PRACTICAL - 1

Aim:- Write a program to understand the basic datatypes and I/O.

Source Code:-

```
# include <conio.h>
# include <stdio.h>
void main ()
{
    Char name[50];
    char add;
    long int mobile;
    float percent;
    char grade;
    int roll_no;
    clrscr ();
    print f ("**** Demonstration Of Datatypes ****");
    print f ("Enter student name \n");
    scanf ("%s", & name);
    print f ("Enter student's address \n");
    scanf ("%s", & add);
    printf ("Enter Students Mobile no. \n");
    scanf ("%ld", & mobile);
    printf ("Enter Student's percentage \n");
    Scanf ("%f", & percent);
    printf ("Enter students grade \n");
    scanf ("%s", & grade);
```

Output:

```
* * * * Demonstration of Datatypes * * * *
Enter Student name
Saurav
Enter Student's address
Mumbai
Enter Student's Mobile no.
9821459452
Enter Student's percentage
68.30
Enter Student's grade
B
Enter student's Rollno
67

NAME: Saurav
ADDRESS: Mumbai
MOBILE: 9821459452
PERCENTAGE: 68.30
GRADE: B
ROLL NO: 67
```

Output:

Enter Radius

45

Area of Circle = 6358.50

```
        printf ("Enter Students Rollno \n");
        scanf ("%d", &roll_no);
        printf ("\n NAME : %s", name);
        printf ("\n ADDRESS : %s", add);
        printf ("\n MOBILE : %ld", mobile);
        printf ("\n PERCENTAGE : %f", percent);
        printf ("\n GRADE : %s", grade);
        printf ("\n Roll No. : %d", roll_no);
        getch ();
}
```

10/12/19

Program 2 - Area Of Circle.

```
#include <conio.h>
#include <stdio.h>
Void main ()
{
    float r, pi = 3.14, area;
    clrscr ();
    printf ("Enter Radius \n");
    scanf ("%f", &r);
    area = pi * r * r;
    printf ("Area of Circle = %f", area);
    getch ();
}
```

Practical - 2

a) Aim :- Write a C program which will show the various different types of operators.

Source Code

```
# include <conio.h>
# include <stdio.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 number: %d \n", sub);
        mul = num1 * num2;
        printf (" Multiplication of 2 numbers: %d \n", Mul);
        Div = num1 / num2;
        printf ("Division of 2 numbers: %d \n", Div);
        getch ();
}
```

Output

Enter 1st number : 8
Enter 2nd number : 2
Addition of 2 numbers : 10
Subtraction of 2numbers : 6
Multiplication of 2numbers : 16
Division of 2numbers : 4

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
```

logical Operators

Source code

```
#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);
        printf("Value1 is: %d\n", Value1);
        Value2 = (x=y) && (z<y);
        printf("Value2 is: %d\n", Value2);
        Value3 = (x<y) || (z=y);
        printf("Value3 is: %d\n", Value3);
        Value4 = !(x==y);
        printf("Value4 is: %d\n", Value4);
        Value5 = (x==y);
        printf("Value5 is: %d\n", Value5);
        getch();
}
```

(b) Aim :- Write a C program that will demonstrate the use of ~~teme~~ ternary operator.

Source Code:

```
#include <stdio.h>
#include <conio.h>
Void main ()
{
        int a, b, x;
        clrscr ();
        printf (" Value of a is :");
        scanf (" %d", &a);
        printf (" Value of b is :");
        Sconf (" %d", &a)
        x = (a > b) ? a : b;
        printf (" Greater number is : %d \n", x);
        getch ();
}
```

Output

Value of a is : 8
value of b is : 4
Greater number is : 8

Practical - 3

a) Aim :- Write a C program to find whether the entered year is leap or not.

Source Code :

```
#include <stdio.h>
#include <conio.h>
Void main()
{
        int n;
        clrscr();
        printf("Enter a year : ");
        scanf("%d",&n);
        if(n%4==0)
        {
            printf("Entered year is a leap year", n);
        }
        else
        {
            printf("Not a leap year");
        }
        getch();
}
```

Output

Entered a year : 2016
Entered year is a leap year

Enter a year : 2017
Not a leap year

b) Aim :- write a C program to find odd and even

Source code:

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

Output

