850

***** ***** Demonstration of various datatypes *****

Name of the Student
Aayushi Singh

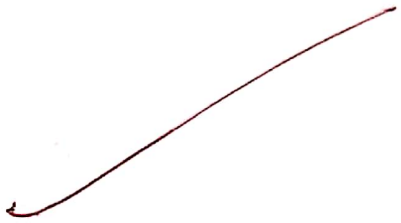
Address of the Student
Mumbai

Roll no. of the Student.
1759

Percentage of the Student.
80 %.

Grade of Student
A

Mobile no.
7021002247



Student name : Aayushi Singh
Student address : Mumbai
Student roll no : 1759
Student percent : 80.
Student Grade : A
Student Mobile no. 7021002247.

Practical No:-1

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

Program 1:-

Code:-

```
#include<stdio.h>
#include<conio.h>
void main()
{
        char name[50];
        char add[50];
        int roll_no;
        float percent;
        char grade;
        char mob[10];
        clrscr();
        Printf("***** Demonstration of various datatypes *****");
        printf("Name of the student\n");
        gets(name);
        printf("Address of the student\n");
        scanf("%s",&add);
        Printf("Roll no. of the student\n");
        scanf("%d",&roll no);
        Printf("Percentage of Student\n");
        scanf("%f",&percent);
        printf("Grade of student\n");
        scanf("%s",&Grade);
```

```
Printf ("Mobile No : \n");
Scanf ("%10s", &mob);
printf("\n Student Name: %s", name);
printf ("\n Student address : %s", add);
Printf("\n Student rollno: %d", rollno);
printf("\n student percent: %f", percent);
printf ("\n Student Grade: %c", Grade);
printf ("\n Student mobile no: %10s", mob);
getch();
}
```

Program 2.

```
#include <stdio.h>
#include <conio.h>
void main()
{
  int side, area;
  clrscr();
  printf("Enter the side\n");
  scanf("%d", &side);
  area = side * side;
  printf("Area of Square %d \n", area);
  getch();
}
```

11/11/19

Output
Enter
12
Area

Output

Enter the side:

12

Area of Square 144.

14/12/19

PRACTICAL No-2.

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

Arithematic Operators

Program:

```
# include <stdio.h>
#include<conio.h>
void main()
{
    int num1, num2, add, sub, mul, dir;
    clrscr();
    printf("Enter 1st No: ");
    Scanf("%d", &num1);
    Printf("Enter 2nd No:");
    Scanf("%d", &num2);
     add = num1 + num2;
     printf("Addition is : %d \n", add);
     sub = num1 - num2;
     printf("Subtraction is : %d \n", sub);
     mul = num1 * num2;
     Printf("Multiplication is : %d \n", mul);
     div = num1 / num2;
     printf("Division is: %d \n", div);
     getch();
}
```

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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 value");
    scanf("%d", &z);
    value1 = (x<y) && (z>y);
    value2 = (x=y) && (  );
    value3 = (x<y) || (z=y);
    value4 = !(x==y);
    value5 = (x==y);
    printf("value1 is : %d\n", value1);
    printf("value2 is : %d\n", value2);
    printf("value3 is : %d\n", value3);
    printf("value4 is : %d\n", value4);
    printf("value5 is : %d\n", value5);
    getch();
}
```

Output:

Enter 1st
Enter 2nd
Enter 3rd

value 1
value
value
value
value

Output:

Enter 1st Value: 9
Enter 2nd Value: 8
Enter 3rd value: 2

value 1 is: 0
value 2 is: 1
value 3 is: 1
value 4 is: 0
value 5 is: 1

Output :

The Biggest number is : 100

Ternary Operator.

Program:-

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a=100, b=20, c=50, big;
    clrscr();
    big = a>b || a>c ? a:b;
    printf("The biggest number is: %d", big);
    getch();
}
```

880 Pratical No:- 3.

Aim:- Decision statement:
* Write a program to find out odd even numbers:

Algorithm:

1. Start
2. [Take-input] Read a number from the user
3. Check if number % 2 == 0 then print even numb
4. Exit.

Code:

