

PRACTICAL - 1.

AIM: To study the use of different datatypes

of datatypes.

SOURCE . CODE :

```
#include <stdio.h>
#include <conio.h>
void main()
{
    char name [50];
    char odd [50];
    int rollno;
    float percent;
    char grade;
    long int mob;
    clrscr();
    printf("..... Demonstrate various datatypes
          .....\n");
    printf("Name of the student \n");
    scanf("%s", &name);
    printf("Address of Student \n");
    scanf("%s", &addr);
    printf("Roll no of Student \n");
    scanf("%d", &rollno);
    printf("percentage of Student \n");
    scanf("%f", &percent);
```

Output:

..... Demonstrate various datatypes

Name of student:

Rizwana

Address of student:

Mumbai

Roll No of student:

12

Percentage of student:

90.04.

Grade of Student

A

Mobile No:

234569406

Student name: Rizwana.

Student address: Mumbai

Student rollno: 12.

Student percent: 90.04.

Student grade: A.

Student mob no: 234569406

Program 2:

Enter Radius : 4

Area of circle : 50.240002.

SSN

```
printf("Grade of student \n");
scanf("%s", &grade);
printf("Mobile no \n");
scanf("%d", &mob);
printf("\n Student name: %s", name);
printf("\n Student address: %s", add);
printf("\n Student rollno: %d", roll no);
printf("\n Student percent: %f", percent);
printf("\n Student grade: %c", grade);
printf("\n Student mobileno: %d", mob);
getch();
}
```

~~Mr. J. S. 29/11/11~~

SOURCE CODE.

Area of a circle.

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

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

```
void main()
```

```
{
    float r;
    float pi = 3.14;
    float area;
    clrscr();
    printf("Enter Radius \n");
    scanf("%f", &r);
    area = pi * r * r;
    printf("Area of circle : %f", area);
    getch();
}
```

PRACTICAL - 2.

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

Arithmetic operators.

SOURCE CODE:

```
#include <stdio.h>
#include <conio.h>
Void main()
{
    int num1, num2, add, sub, mul, div;
    clrscr();
    printf("Enter 1st No: ");
    scanf("%d", &num1);
    printf("Enter 2nd Num: ");
    scanf("%d", &num2);
    add = num1 + num2;
    printf("Add of 2 No: %d \n", add);
    sub = num1 - num2;
    printf("Sub of 2 No: %d \n", sub);
    mul = num1 * num2;
    printf("Mul of 2 NO: %d \n", mul);
    div = num1 / num2;
    printf("Div of 2 NO: %d \n", div);
    getch();
}
```

Output:

Entered 1st Number : 8.

Entered 2nd Number : 2.

Addition of 2 No : 10.

Subtraction of 2 No : 6.

Multiplication of 2 No : 16.

Division of 2 No : 4.

Q. No.

Logical operators:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int x, y, z, val1, val2, val3, val4, val5;
    clrscr();
    printf("Enter 1st value : ");
    scanf("%d", &x);
    printf("Enter 2nd value : ");
    scanf("%d", &y);
    printf("Enter 3rd value : ");
    scanf("%d", &z);
    val1 = (x > y) & (z > y);
    printf("val1 is : %d\n", val1);
    val2 = (x = y) & (z < y);
    printf("value 2 is : %d\n", val2);
    val3 = (x < y) || (z = y);
    printf("value 3 is : %d\n", val3);
    val4 = !(x == y);
    printf("val4 is : %d\n", val4);
    val5 = (x == y) ^ val4;
    printf("value 5 is : %d", val5);
    getch();
}
```

output:

Enter 1st NO : 9.

Enter 2nd NO : 8.

Enter 3rd NO: 2.

val 1 is : 0.

val 2 is : 1.

val 3 is : 1

val 4 is : 0.

val 5 is : 1

~~Jm~~

Ternary Operator:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a, b, c, d;
    clrscr();
    printf(a = 100, b = 20, c = 50, big);
    printf("Biggest no is %d", big);
    getch();
}
```

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

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

```
void main()
```

```
{
```

```
int a = 100, b = 20, c = 50, big;
```

```
clrscr();
```

```
big = a > b ? a > c ? a : b : c;
```

```
printf("Biggest no : %d", big);
```

```
getch();
```

*Sunil
17/01/2020*

output:
Biggest no is 100.

PRACTICAL - 3.

160

AIM: Programs on Decision statement.

1) write a program to find odd & even number.

Algorithm:

Step 1: Start.

Step 2: Read a no from user.

Step 3: check if number $n \% 2 == 0$ than
print "Even No" else print
"Odd No".

Step 4: Exit.

Program:

```
#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");
    }
}
```

Output :

Enter a number : 46.