```
Enter a number : 8
Even number

Enter a number : 9
Odd number
```

Output

Enter the character : e
Entered character is a vowel

Enter the character : S
Entered character is a consonant.

Aim: ~~to~~ Write a Cprogram to find the enter Character is vowel ~~of~~ ~~consonant~~

Source code

```
# include <stdio.h>
# include <conio.h>
void main ()
{
        char x;
        clrscr();
        printf ("Enter the character:");
        scanf ("%c", &x);
        if (x == 'a' || x == 'e' || x == 'i' ||
            x == 'o' || x == 'u' || x == 'A' || x == 'E' ||
            x == 'I' || x == 'O' || x == 'U')
        {
            printf ("Entered character is a vowel");
        }
        else
        {
            printf ("Entered character is a consonant");
        }
        getch ();
}
```

07/01/2020

4) 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");
        }
```

Output

Enter the number : 4

Four

Enter the number : 1

One

Enter the number = 26

Wrong Choice.

```
else if (n==5)
{
    printf("Five\n");
}
else if (n==6)
{
    printf("Six\n");
}
else if (n==7)
{
    printf("seven\n");
}
elseif (n==8)
{
    printf("eight\n");
}
elseif (n==9)
{
    printf("nine\n");
}
else
{
    printf("wrong choice");
}
getch();
}
```

Algorithm

Step1: Start.

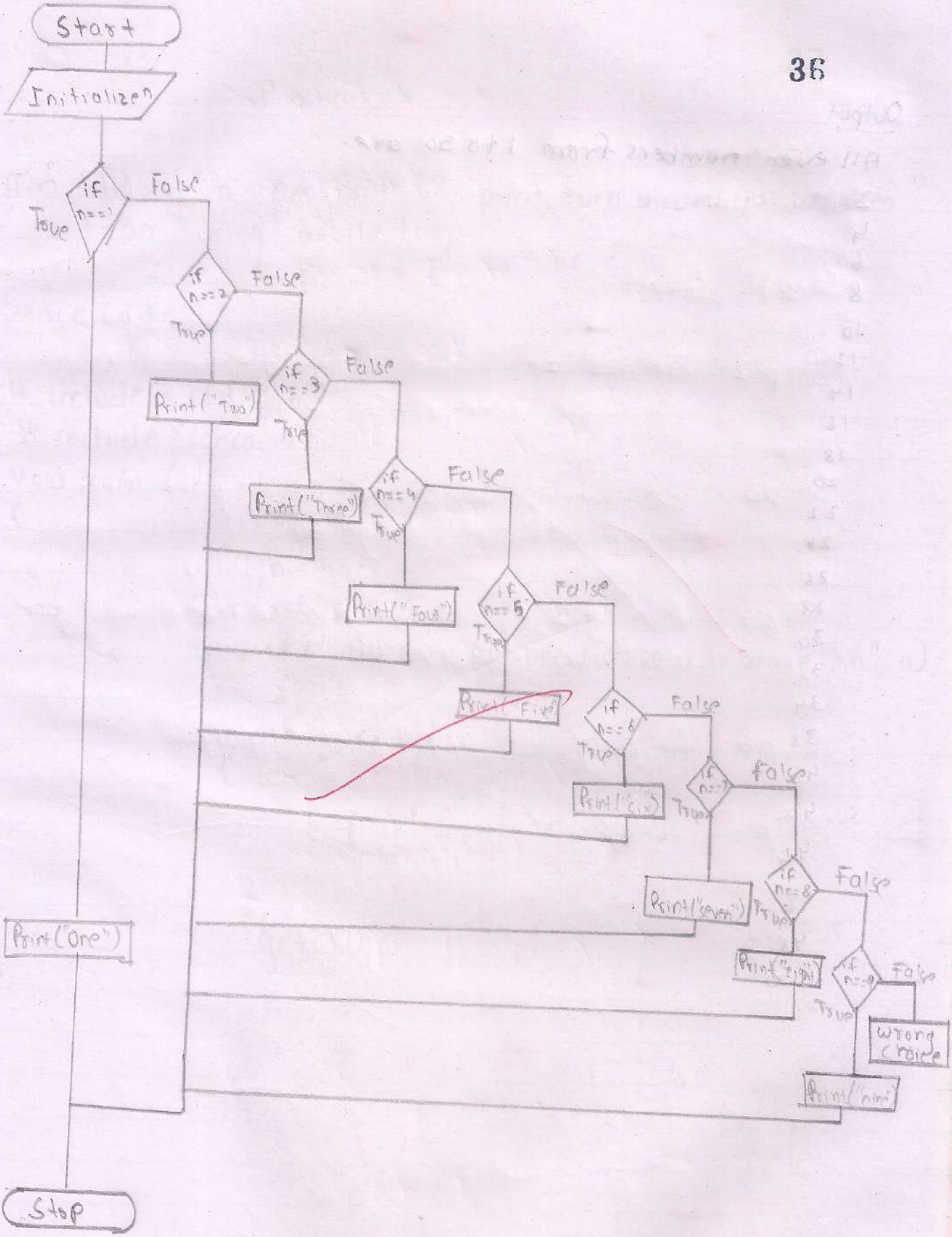
Step 2: Initialize an int variable & take input from the user.

