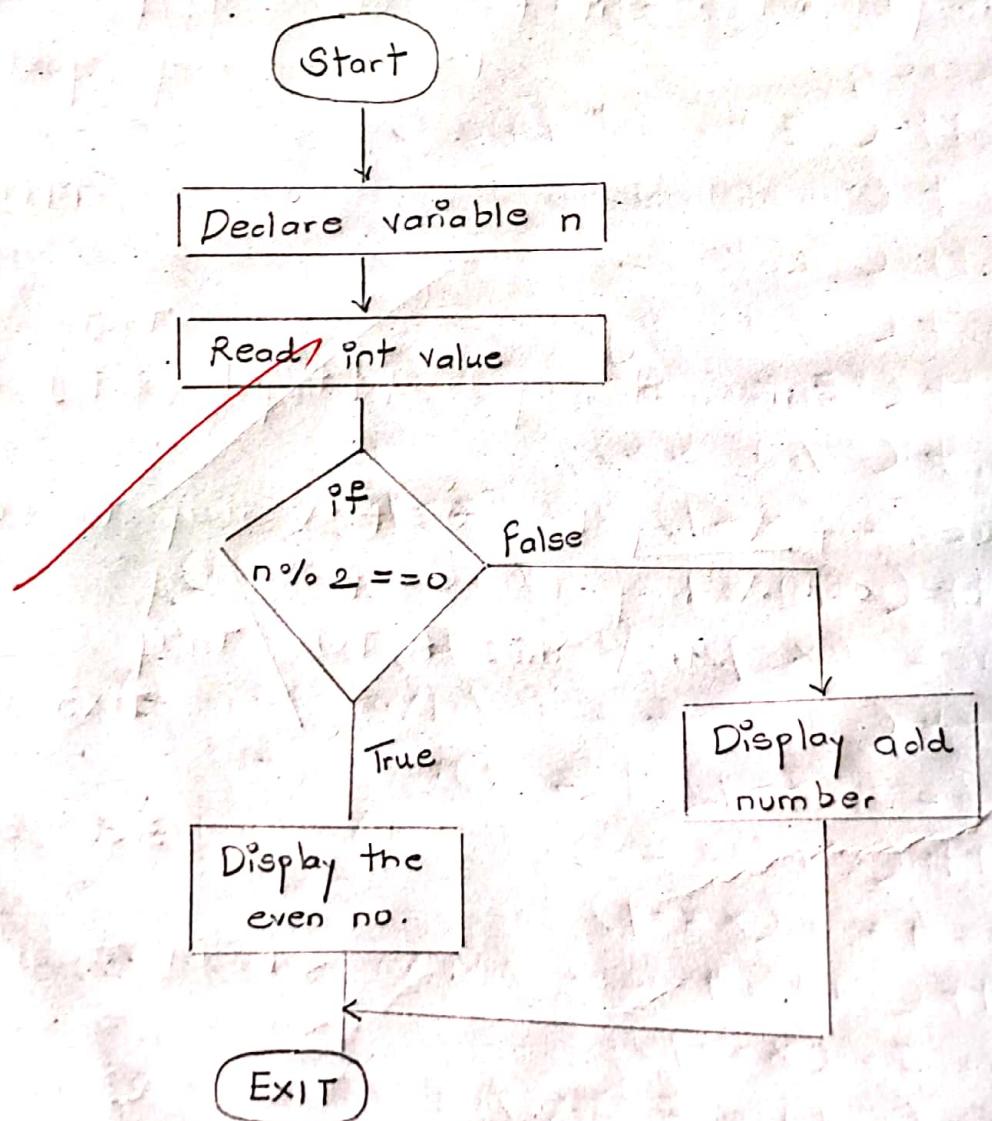
Enter a number : 26

Even number

Enter a number : 53

Odd number

FLOWCHART ::



### Practical - 3

Aim: Decision statements

- Write a program to find out odd & even numbers.

ALGORITHM:

Step 1: Start

Step 2: [Take Input] Read a number from the user

Step 3: Check if number  $\% 2 == 0$  then  
print even Number

Step 4: EXIT

SOURCE CODE

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int n;
    clrscr();
    printf ("Enter a number ");
    scanf ("%d", &n);
    if (n % 2 == 0)
        {
            printf ("Even number !");
        }
}
```

IE

```
else
{
    printf ("Odd Number : ");
}
getch();
}
```

- Write a program to find the entered year is a leap year or not !.

ALGORITHM:

Step 1: Start

Step 2: [Take Input] Read year from the user

Step 3: if  $\text{year} \% 4 = 0$  and  $\text{year} \% 400 == 0$  or  
 $\text{year} \% 4 = 0$  and  $\text{year} \% 100 != 0$   
print NOT A LEAP YEAR.

Step 4: EXIT.

SOURCE CODE

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int year;
    clrscr();
```