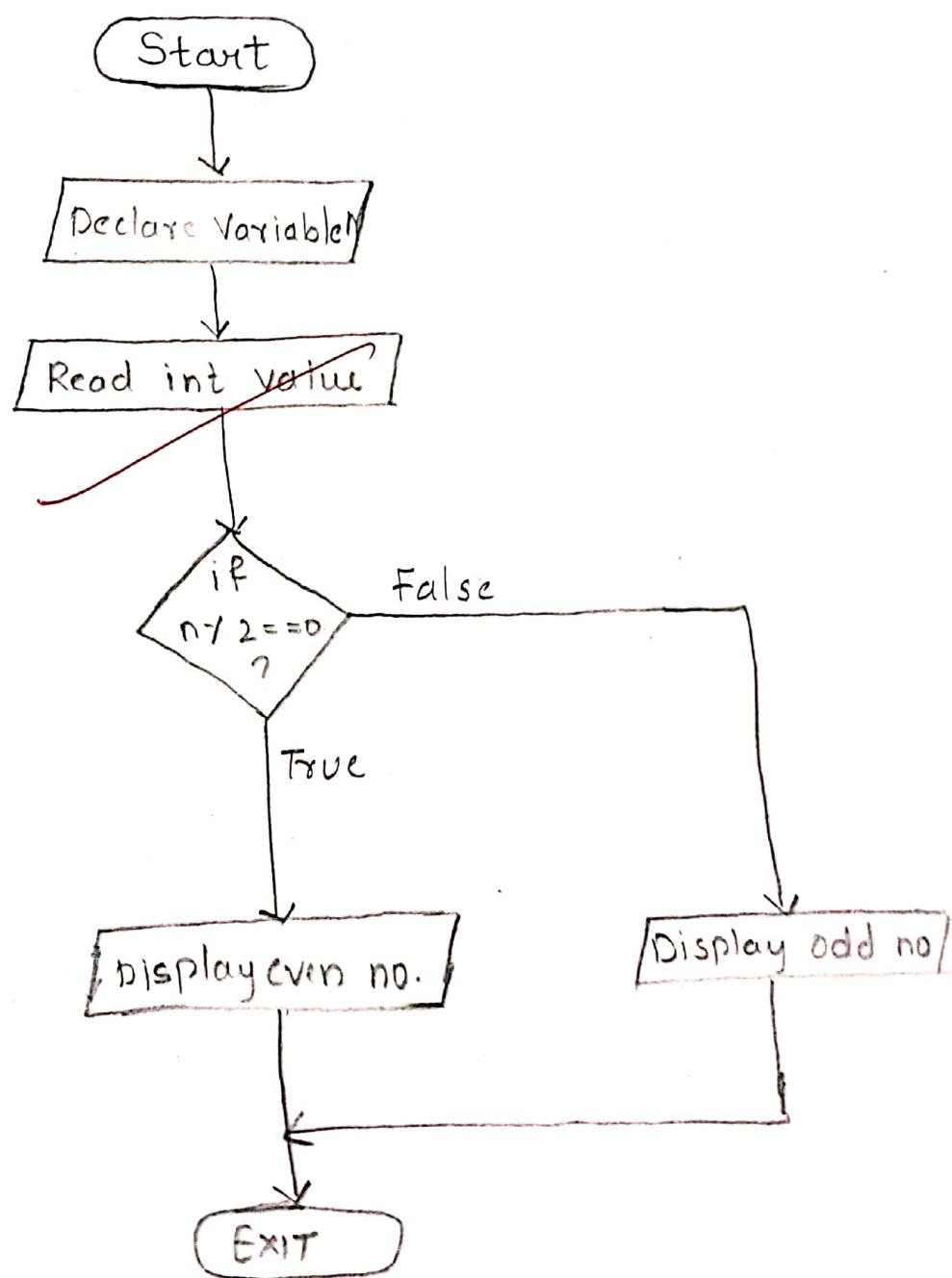
Even number.

032

Enter a number : 57.

Odd Number.

Flowchart :



```

else
{
    printf("odd Number");
}
getch();
}

```

2) Write a program to find the entered year is a leap year or not.

→ Algorithm:

Step 1: Start

Step 2: Read year from user.

Step 3: If $\text{year} \% 4 = 0$ El $\text{year} \% 400 == 0$.

$\text{year} \% 4 = 0$ El $\text{year} \% 100 != 0$.

Print "leap year".

else print "Not a leap year".

Step 4: Exit.