Step 3: Use else if ladder to print the enterd digit in word.

Step 4: If the entered number matches than print the same otherwise jump to next if else

Step 5: Display the appropriate output.

Step 6: Stop.


Start
Initialize
if n==1
True
False
Print("One")
if n==2
True
False
Print("Two")
if n==3
True
False
Print("Three")
if n==4
True
False
Print("Four")
if n==5
True
False
Print("Five")
if n==6
True
False
Print("six")
if n==7
True
False
Print("seven")
if n==8
True
False
Print("eight")
if n==9
True
False
wrong choice
Print("nine")
Stop

Practical - 4

a) Aim : Write a program to print even numbers 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", n);
        i = 2,
        while (i <= n)
        {
                print ("%d \n" ;; i );
                i = i + 2 ;
        }
        getch();
}
```

Algorithm.

Step 1: Start.

Step 2: Initialize two variable with static Variable whe $n = 50$ & $i = 2$

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

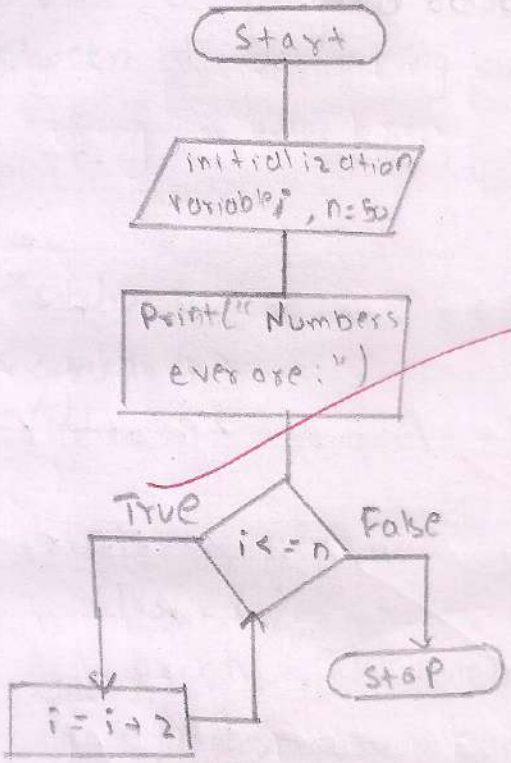
Step 5: Display the appropriate output.

Step 6: Stop.

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
38
40
42
44
46
48
50


Start
initialization variable i , n=50
Print(" Numbers even are :")
True
i<=n
False
Stop
i = i + 2

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

Source code

```
#include <stdio.h>
#include <conio.h>
 Void main()
 {
        int  i, n=50;
         clrscr();
          print(" 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();
}
```

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

Algorithm

Step 1: Start.

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

Step 3: Use do while loop for i iterates from 1

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

Step 5: Increment the value of i by 1

Step 6 : Display the appropriate output

Step 7 : Stop.

c) Aim : W.A.P. 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=i+2)
        {
            sum = sum + i;
        }
        printf("sum of all even numbers upto
                the range is: ", sum);
        getch();
}
```

Algorithm.

Step 1: Start.

Step 2: Initialize three variable from these two is Static and One is dynamic
i = 2; sum = 0; n;

Step 3: Use for loop for check the even number & print upto the given range.