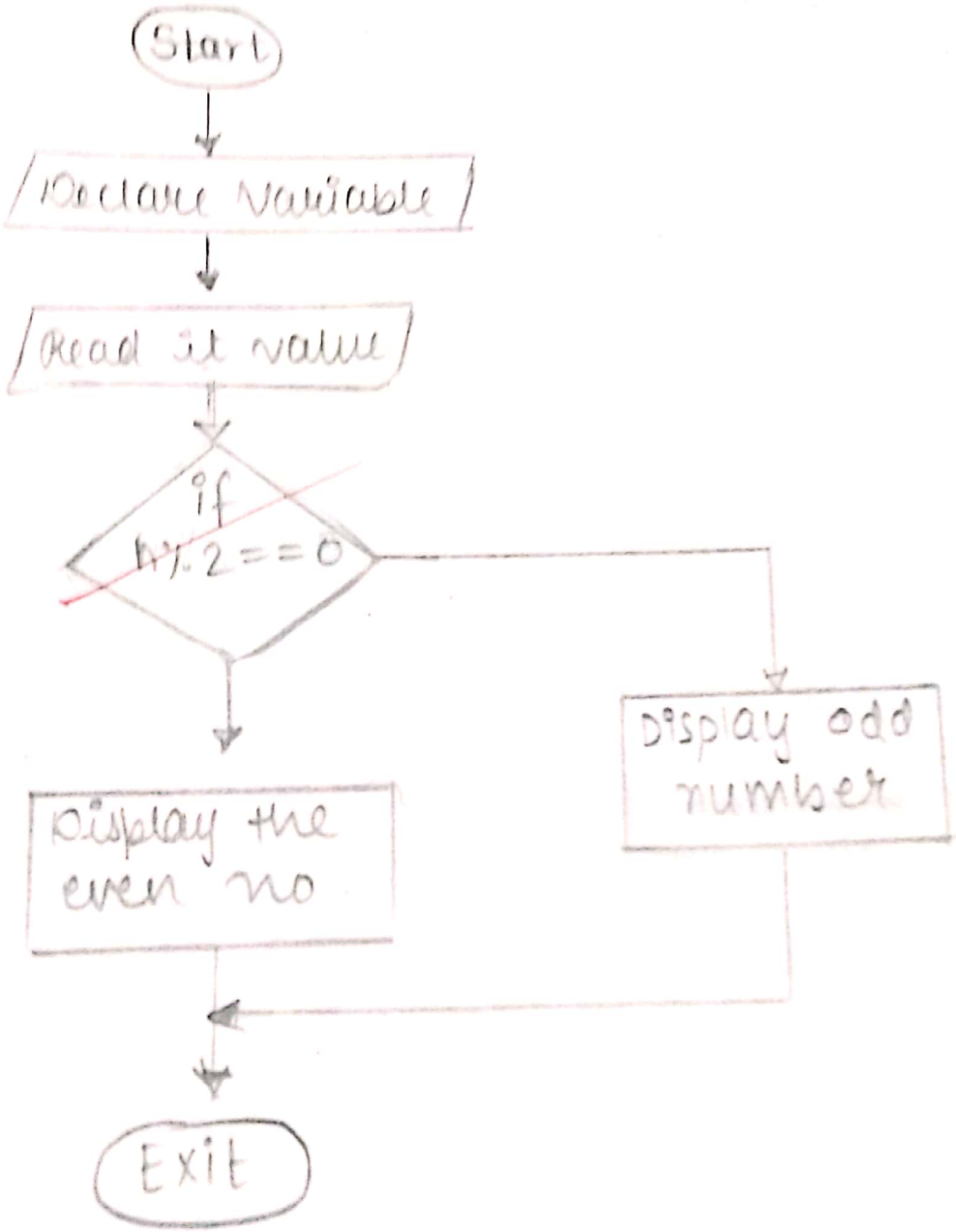
```
#include <stdio.h>
#include <conio.h>
void main()
{
 int n;
 clrscr();
 printf("Enter a number:");
 scanf("%d", &n);
 if(n%2==0):
 {
    Printf("Even method:");
 }
else:
 {
    printf("odd number:");
 }
getch();
```

Output:

Enter a number : 56
Even Number

Enter a number : 57
Odd number

FLOWCHART :-



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

Algorithm:

1. Start
2. [Take input] Read year from the user.
3. If year % 4 = 0 & year % 400 = 0 or year % 4 = 0 & year % 100 != 0
   print leap year.
4. Exit.