program:

```

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

```

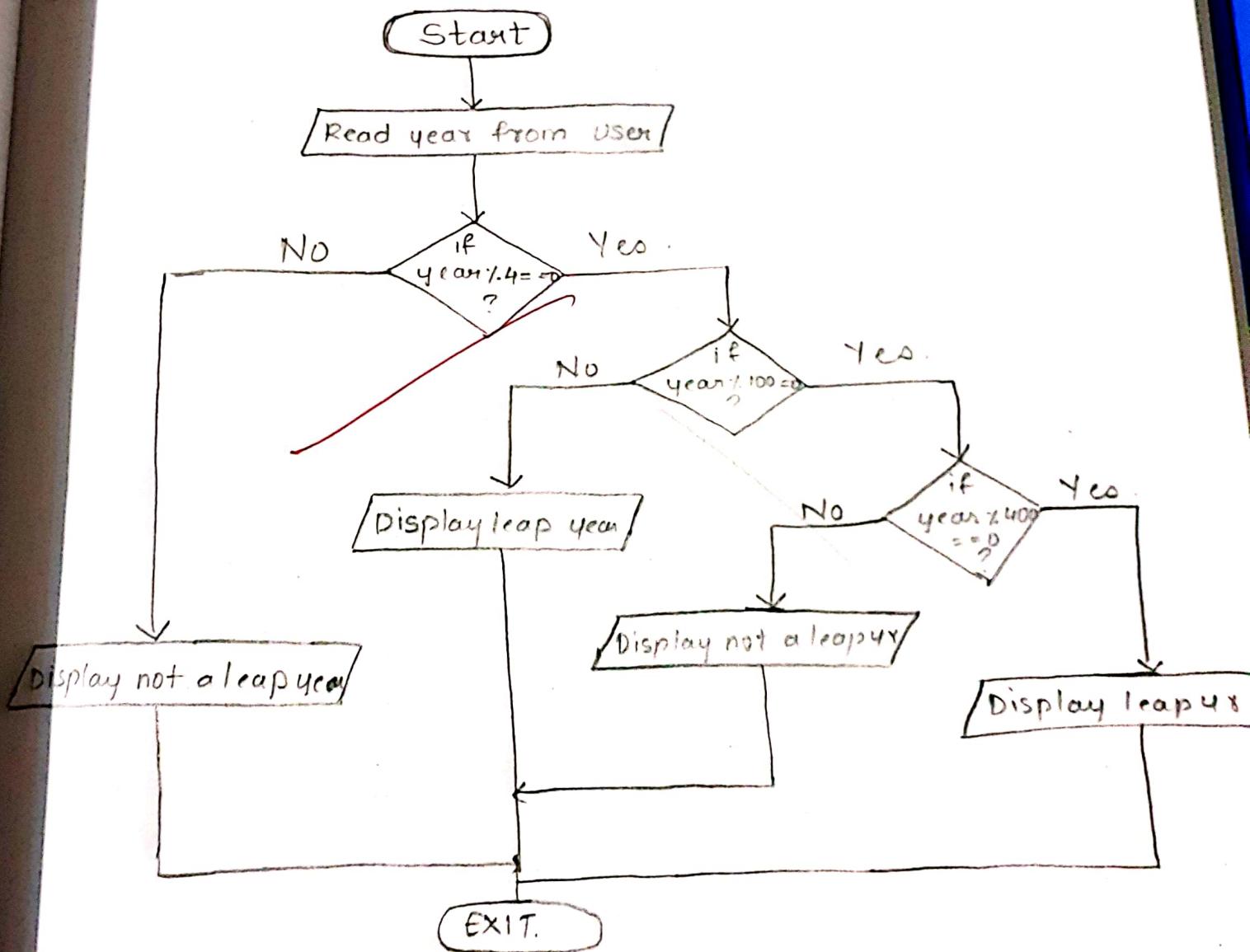
```
int year;
clrscr();
printf("Enter a year: ");
scanf("%d", &year);
if (year % 4 == 0)
{
    printf if (year % 100 == 0)
    {
        if (year % 400 == 0 )
        {
            printf("leap year");
        }
        else:
        {
            printf("Not a leap year");
        }
    }
    else:
    {
        printf("Not a leap year");
    }
}
else
{
    printf("Not a leap year");
}
getch();
```

output:
Enter a year : 2017
Not a leap year.

034

Enter a year : 2020
leap year.

Flowchart:



3) write a program to find whether the entered character is a vowel or consonant.

Algorithm:

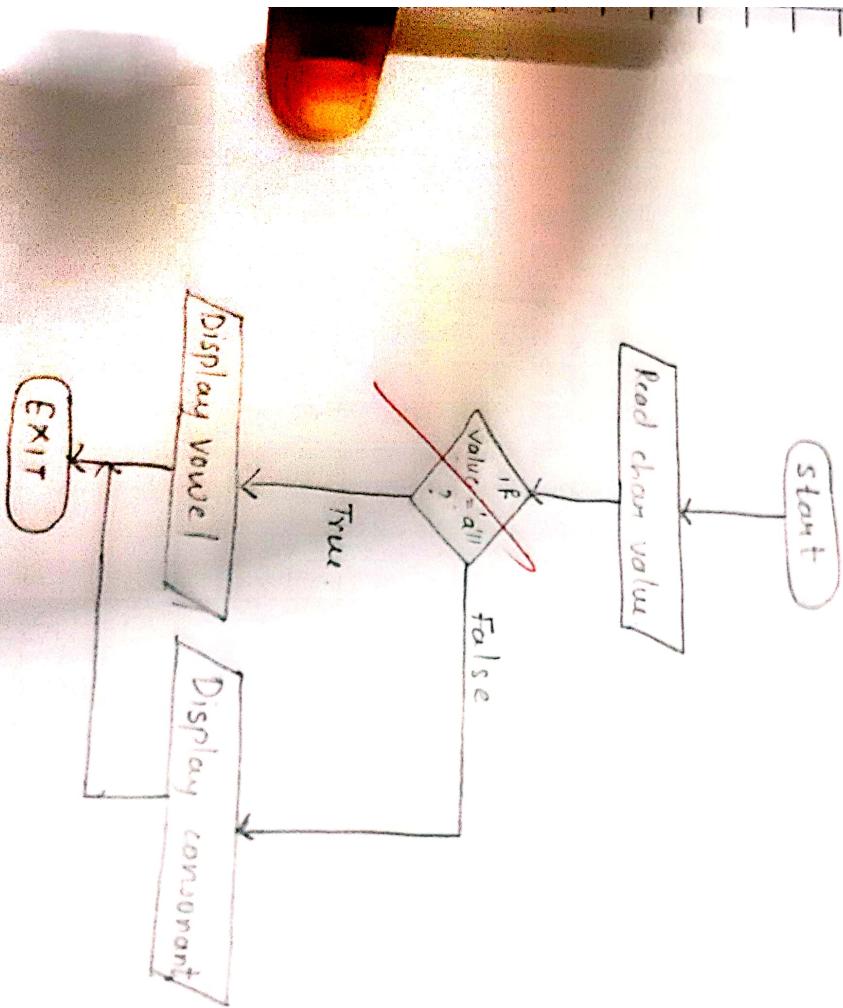
Step 1: Start
 Step 2: Read character value from user
 Step 3: if value == 'a' || value == 'e' || value == 'i'
 || value == 'o' || value == 'u' ||
 value == 'A' || value == 'E' || value == 'I'
 || value == 'O' || value == 'U'
 Print "vowel"
 else Print "consonant".
 Step 4: Exit.

```
Program:
#include <stdio.h>
#include <conio.h>
void main()
{
    char a;
    clrscr();
    printf("enter any alphabet : ");
    scanf("%c", &a);
    if (a == 'a' || a == 'i' || a == 'o' || a == 'u' || a == 'A' || a == 'E')
        {
            printf("vowel");
        }
}
```

Output:
Enter the Alphabet : o
Vowels

Enter the Alphabet : m
consonant

Flowchart:

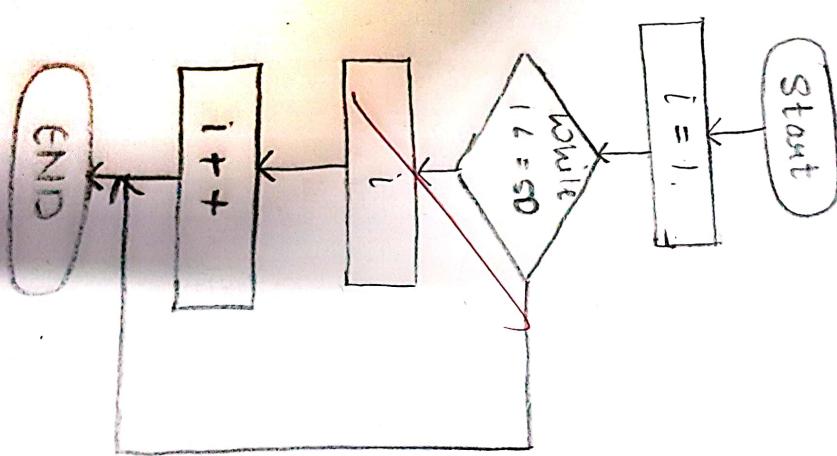


```
No  
if  
else  
{  
    printf ("consonant");  
}  
getch();  
  
Ques:  
Ques:  
Ques:
```

AIM: To study use of different loops.

To print even nos between 1 to 50 using
while loop:
#include <stdio.h>
#include <conio.h>
Void main()

```
int i=1;
clrscr();
while (i<=50)
{
    if (i%2 == 0)
    {
        printf ("\n%d", i);
        i++;
    }
}
```



16
 20
 22
 24
 26
 28
 30
 32
 34
 36
 38
 40
 42
 44
 46
 48
 50

ii) To find odd nos. between 50 to 100
 do while loop:
~~# include <stdio.h>~~
~~# include <conio.h>~~
 void main()

```

int i=1;
clrscr();
do
{
    printf ("\n %d", i);
    i = i + 2;
}
while (i <= 50);
getch();
}
  
```

Algo :
 Step 1: start
 Step 2: initialize variable.
 Step 3: use do while loop starting for printing the odd numbers.
 Step 4: stop.

To find factorial :

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

```
void main()
```

```
{
    int fact = 1, a, i;
    clrscr();
    printf("Enter any number to find factorial : ");
    scanf("%d", &a);
    for (i = 1; i <= a; i++)
    {
        fact = fact * i;
    }
    printf("The factorial of no %d is %d", a, fact);
}
```