Step 4: Add current even number to sum

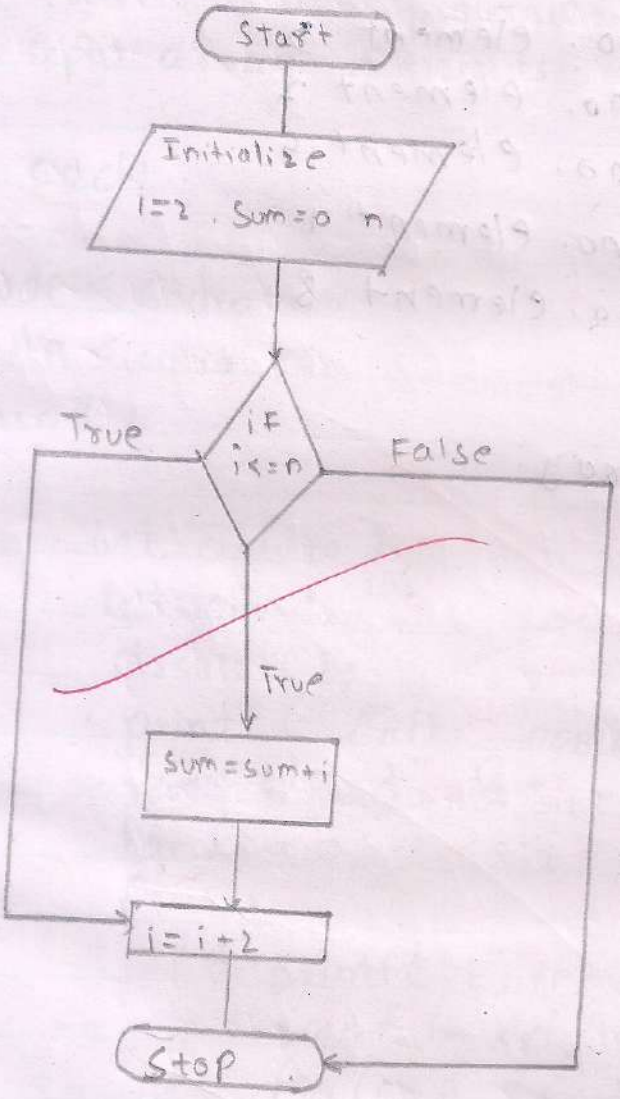
Step 5: Display the appropriate Output

Step 6: Stop.

Output

Enter the rang : 20

Sum of all even numbers upto the range is : 110


Start
Initialize
i=2 . Sum=0 n
IF
i<=n
True
False
True
Sum=sum+i
i=i+2
Stop

04/02/2020

Practical - 5

A. Aim :- write a C program to print the input array elements.

Source code :

```
#include <stdio.h>
#include <conio.h>
Void main ()
{
        int a [20];
        int size, i;
        clrscr ();
        printf ("Enter number less than 20:");
        Scanf ("%d", &size);
        for (i=0; i<size; i++)
        {
                printf("Enter number less than 20:");
                Scanf ("%d", &size);
                for(i=0; i<size; i++)
        }
        printf("\n the displayed array \n:");
        for (i=0; i<size; i++)
        {
                printf ("Enter a [%d] %d", i);
        }
        getch ();
}
```

Algo.