Code:

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

Algorithm:

1. Start
2. [Take input] Read character value from user
3. [Check] if value == "a" || value == 'e' ||
   value == "i" || value == "O" || value "u" ||
   value == "A" || value == "E" || value == "I" ||
   value == "O" || value == "U"
4. Exit.

Output:
Enter a y
Not a lea
Enter a
leap ye

FLOW CHART

Output:

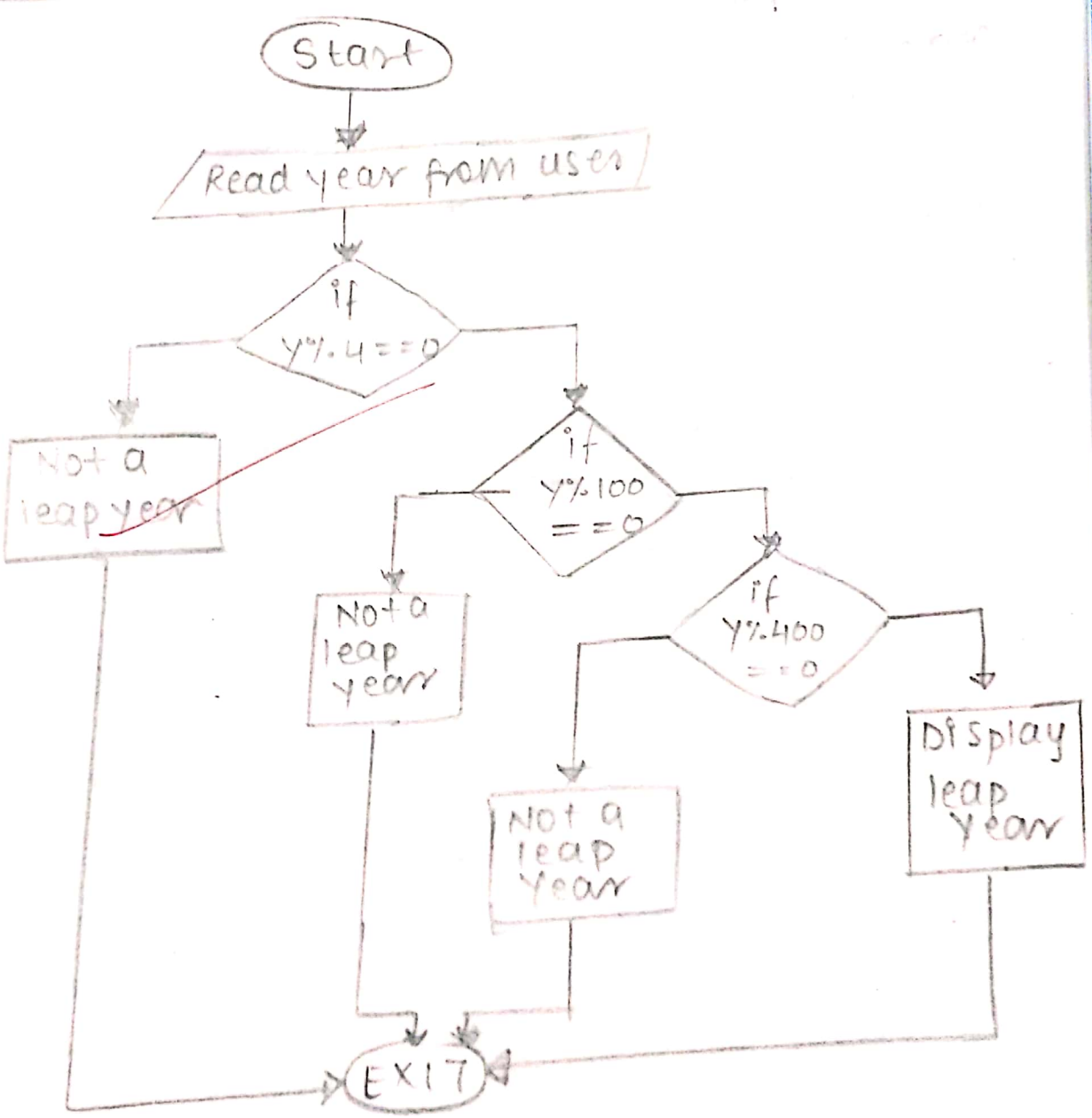
Enter a year : 2017

Not a leap year.

Enter a year : 2020

leap year.

FLOW CHART :



Output:

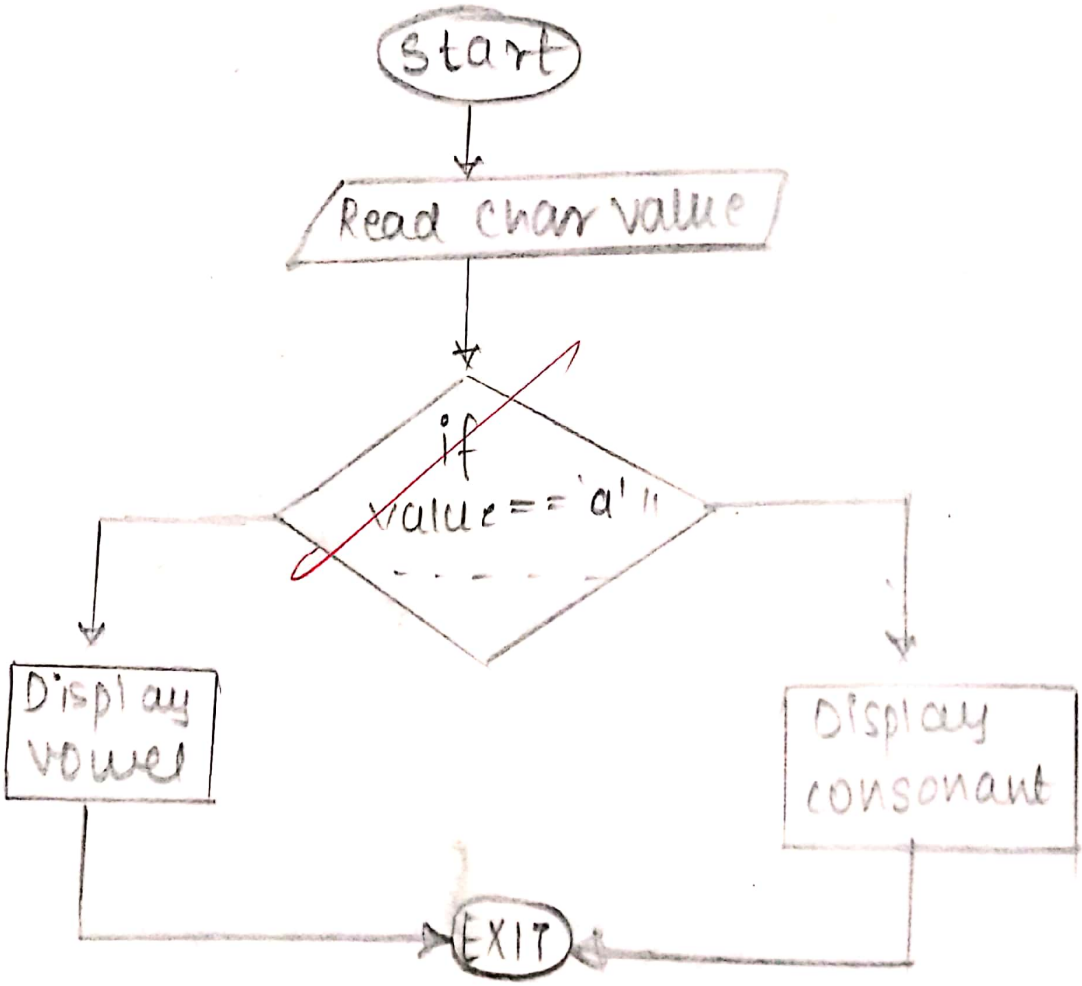
Enter the alphabet : o

vowel

Enter the alphabet : n

Cosonant.