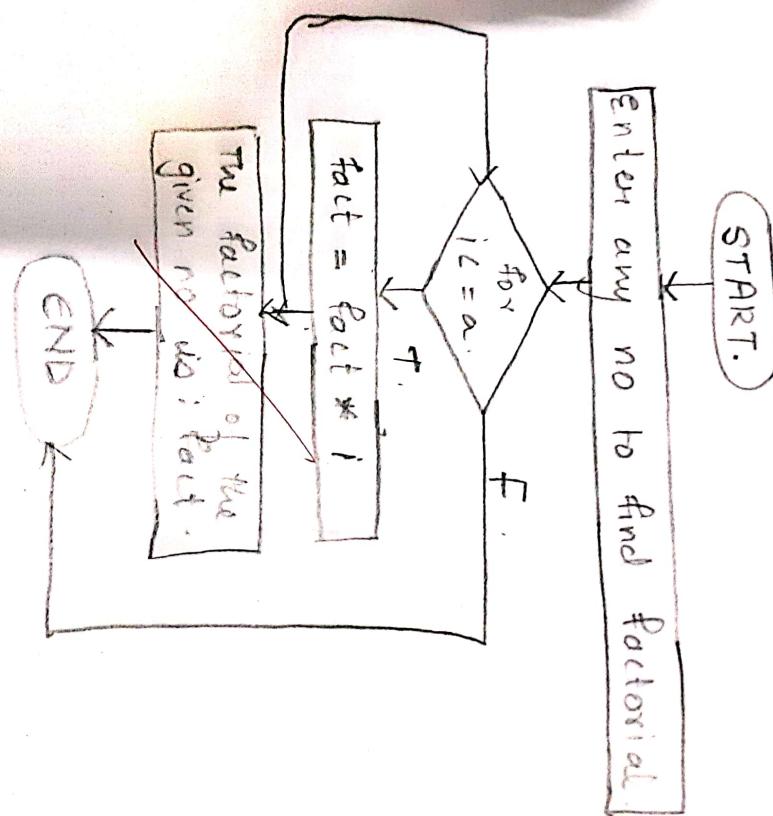


Algo :

- Step 1: Start
- Step 2: Initialize the value.
- Step 3: Display for user entering a value for factorial.
- Step 4: use the condition loop for factorial.
- Step 5: Stop.

Output:
Enter any no to find factorial : 5

Enter any no to find factorial : 5
The factorial of no : 120



7] Fibonacci Series :

```

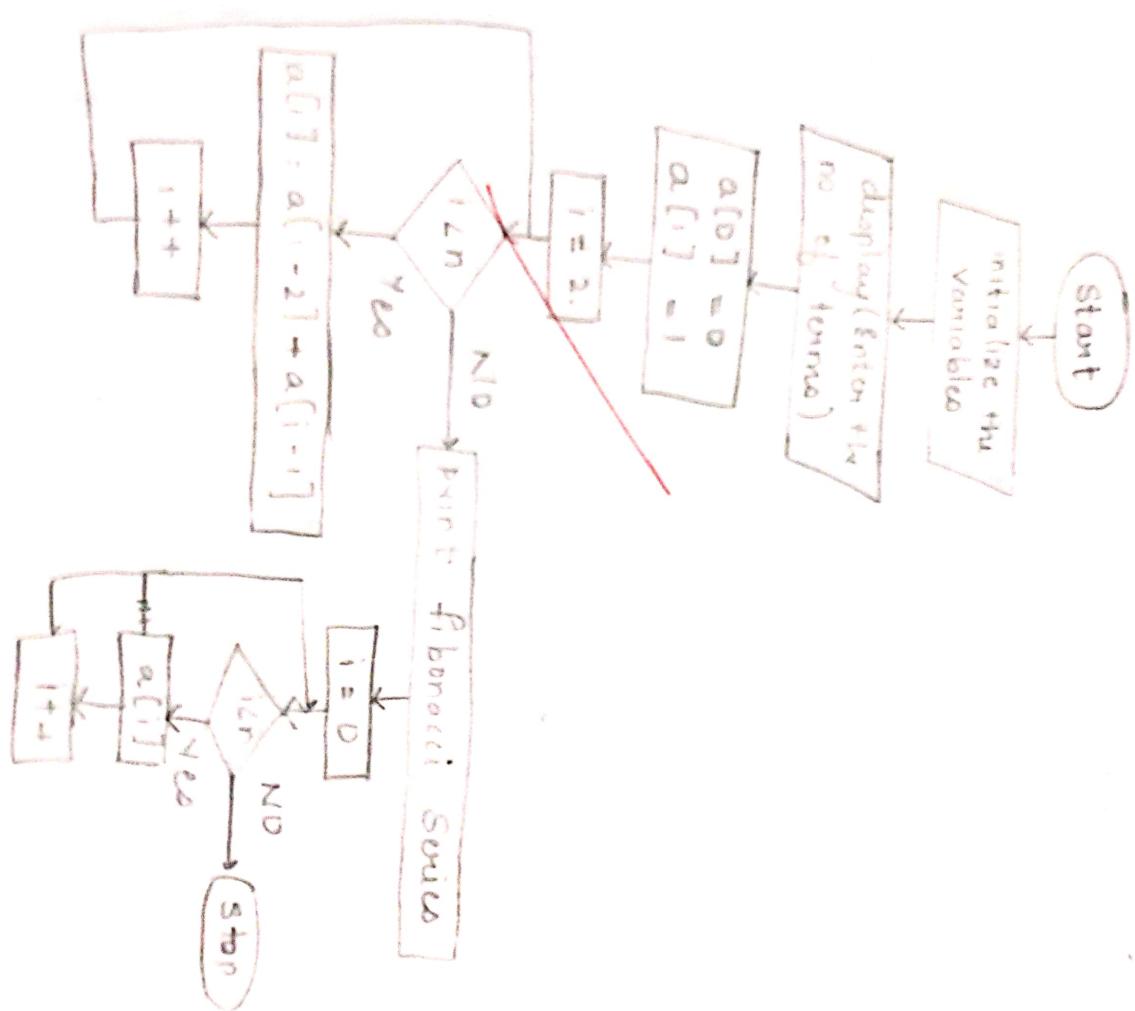
#include <stdio.h>
#include <conio.h>
void main()
{
    int a[20], n, i;
    clrscr();
    printf("\n Enter the no of terms : ");
    scanf("%d", &n);
    a[0] = 0;
    a[1] = 1;
    for(i=2 ; i<n ; i++)
    {
        a[i] = a[i-2] + a[i-1];
    }
    printf("\n The Fibonacci Series upto %d term is :\n",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