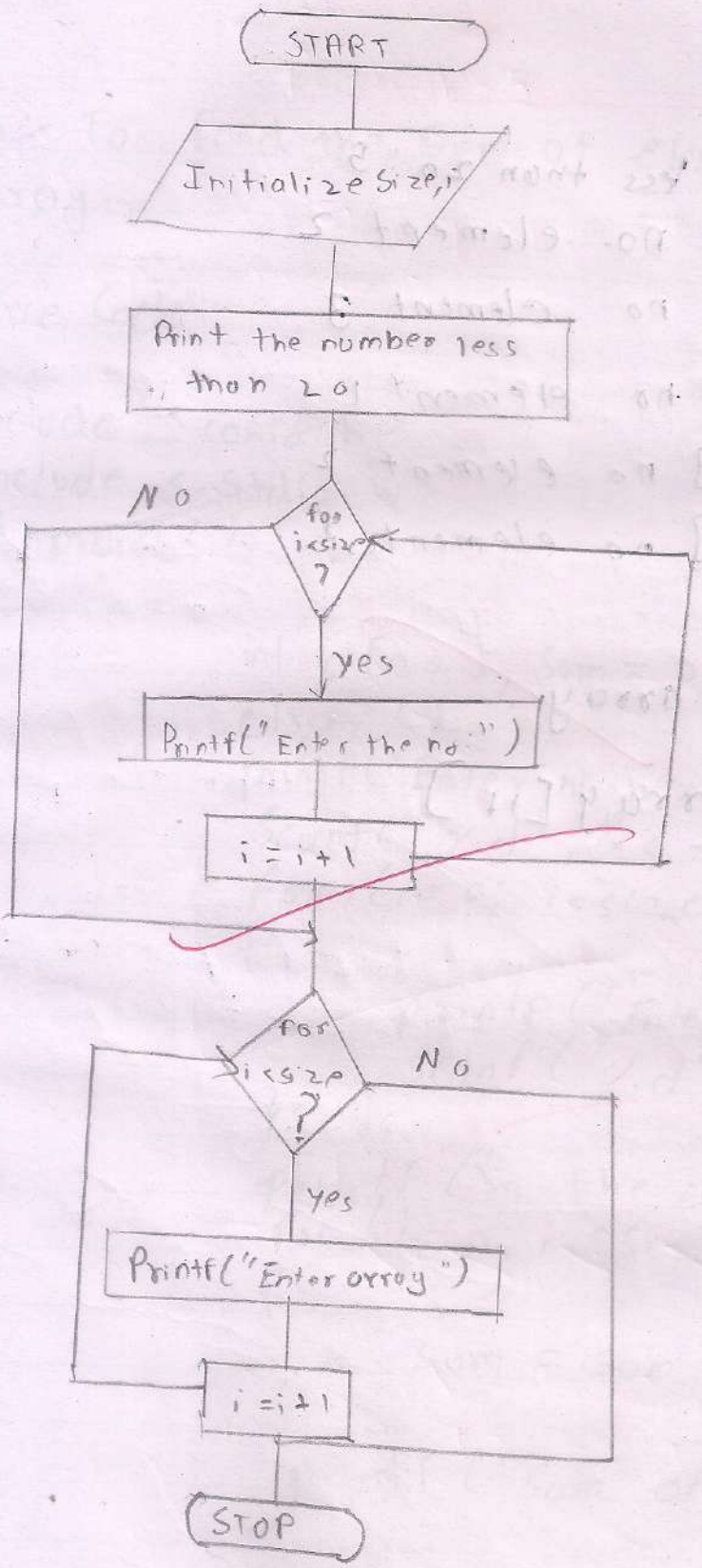
- Start
- Declare an array of user specified size
- Initialize two variables of integer type i.e. size and i
- Take range from the user that to be printed which should be less than the specified size of an array.
- Use Nested for conditional loop for printing the elements in arrays according to its indexing.
- Print the appropriate output.
- STOP

Output

```
Enter the numbers less than 20 : 5
Enter the a[0] no. element 5
Enter the a[1] no. element 2
Enter the a[2] no. element 4
Enter the a[3] no. element 1
Enter the a[4] no. element 8

The displayed array:

Enter a[0] 5
Enter a[1] 2
Enter a[2] 4
Enter a[3] 1
Enter a[4] 8
```


START
Initialize Size, i
Print the number less than 20
NO
for i<size ?
yes
Printf("Enter the no")
i = i+1
for i<size ?
NO
yes
Printf("Enter array")
i = i+1
STOP

B. Aim :- To find the Sum of elements of the arrays.

Source Code:

```
#include <conio.h>
#include <stdio.h>
Void main()
{
        int a[20], Sum = 0, size, i;
        clrscr();
        printf("Enter number less than 20: ");
        Scanf("%d", &size);
        for (i=0; i<size; i++)
        {
            printf("Enter the a[%d] no. element", i);
            scanf("%d", &a[i]);
        }
        printf("\n the displayed array \n:");
        for (i=0; i<size; i++)
        {
            Sum = Sum + a[i];
        }
        printf("Sum of the arrays: [%d]",
                                    sum);
        getch();
}
```