Output

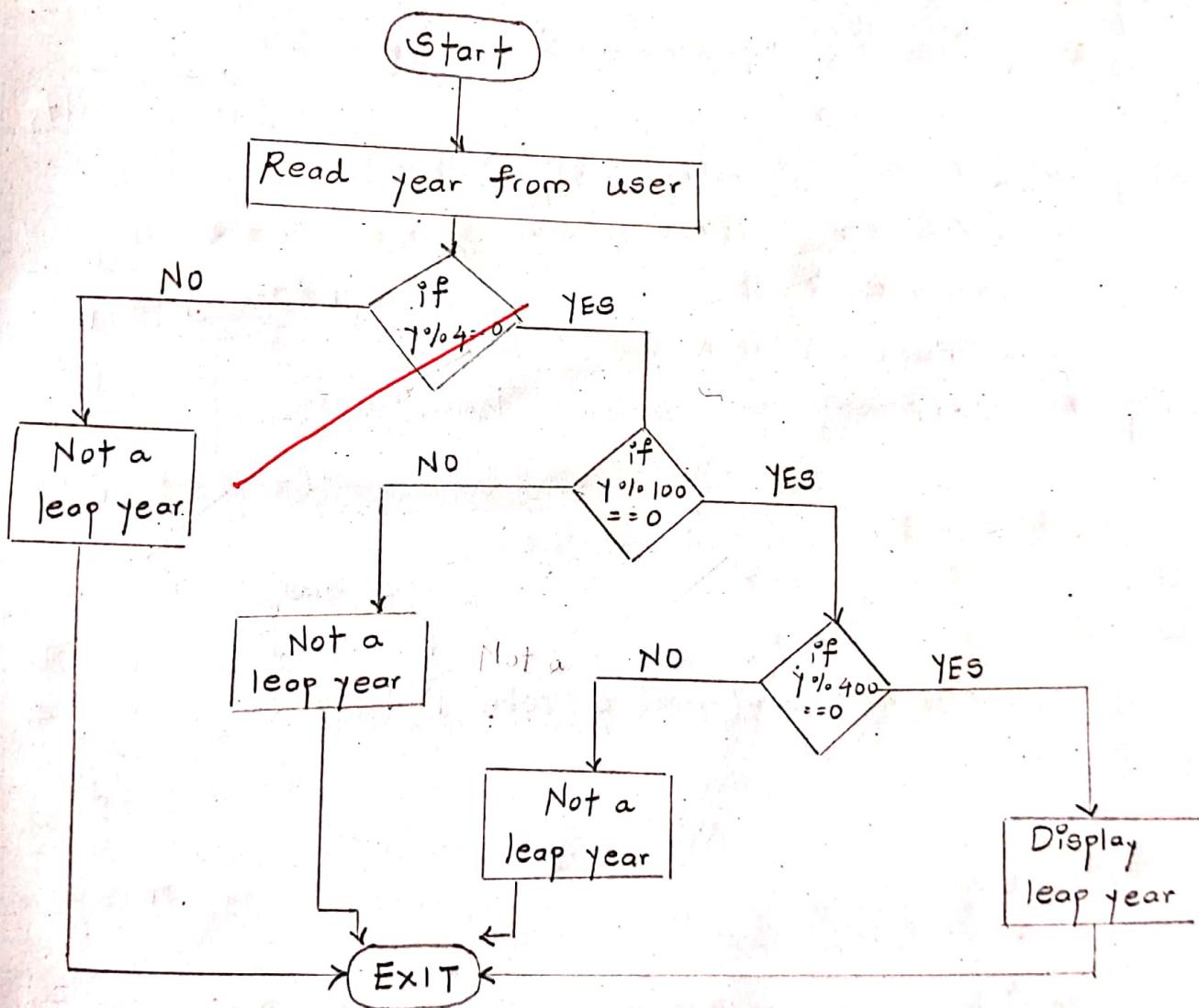
Enter a year : 2017

32

Enter a year: 2020

Leap year

Flowchart:



```

printf ("Enter a year");
scanf ("%d", &year);
if (year % 4 == 0)
    -> {
        if (year % 100 == 0)
            -> {
                if (year % 400 == 0) {
                    printf ("leap year");
                } else {
                    printf ("Not a leap year");
                }
            }
        else {
            printf ("NOT a leap year");
        }
    }
else {
    printf ("Not a leap year");
}
getch();

```

Write a program to find whether the character is vowel or consonant.

### ALGORITHM:

Step 1: Start

Step 2: [Take Input] (Read character's value from user.)

Step 3: [Check] if value == 'A' || value == 'E' ||  
 value == 'I' || value == 'O' || value == 'U' ||  
 value == 'a' || value == 'e' || value == 'i' ||  
 value == 'o' || value == 'u'

Step 4: Exit

### SOURCE CODE

```
#include <stdio.h>
#include <conio.h>
Void main()
{
    char a;
    clrscr();
    printf("Enter the alphabet");
    scanf("%c", &a);
    if (a=='a' || a=='e' || a=='i' || a=='o' || a=='u' || a=='A' || a=='E' || a=='I' || a=='O' || a=='U')
        printf("Vowel");
}
```