FLOWCHART :-



Program

```
#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')
        {
            print("Vowel");
        }
        else
        {
            printf("Consonant");
        }
        getch();
}
```

580 PRACTICAL - 4

Write a program to print even number between 0-50 using for loop

Source code:

```
#For loop
#include <stdio.h>
#include <conio.h>
void main()
{
        int i, n=50;
        clrscr();
        Printf("Even numbers between 0 to 50 are \n
        for(i=0, i<=n; i+=2)
        {
            Printf("%d \n", i);
        }
       getch();
}
```

Output :-

All are numbers between 0 to 50 are

0
2
4
6
8
10
12
14
16
18
20
24
26
28
30
32
34
36
38
40
42
44
46
48
50

17 Algorithm.

Step 1: Start
Step 2: Initialize variable and assign any value.
Step 3: Use for loop and display the output accordingly
Step 4: Stop.

P&Q

Algorithm

While loop:-

Step 1 : start

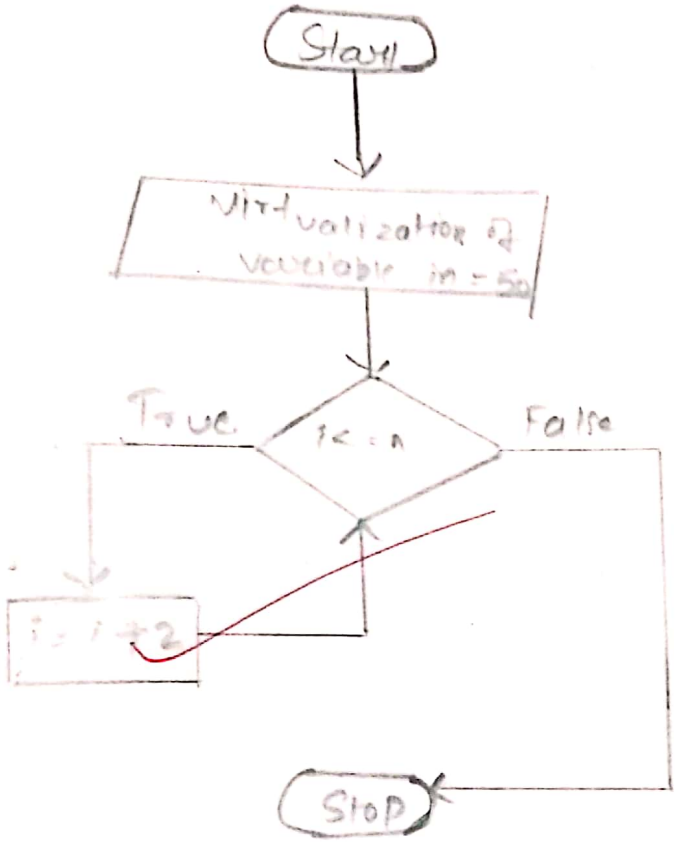
Step 2 :- Initilize two variable with static variable where n = 50 and i = 2

Step 3:- Use while loop for printing the even no upto the range 50

Step 4:- Adding 2 to current even number will give next even no.

Step 5:- Display the appropriate output

Step 6 :- exit.