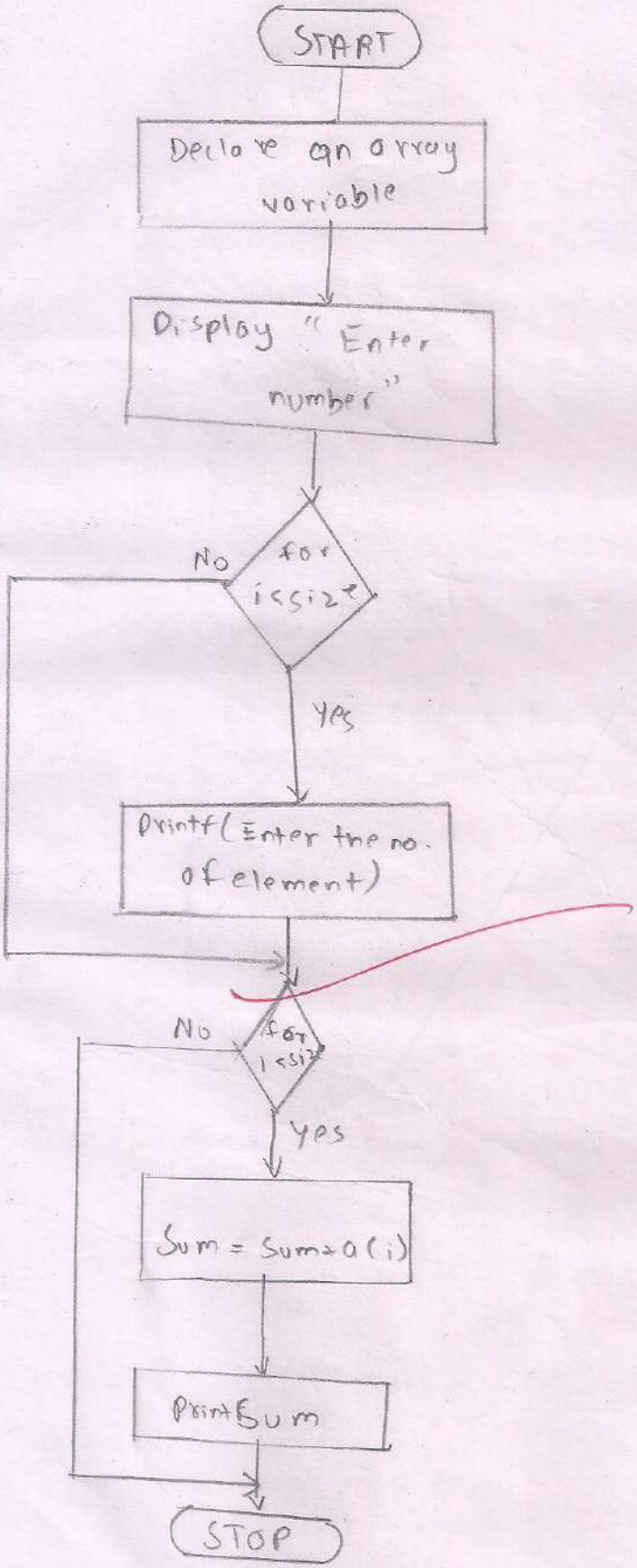
Algorithm

- START
- Declare an array of integer type of user Specified Size.
- Initialize three variable One of static type and two of dynamic type. i.e. Sum = 0, i, Size
- Take range from the user that to be printed & add, which should be less than the Specified Size of an array.
- Use Nested For Conditional loop for printing the elements in array according to its indexing.
- Adding the elements of the array
- Print the appropriate output.
- & ~~Exit~~. STOP

Output

```
Enter the number less than 20 : 5
Enter the a[0] no. element 2
Enter the a[1] no element 3
Enter the a[2] no element 1
Enter the a[3] no element 2
Enter the a[4] no element 3

The displayed array:
Sum of the array[11]
```


START
Declare an array variable
Display "Enter number"
for i<size
No
Yes
Printf(Enter the no. of element)
for i<size
No
Yes
Sum = Sum+a(i)
PrintSum
STOP

C. Aim :- Write a C program to find out fibonacci Series Using array.

Source Code

```
#include <stdio.h>
#include <conio.h>
Void main ()
{
        int a[20], n, i;
        clrscr ();
        printf("Enter the no. of terms \n");
        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
                term is \n", n);
        for (i = 0; i < n; i++)
        {
                printf ("%d \t", a[i]);
        }
        getch ();
}
```

Algo

- START
- Declare an array of integer type of specified size by the user
- Initialize two variables of dynamic variable i.e. i, n
- Take the no. of terms from the user up till what the no. should be printed.
- Initialize indexing value of a[0]=0 & a[1]=1, for printing the fiboracci series.
- Using for condition loop for looping of numbers.
- Indexing value of present array is equal to previous indexing value + previous indexing value.
- Print the fibonacci series upto the term given by the user.
- Use for loop for printing the output in tabular form.
- Print the appropriate output.
- STOP.