```

~~The no of terms : 10~~

Output :
 Given the no of terms : 5
 Fibonacci series upto 5 : 0 1 1 2 3 5 **040**

Flowchart :



Algorithm :

Step 1 : Start
 Step 2 : Initialize the variable
 Step 3 : Print ("Enter the no. till fibonacci series")

Step 4 : Scan the entered value from the user.

Step 5 : Use the for conditional loop for the fibonacci series.

Step 6 : When the condition is for loop false : print or display the appropriate values stored in the array in the user.

Step 7 : Stop.

[2] Programs to print inverted half pyramid using * as numbers.

Algorithm :

Step 1 : Start

Step 2 : Initialize variables as i, j as row

Step 3 : Display entered rows to the user

q) Subsequently Scan the value to initialize for conditional loop we will

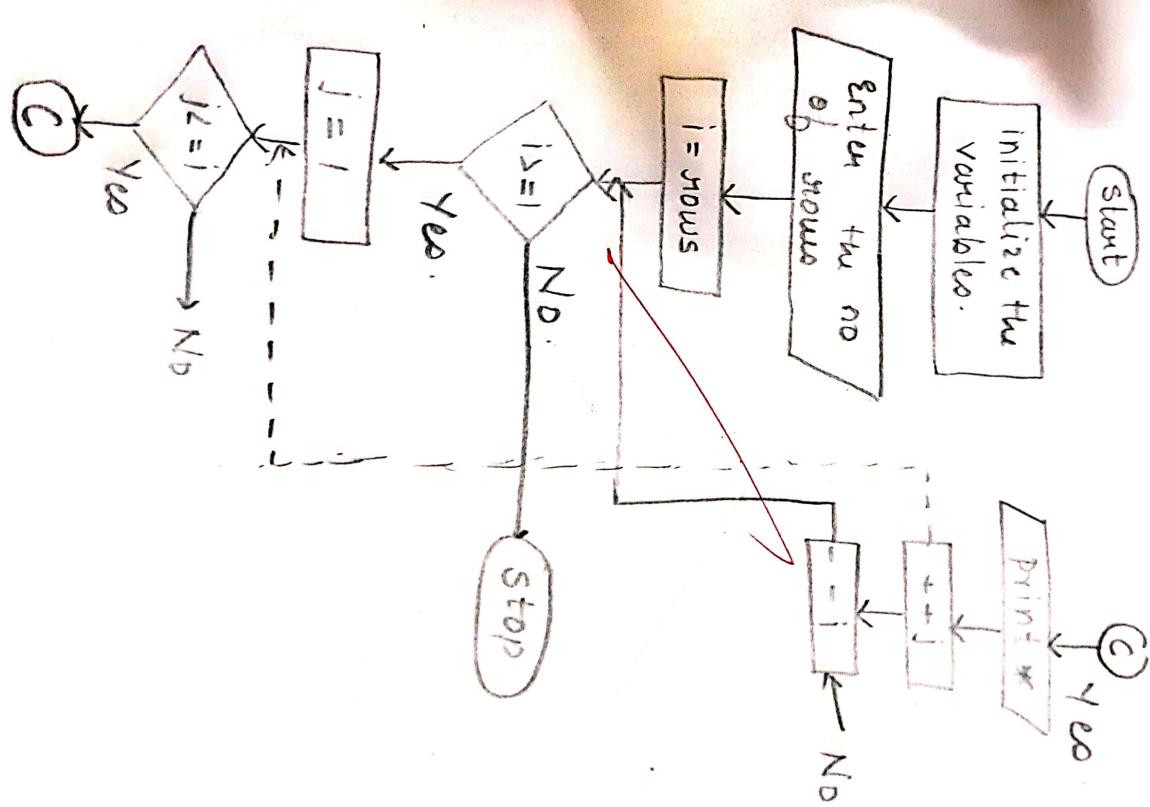
using for conditional loop we will initialize value of i as rows if value of j is greater than equal

q) decrement

output
Enter the no of rows : 3

No.
* * * *

Flowchart:



Q10

Step 5: Subsequently use needed for loop by initializing the value of i as 1 and do the increment than equal operator (*)