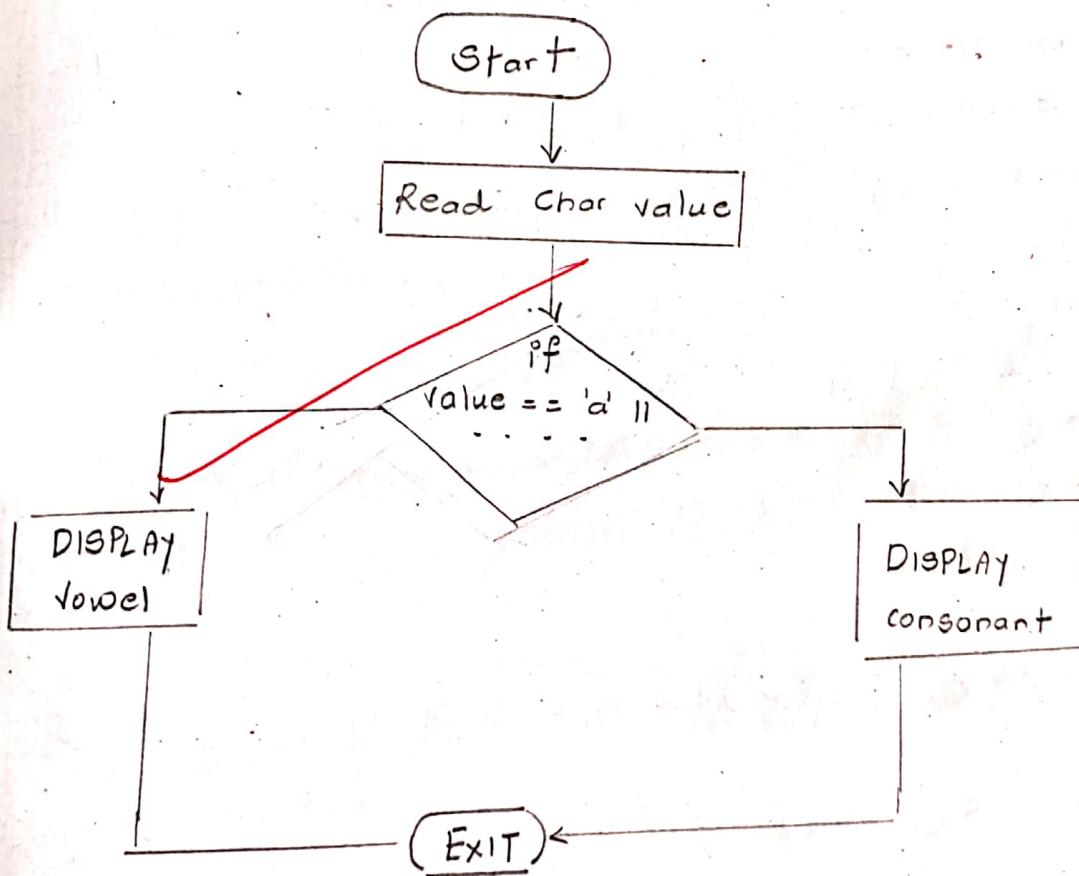
Output:-

Enter a alphabet : o  
vowel

34

Enter a alphabet : x  
consonant

FLOWCHART :-



else

{

printf ("consonant");

scanf ("%c", &c);

getch();

}

return 0;

<stdio.h> & <conio.h>

<conio.h> & <dos.h>

<dos.h> & <math.h>

main ()

{ consonant(); getch(); }

if (c == 'a') {

cout << "vowel"; }

else if (c == 'e') {

cout << "vowel"; }

else if (c == 'i') {

cout << "vowel"; }

else if (c == 'o') {

cout << "vowel"; }

else if (c == 'u') {

cout << "vowel"; }

else {

cout << "consonant"; }

getch(); }

return 0;

}

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Aim: Write a C program to take single digit number from the user & print that digit in word using else if ladder.

SOURCE CODE :

```
#include <stdio.h>
#include <conio.h>

void main()
{
    int n;
    clrscr();
    printf (" Enter the number ");
    scanf ("%d", &n);
    if (n==1)
    {
        printf ("One\n");
    }
    else if (n==2)
    {
        printf ("Two\n");
    }
    else if (n==3)
    {
        printf ("Three\n");
    }
    else if (n==4)
    {
        printf ("Four\n");
    }
}
```

```

else if (n==5)
{
    printf ("Five\n");
}
else if (n==6)
{
    printf ("Six\n");
}
else if (n==7)
{
    printf ("Seven\n");
}
else if (n==8)
{
    printf ("Eight\n");
}
else if (n==9)
{
    printf ("Nine\n");
}
else
{
    printf ("Wrong choice");
}
getch();

```

## ALGORITHM

Step 1: Start

Step 2: Initialize an int variable & take input from the user.

Step 3: Use Else if ladder to print the element entered in word.