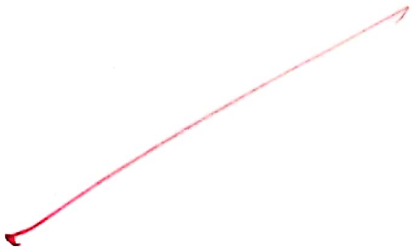


OBO

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



While loop :-

code :-

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

* Do while

Algorithm:

Step 1:- Start

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

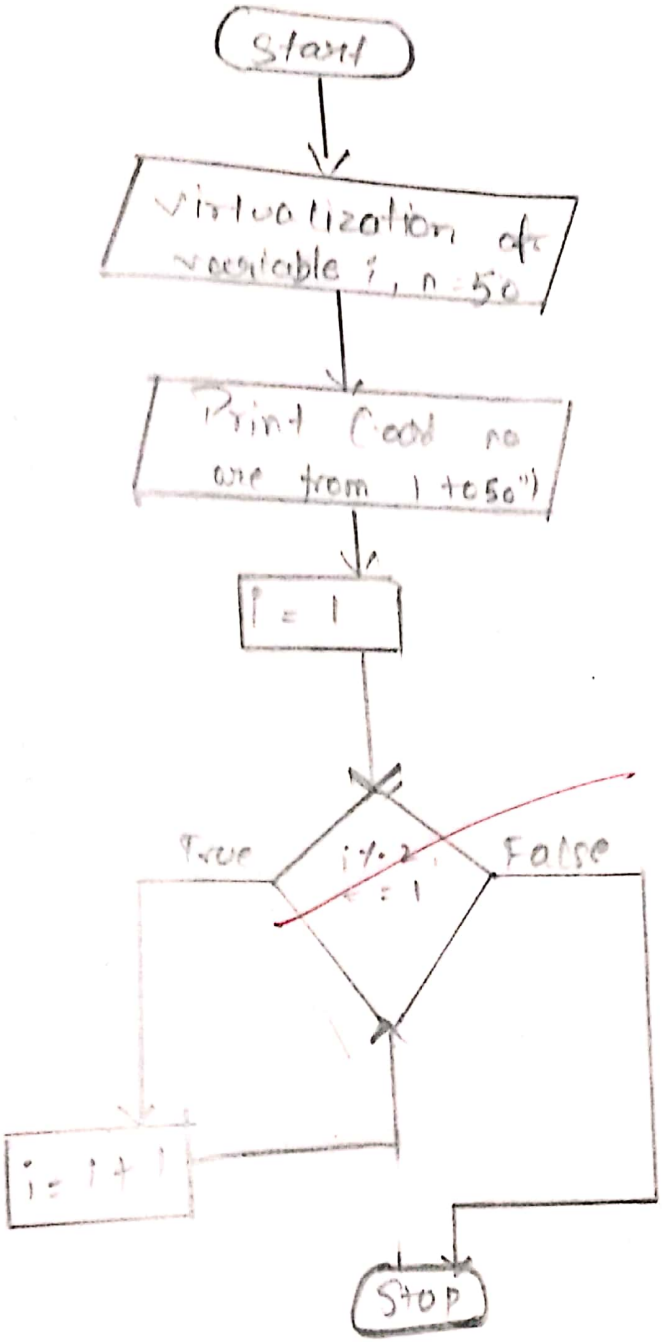
Step 3: Use do while loop for iterks from 1 to

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:- Stop.

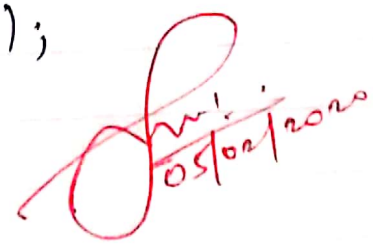


Output :-

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

Program:-

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



PRACTICAL No - 5

ARRAYS

Basics of Array:

Write a program in C to read array elements from the user & display them.

Algorithm:-

1. Declare a array of any size.
2. Accept the number of element User want to enter in array.
3. Use for loop to accept the array element from the user.
4. Again use for loop to display array element.