Step 6: print *top.

```
Source code:  
#include <stdio.h>  
#include <conio.h>  
void main()  
{  
    int i, j, rows;  
    clrscr();  
    printf("Enter no of rows : ");  
    Scanf("%d", &rows);  
    for(i = rows; i >= 1; i--)  
    {  
        for(j = 1; j <= i; j++)  
        {  
            printf("*");  
        }  
        printf("\n");  
    }  
    getch();
```

2 Two Dimensional array

```
#include <stdio.h>
#include <conio.h>
void main ()
{
    int disp[3][3];
    int i, j;
    for (i = 0; i < 3; i++)
    {
        for (j = 0; j < 3; j++)
            disp[i][j] = 0;
        printf("Enter value for disp[%d][%d]: ", i, j);
        scanf("%d", &disp[i][j]);
    }
    printf("Two Dimensional array elements: \n");
    for (i = 0; i < 3; i++)
    {
        for (j = 0; j < 3; j++)
            printf("%d", disp[i][j]);
        if (j == 3)
            printf("\n");
    }
}
```

Output:
Enter value for disp [0][0]: 1
Enter value for disp [0][1]: 2
Enter value for disp [0][2]: 3
[1][0]: 4
[1][1]: 5
[1][2]: 6
[2][0]: 7
[2][1]: 8
[2][2]: 9

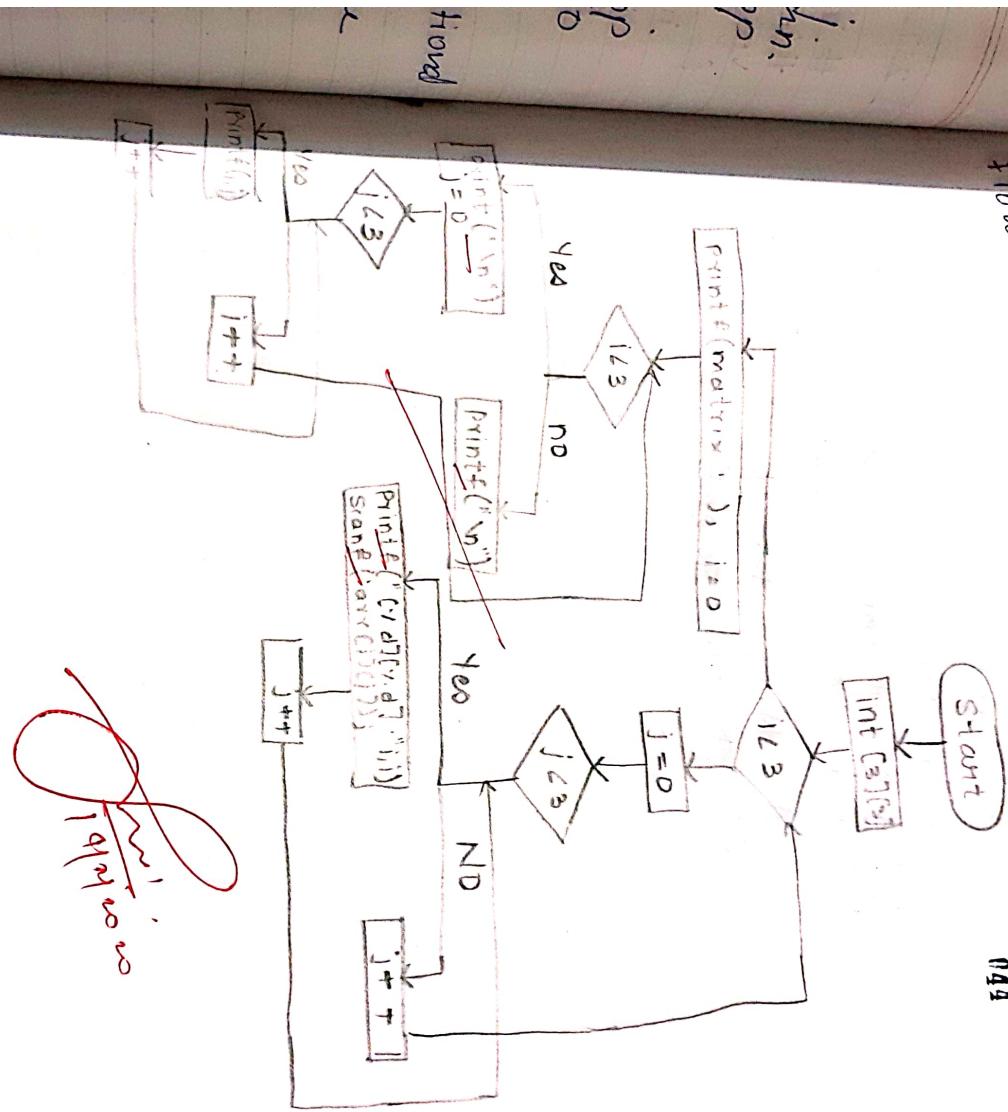
Two Dimensional array Elements:

1	2	3
4	5	6
7	8	9

Algorithm

- Step 1: Start the program.
- Step 2: Initialize the variable i as 1.
- Step 3: Use the for conditional loop as follows:
 - if i is equal to 0 or i is greater than 3.
 - Similarly, use the for loop condition as i is equal to 0.
 - if i is less than 3.
- Step 4: Print j the values of i if i again use the for conditional statement to display the values of i . Then use the if conditional statement as if i is equal to 3.
- Step 5: Print the values.
- Step 6: Stop.