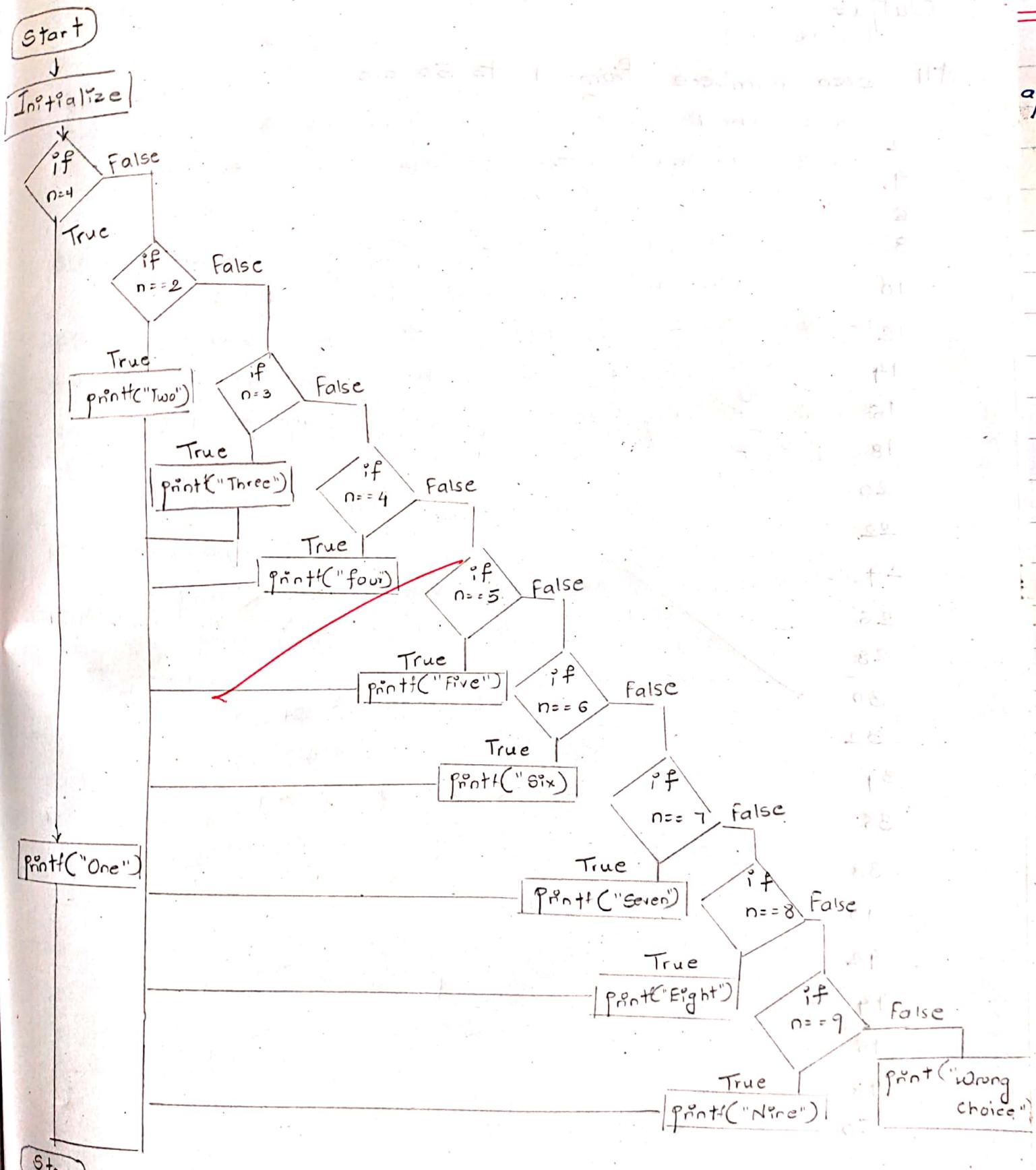
Step 4: If the entered number match than print the same otherwise jump to next of else.

Step 5: Display the appropriate output.

Step 6: Stop.

# FLOWCHART

38



88

## Output

All even numbers from 1 to 50 are

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

## Practical 4

Date: 10/10/2024

Aim: Write a program to print even number between 1-50 using while loop.

## SOURCE CODE

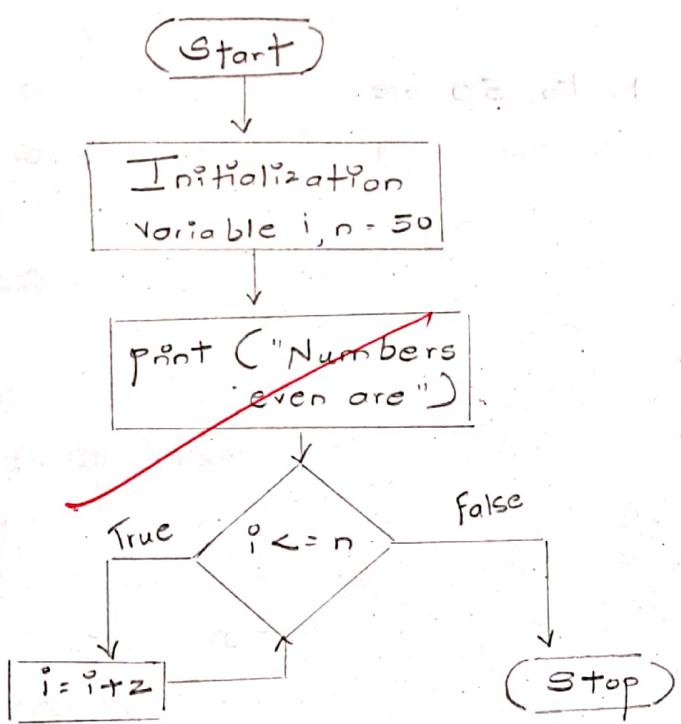
```
#include <stdio.h>
#include <conio.h>
void main ()
{
    int i, n= 50;
    clrscr();
    printf ("All even numbers from 1 to 50 are \n");
    while (i <= n)
    {
        printf ("%d \n", i);
        i = i+2;
    }
    getch();
}
```

Q8

## ALGORITHM

- Step 1: Start
- Step 2: Initialize two variable with static variable where  $n=50$  &  $i=2$ .
- Step 3: Use while loop for printing the even number upto the range 50.
- Step 4: Adding 2 to current even number will give next even number.
- Step 5: Display the appropriate output.
- Step 6: Stop.

40



## Output

Odd numbers from 1 to 50 are

1

3

5

7

9

11

13

15

17

19

21

23

25

27

29

31

33

35

37

39

41

43

45

47

49

b) Aim: Write a C program to print odd numbers between 1-50 using do while loop.