Output:

```
Enter the size of array you want: 2
Enter the value: 4
Enter the value: 5

The elements are:
4
5
```

Source code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a[15], size, i;
    clrscr();
    printf("Enter the size of array you want");
    scanf("%d", &size);
    for(i=0; i<size; i++)
    {
        printf("\n Enter the value: ", i);
        scanf("%d", &a[i]);
    }
    printf("\n The elements of array are:");
    for(i=0; i<size; i++)
    {
        printf("\n a[%d]:", i);
        printf("%d", a[i]);
    }
    getch();
}
```

Fibonacci series using array.

write a program in C to develop fibonacci series using array.

Algorithm.

1. Declare a array of analysis of data type list.
2. Accept a value from user till you want to display the fibonacci series.
3. Initialize first element of array to 0 & second element to 1 as series start from 0.
4. Use for loop to develop fibonacci series.
5. Display the series using printf() function.

Output:

enter the number of elements : 5

0
1
1
2
3

Source code:

```
#include <stdio.h>
#include <conio.h>
void main
{
    int a[20], term, i;
    clrscr();
    printf("Enter the no. of elements :")
    scanf("%d", &term);
    a[0]=0;
    a[1]=1;
    printf("%d", a[0]);
    printf("%d", a[1]);
    for (i=2; i<term; i++)
    {
        a[i] = a[i-1] + a[i-2];
        printf("\n %d", a[i]);
    }
    getch();
}
```

TAO

Algorithm

Write a C program to represent a multi-dimen array in matrix input.

⇒ 1. Start.

2. Declare multiDimensional array. and row, column, i & j

3. Display to enter no of rows.

4. Scan the same.

5. Similarly for columns.

6. Use the for conditional for accesing the array elements.

7. Use another for loop for displaying the array value.

8. Stop

Output :-

Enter no of rows : 2

Enter no of columns : 2

Enter the a[0][0] no. element : 8

Enter the a[0][1] no element : 6

Enter the a[1][1] no. element : 13

Enter the a[1][1] no. element : 18

The Display matrix is

8 6

13 18

Source Code:-

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a[20][20];
    int row, col, i, j;
    printf("\n Enter no. of rows");
    scanf("%d", &row);
    printf("\n Enter no. of columns");
    scanf("%d", &col);
    for(i=0; i<row; i++)
    {
        for(j=0; j<col; j++)
        {
            printf("Enter the a[%d][%d] no
                of element, i);
            scanf("%d", &a[i][j]);
        }
    printf("\n The Displayed matrix is:");
    for(i=0, i<row; i++)
    {
        for(j=0; j<col; j++)
        {
            printf("\t %d", a[i][j]);
        }
        printf("\n");
    }
    getch();
}
```

PRACTICAL No - 6

Functions

To find factorial of a number using recursive function.

```
#include <stdio.h>
#include <conio.h>
int factorial (int n);
void main()
{
    clrscr();
    int n, fact;
    Printf ("\n Enter the value:");
    Scanf ("%d", &n);
    fact = factorial (n);
    Printf ("\n factorial of %d = %d", n, fact);
    getch();
}
int factorial (int n)
{
    int factorial (int n)
    int f;
    if (n == 1)
    return (1)
    else
      f = n * (factorial (n - 1));
    return (f)
}
```

Output:

Enter
factoria

Output:

Enter value: 5
Factorial of 4 = 120

Output :

Enter value : 39

Sum of digits = 12

Sum of digits of Entered Number.

```
#include <stdio.h>
#include <conio.h>
void abc(int n);
void main()
{
    int n;
    clrscr();
    Printf("\n Enter Value : ");
    Scanf("%d", &n);
    abc(n)
    getch();
}
void abc()
{
    int r, s=0
    while(n!=0)
    {
     r = n % 10;
     s = s + r,
     n = n / 10)
    }
printf("\n sum of digits = %d", s);
}
```

120

Output :-

Enter 5 numbers : 5 2 1

Average = 2

Average of 3 numbers.

```
#include <stdio.h>
#include <conio.h>
void avg(int sum);
void sum(int a, int b, int c);
void main()
{
  int x, y, z;
  clrscr();
  printf("\n Enter 3 Numbers:");
  scanf("%d %d %d", &x, &y, &z);
  sum(x, y, z);
  getch();
}
void sum(int a, int b, int c)
{
  int s = a+b+c;
  avg(s)
}
void avg(int sum)
{
float avg = sum/30;
printf("\n Average = %f", avg);
```