Output

Enter the no. of terms 7

The fibonacci Series upto 7 term is

0 1 1 2 3 5 8

D) Aim :- Write a C program to represent a multidimensional array in matrix input.

Source Code:

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

Output

```
Enter the no. of rows. 2
Enter the no. of columns - 2
 Enter the a[0][0] no. element = 1
 Enter the a[0][1] no. element = 5
 Enter the a[1][0] no. element = 4
 Enter the a[1][1] no. element - 2

The displayed matrix is

    1   5
    4   2
```

```
            {
                printf("\t %d ", a[i][j]);
            }
            printf("\n");
        }
        getch();
}
```

Algorithm:

- START
- Declare multi-dimensional array and row, column, i and j
- Display the enter no. of rows.
- Scan the same.
- similarly for columns.
- Use the for conditional for accessing the array elements.
- Use another For loop for displaying the array values.
- STOP.

11/2/2020

E) Aim :- Write a C program to add the given matrix.

Source code:

```
#include <stdio.h>
#include <conio.h>
Void main()
{
        int a[10][10], b[10][10], Sum[10][10], r, c, i, j;
        clrscr();
        printf("Enter no. of rows:");
        Scanf("%d", &r);
        printf("Enter no. of ~~elen~~ columns:");
        Scanf("%d", &c);
        for (i=0; i<r; i++)
        {
                for (j=0; j<c; j++)
                {
                        printf("Enter the a[%d][%d]
                                no. element:", i, j);
                        scanf("%d", &a[i][j]);
                }
        }
        printf("The displayed matrix I is \n\n");
        for (i=0; i<r; i++)
        {
                for (j=0; j<col; j++)
                {
```

```
            printf("\t%d", a[i][j]);
        }
        printf("Enter no. of rows: ");
        scanf("%d", &r);
        printf("Enter no of columns: ");
        scanf("%d", &c);
        for(i=0; i<r; i++)
        {
            for(j=0; j<c; j++)
            {
                printf("Enter the b[%d][%d] no. element:",
                    i, j);
                scanf("%d", &b[i][j]);
            }
        }
        printf("The displayed matrix2 is \n\n");
        for(i=0; i<r; i++)
        {
            for(j=0; j<c; j++)
            {
                printf("\t%d", b[i][j]);
            }
            printf("\n");
        }
        printf("\n Sum of matrices is:\n");
        for(i=0; i<r; i++)
        {
```

```
            Sum[i][j]=a[i][j]+b[i][j];
    }
    printf("\n Sum of two matrices :\n");
    for (i = 0; i <r; i++)
    {
            for (j=0; j<c; j++)
            {
                printf ("\t %d", sum[i][j]);
            }
            printf ("\n\n");
    }
    getch ();
}
```

Output

```
Enter no. of rows : 2
Enter no. of columns : 2
Enter the a [0] [0] no. element : 2
Enter the a [0] [1] no. element : 2
Enter the a [1.] [0] no. element : 2
Enter the a [0] [1] no. element : 2

The displayed matrix is
    2    2
    2    2

Enter no. of rows : 2
Enter no. of columns : 2
Enter the a [0] [0] no. element:
Enter the a [0] [1] no. element:
Enter the a [1] [0] no. element
Enter the a [0] [1] no. element.

The displayed matrix is
    2    2
    2    2
```

Sum of matrices

4 4

4 4

Practical - 6

Aim:- Write a C program which will demonstrate the use of getch, getche(), getchar() funt".

source code

```
#include<stdio.h>
#include<conio.h>
Void main()
{
        chr ch;
        clrscr();
        printf("Press any key to continue:");
        getch();
        printf("\n Enter an alphabet:");
        ch=getche();
        printf("\n Continue");
        getchar();
}
```

Aim:-Write a C program to demonstrate use of putch() and putchar()

Source code.

```
#include<stdio.h>
#include<conio.h>
void main()
```

```
{
        char ch = "a";
        putch(ch);
        putchar(ch);
        getch();
}
```

Aim :- Write a C program to print a string.

Source Code

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
        char a[20];
        clrscr();
        printf("Enter a string: ");
        scanf("%s", a);
        printf("%s", a);
        getch();
}
```

Output

```
Press any key to continue:
Enter an alphabet: S
continue.
```

Output

Ente a String : Myname is SavoorSingh

Myname is SavoorSingh