### SOURCE CODE

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, n=50;
    clrscr();
    printf ("Odd numbers from 1 to 50 are \n", n);
    i = 1;
    do
    {
        if (i % 2 == 1)
        {
            printf ("%d\n", i);
        }
        i++;
    }
    while (i <= n);
    getch();
}
```

IP

## ALGORITHM

Step 1: Start

Step 2: Initialize two static variable  $n=50, i=1$

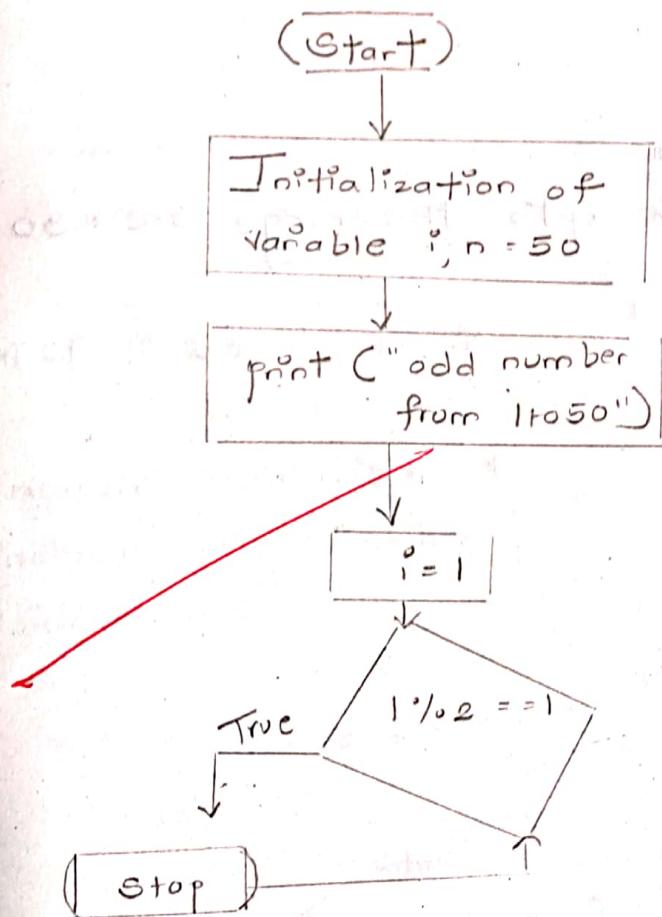
Step 3: Use do while loop for iterates from 1 to 50

Step 4: Use if condition statement to check whether given number is even or odd.

Step 5: Increment the value of  $i &$ ,

Step 6: Display the appropriate output

Step 7: Output Stop.



SP  
Output:

Enter the range: 10

Sum of all even number upto the range are : 30

c)

Aim: Write a C program to print sum of all even number between 1 to n using for loop.

SOURCE CODE

```
#include <stdio.h>
#include <conio.h>

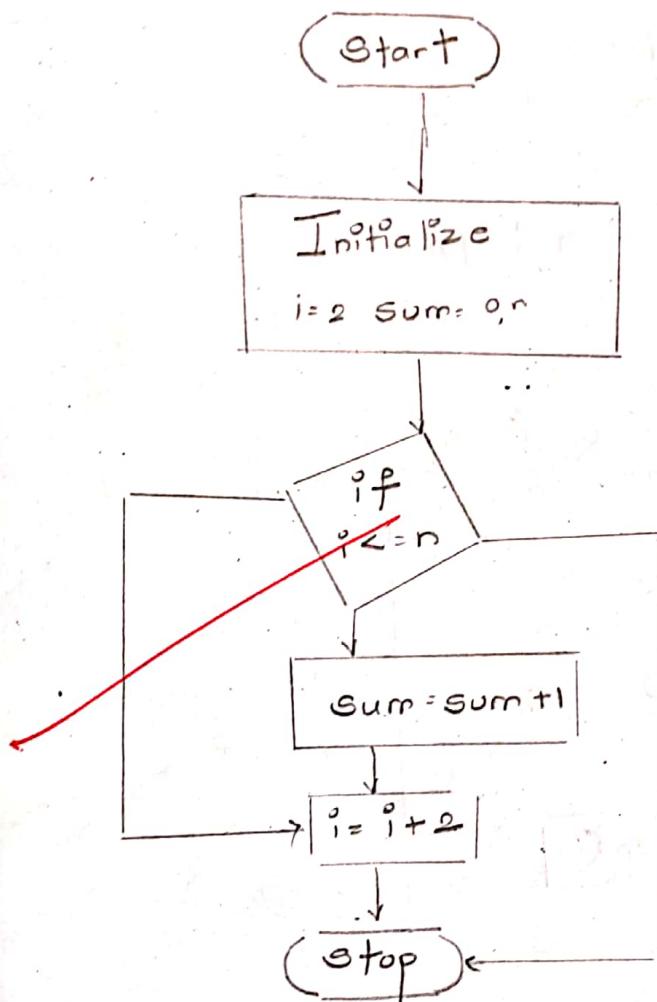
void main()
{
    int i, n, sum = 0;
    clrscr();
    printf ("Enter the range ");
    scanf ("%d ", &n);
    for (i=2 ; i<=n ; i+=2)
    {
        sum = sum + i;
    }
    printf ("Sum of all even number upto the
            range are ", sum);
    getch();
}
```

## ALGORITHM:

- Step 1: Start
- Step 2: Define the variable & ask the user to enter the range
- Step 3: Use the for conditional (loop) & define the logic within its parenthesis.
- Step 4: Sum = Sum + i & print the even number
- Step 5: Stop.

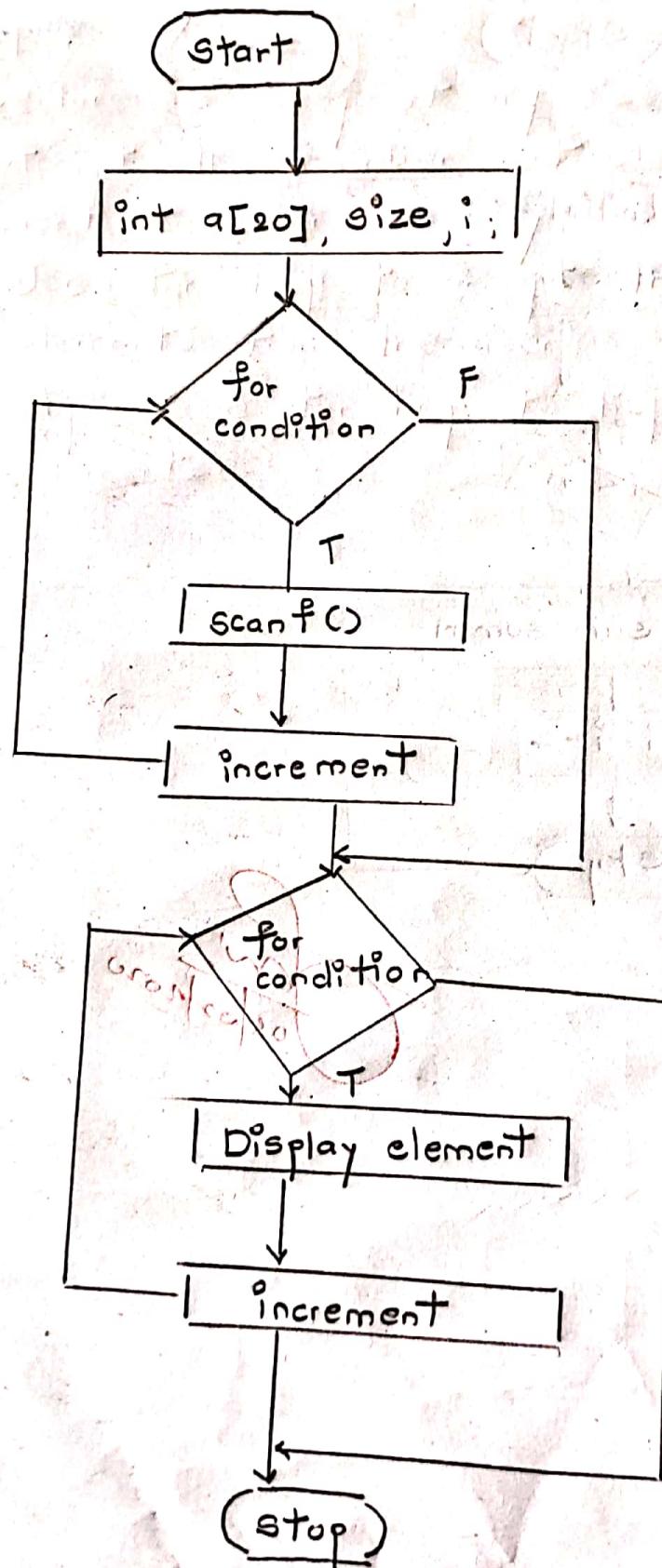
# FLOWCHART

44



*Sri.  
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## Flowchart :-



## Practical 5

i) Write a C program to read array element from user & display

SOURCE CODE:

```
#include <stdio.h>
#include <conio.h>
Void main()
{
    int a[20], size, i;
    clrscr();
    printf ("Enter the size of array you want");
    scanf ("%d", &size);
    for (i=0, i<size; i++)
    {
        printf ("\nEnter the value of a[%d] element", i);
        scanf ("%d", &a[i]);
    }
    printf ("\nThe array element are : ");
    for (i=0, i<size, i++)
    {
        printf ("\n a[%d] = ", i);
        scanf ("%d", a[i]);
    }
    getch();
}
```

Q1

### QUESTION

ALGORITHM : A series of finite steps of mapping is a block.

Step 1: Declare a array of any size

Step 2: Accept the number of elements user  
Want to enter in array.

Step 3: Use for loop to accept the array  
elements from the user.

Step 4: Again use for loop to display array  
elements.

## Output:-

46

Enter the size of array you want 4

Enter the value of a[0] element 1

Enter the value of a[1] element 2

Enter the value of a[2] element 3

Enter the value of a[3] element 4

The array element are

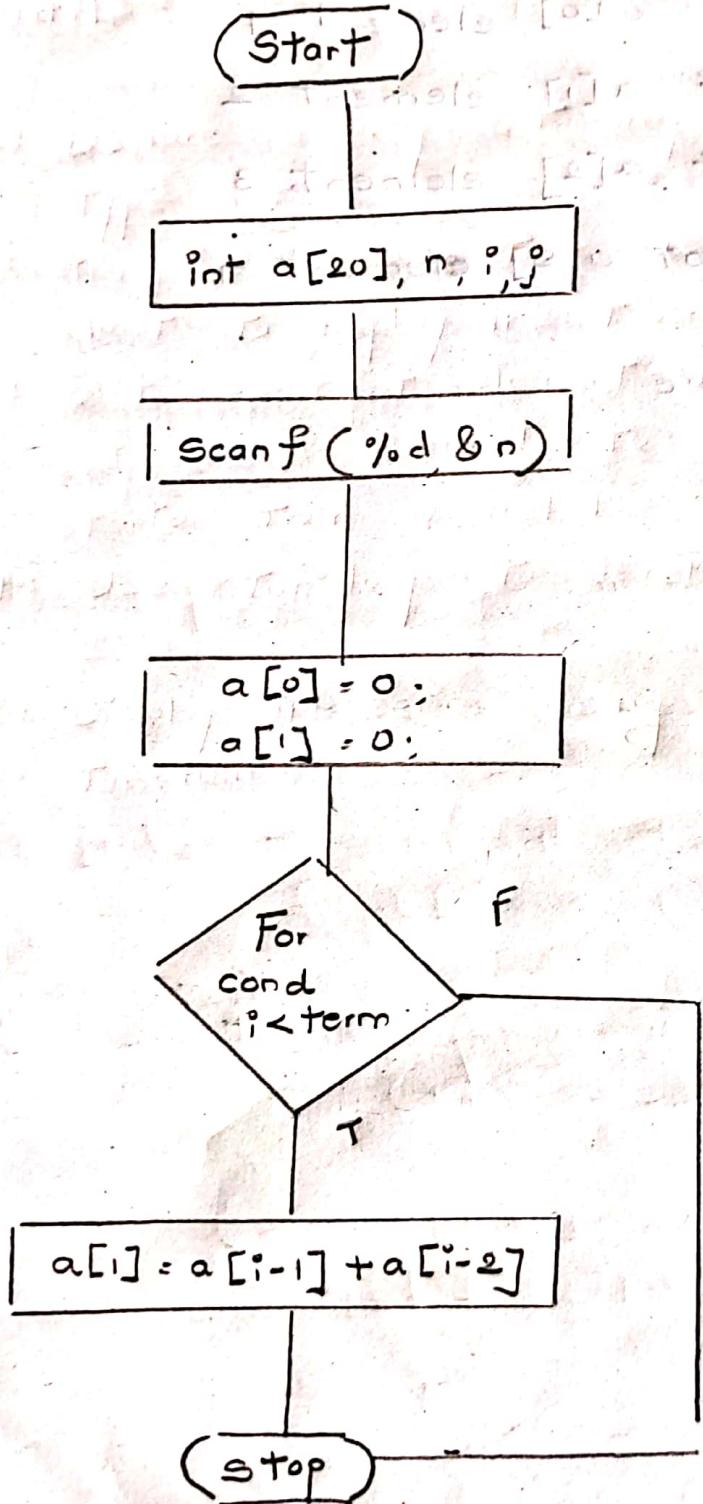
a[0] = 1

a[1] = 2

a[2] = 3

a[3] = 4

Q4



ii) Write a program in C to develop fibonacci series using array.

SOURCE CODE:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a[20], n, i, j;
    clrscr();
    printf("Enter the number of terms");
    scanf("%d", &n);
    a[0] = 0;
    a[1] = 1;
    for (i=2; i<n; i++)
    {
        a[i] = a[i-2] + a[i-1];
    }
    printf("The Fibonacci series upto %d terms is\n", n);
    for (i=0; i<n; i++)
    {
        printf("%d\t", a[i]);
    }
    getch();
}
```

## ALGORITHM:

Step 1: Declare a array of any size of data.  
type int.

Step 2: Accept a value from user till you  
want to display the Fibonacci series.

Step 3: Initialize first element of array to 0  
and second element to 1 as series  
starts from 0 and 1.

Step 4: Use for loop to develop Fibonacci  
series.

Step 5: Display the series using printf() function.

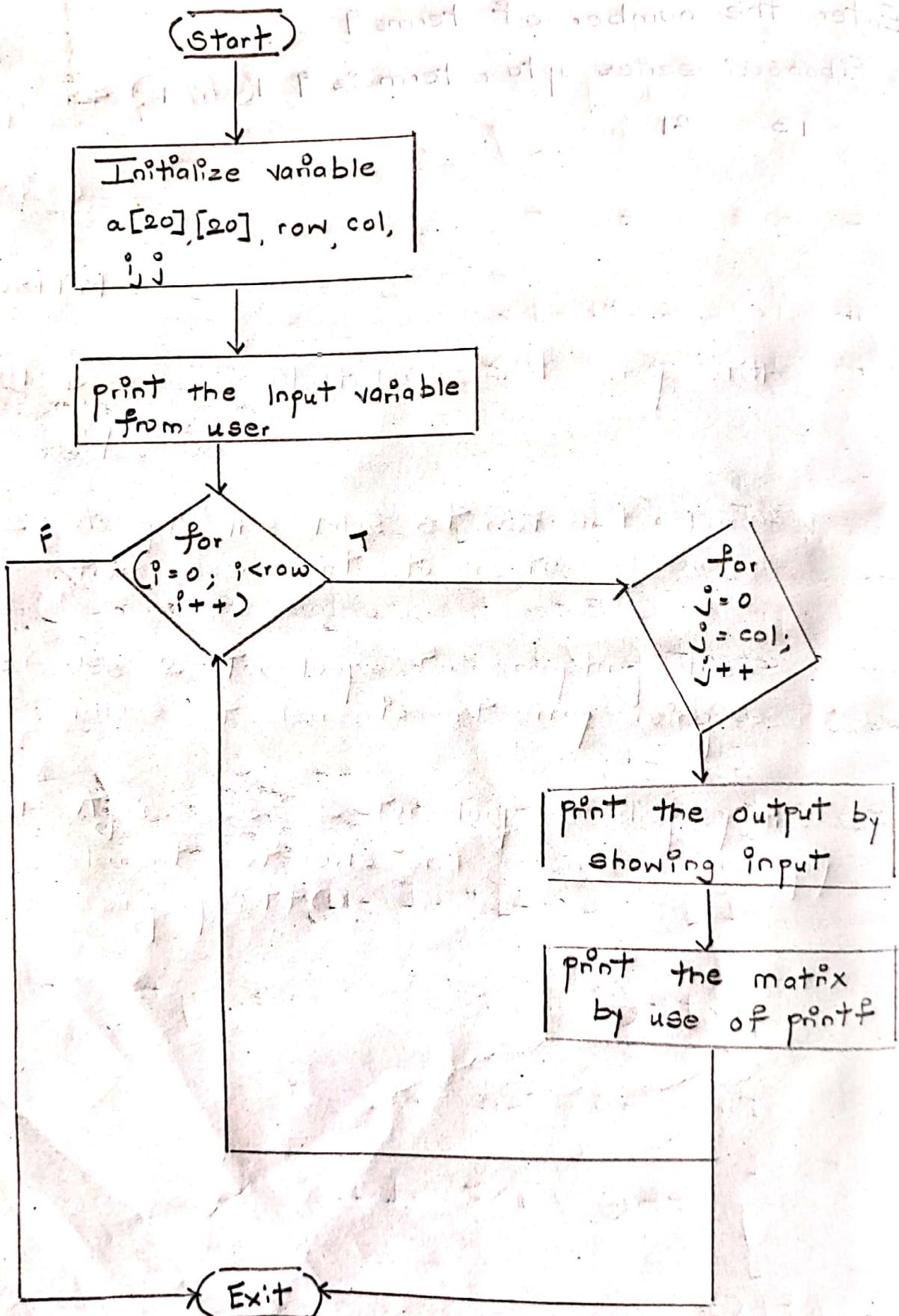
Output:

48

Enter the number of terms 9

The Fibonacci series upto n term is 9 1 1 2 3 5  
8 13 21

8A



iii) Write a program to accept row and column value from user and display them in Matrix format.

SOURCE CODE:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a[20][20], row, col, i, j;
    clrscr();
    printf("Enter the number of row:");
    scanf("%d", &row);
    printf("\nEnter the number of columns:");
    scanf("%d", &col);
    for (i=0; i<row; i++)
    {
        for (j=0; j<col; j++)
        {
            printf("Enter the a[%d][%d] element: ", i, j);
            scanf("%d", &a[i][j]);
        }
    }
    printf("\nThe Displayed Matrix is \n\n");
    for (i=0; i<row; i++)
    {
        for (j=0; j<col; j++)
        {
            printf("%d\t", a[i][j]);
        }
    }
}
```

```
    }
}
printf("\n");
getch();
```

### ALGORITHM:

Step 1: Declare a Multidimensional array with any size.

Step 2: Accept the value of row and columns from user want to create.

Step 3: Use 2 for loops for accepting the values of elements of array using scanf().

Step 4: Again use 2 for loop to display the element of rows and columns accordingly using printf().

Enter the number of rows : 2

50

Enter the number of column : 2

Enter the  $a[0][0]$  element : 1

Enter the  $a[0][1]$  element : 2

Enter the  $a[1][0]$  element : 3

Enter the  $a[1][1]$  element : 4

The Displayed Matrix is

1	2
3	4

## Practical No-6

Aim: Program on Function

1. Write a program to find factorial of a number using recursive function.

Algorithm:

Step 1: Start.

Step 2: Define a function which will calculate the factorial of given number.

Step 3: Define main function and accept the number from the user. Also define another variable of integer datatype.

Step 4: Call the function declared above main function To calculate factorial and print the value

Step 5: Now define the body of function which calculate factorial.

Step 6: Use the if conditional statement and calculate the value accordingly.

Step 7: Return the value to the user.

Step 8: Stop.

SOURCE CODE

```
#include <stdio.h>
#include <conio.h>
```

```
int factorial (int n);
```

```
Void main ()
```

{

```
int num, fact;
```

```
clrscr ();
```

```
printf ("\\n Enter a number : \\n");
```

```
scanf ("%d" & num);
```

```
fact = factorial (num);
```

```
printf ("\\n Factorial of %d is : %d" num, fact);
```

```
getch ();
```

```
int factorial (int n)
```

```
{
```

```
int f;
```

```
if (n==1)
```

```
{
```

```
return (1);
```

```
else
```

```
{
```

```
f = n * factorial (n-1);
```

```
}
```

```
return (f);
```

```
}
```

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Scanned with CamScanner

Enter a number:

5

Factorial of 5 is

120.

2. Program to find sum of digit of entered number

Algorithm:

Step 1: Start.

Step 2: Define a function which will calculate the sum of digits.

Step 3: Take a number from user which contains atleast two digit.

Step 4: Call the function defined above main function To calculate sum of digit.

Step 5: Define the body of function defined above and accept define two integer variables.

Step 6: Use the while loop and perform the calculate accordingly.

Step 7: Print the value of sum so calculated.

Step 8: Stop.

#### SOURCE CODE

```
#include <stdio.h>
```

```
#include <conio.h>
```

```
void sum (int n)
```

```
void main ()
```

```
{
```

```
    int num;
```

```
    clrscr();
```

int main() {  
 int n, sum = 0;

printf("Enter a number : ");

scanf("%d", &n);

sum(n);

getch();

return 0;

void sum(int n)

{  
 int s = 0;

while(n > 0)

{  
 s = s + n % 10;

n = n / 10;

}  
 printf("Sum of digits is : %d", s);

}

Variables = character  
Variables = statement

Character = character

Statement = statement

(a) (b) (c) (d) (e) (f)

(g) (h) (i) (j) (k) (l)

(m) (n) (o) (p) (q) (r)

(s) (t) (u) (v) (w) (x)

Enter a number : 51

Sum of digit is: 6