Flowchart:



PRACTICAL - 6

Q45

AIM: Program on Structure.

- Step 1 : Declare the structure with initialization of variables.
- Step 2 : Call the structure with declared structure object.
- Step 3 : Print the user to enter the student details.
- Step 4 : Display the same to user.

SOURCE CODE:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    struct stud
    {
        int roll;
        float per;
        char name[20];
    };
    Stud stud;
    clrscr();
    printf("\n Enter student details: ");
    printf("\n Enter roll no: ");
```



```
scanf("%d", &sl1.roll);
printf("\nEnter the name : ");
scanf("%s", &sl1.name);
printf("Enter the per : ");
scanf("%f", &sl1.per);
printf("\n%d %s %f", sl1.roll, sl1.name, sl1.per);
getch();
```

#2:

Algorithm :

- Step 1 : Start.
- Step 2 : Declare Structure Student which will take input as roll number in integer name in character and percentage in float.
- Step 3 : Depending upon the number of inputs declare the structure objects.
- Step 4 : Display to the user to enter roll no., Name and Percentage for the 1st user.
- Step 5 : Display the same by scanning the inputs.

Output : Roll

Name
Percentage

1718

Rizwana

90

1737

Nehal

80

Roll

1718

Rizwana

90

1737

Nehal

80

Percentage

146

will
be in
pers

inputs

Info.,
etc.

The

SOURCE CODE :

```
#include <stdio.h>
#include <conio.h>
void main()
{
    struct student
    {
        int roll;
        char name[20];
        float per;
    } s1, s2;
    clrscr();
    printf("Enter Roll No. Name & Percentage");
    scanf("%d %s %f", &s1.roll, &s1.name,
          &s1.per);
    scanf("%d %s %f", &s2.roll, s2.name,
          &s2.per);
    printf("\nRoll No. %s (%.f)", s1.roll, s1.
          name, s1.per);
    printf("\nRoll No. %s (%.f)", s2.roll, s2.name,
          s2.per);
    getch();
}
```

```

# 3:
#include <stdio.h>
#include <conio.h>
void main()
{
    struct employee
    {
        int id;
        char name[30];
        char add[30];
    };
    struct employee e[50];
    int size, i;
    clrscr();
    printf("In Enter how many records you want to enter :");
    scanf("%d", &size);
    for (i = 1; i <= size; i++)
    {
        printf("In %d Enter the ID: ", i);
        scanf("%d", &e[i].id);
        printf("In %d Enter the name: ", i);
        scanf("In %.s", e[i].name);
        printf("In %d Enter the address: ", i);
        scanf("In %.s", e[i].add);
    }
    printf("In In Employee record is: ");
    printf("In It ID It Name It Address In ");
}

```

output:

P48

1. Enter the ID: 1
1. Enter the name: Rizwana
1. Enter the address: Canada
2. Enter the ID: 2
2. Enter the name: Neha
2. Enter the address: California
3. Enter the ID: 3
3. Enter the name: Sowmi
3. Enter the address: Africa

Employee record is:

ID	Name	ADDRESS
1	Rizwana	Canada
2.	Neha	California
3.	Sowmi	Africa

Practical-7.

1: Call by value:

```
#include <stdio.h>
#include <conio.h>
int sample (int, int)
void main()
{
```

```
int x, y, r;
```

```
clrscr();
```

```
printf ("Enter the value of x : ");
```

```
scanf ("%.d", &x);
```

```
printf ("Enter the value of y : ");
```

```
scanf ("%.d", &y);
```

```
r = x + y;
```

```
printf ("\n before function call the number are :");
```

```
printf ("\n x = %.d \t y = %.d \t r = %.d ", x, y, r);
```

```
r = sample (x, y);
```

```
printf ("\n after function call the number are :");
```

```
printf ("\n x = %.d \t y = %.d \t r = %.d ", x, y, r);
```

```
getch();
```

```
}
```

```
int sample (int a, int b)
```

```
{
```

```
int result;
```

```
a = 10;
```

```
b = 20;
```

```
result = a + b;
```

Output:

Enter the value of $x = 5$

Enter the value of $y = 6$

before function call the numbers are

$x = 5 \quad y = 6 \quad z = 11$

Inside the function

$x = 10 \quad y = 20 \quad z = 30$

after Function call the numbers are:

$x = 5 \quad y = 6 \quad z = 30$

```
Print ("\\n Inside the function");
Print ("\\n x = .1. d \t y = .1. d \t r = .1. d ", result);
return (result);
}
```

Algorithm:

- Step 1: Start
- Step 2: Declare function with integer parameters
- Step 3: Declare variables to display the user given the value of x & y respectively
- Step 4: add the value of x & y in another variable.
- Step 5: Display the number before function call.
- Step 6: Call the function E & display the same.
- Step 7: Define the declared function E
- Step 8: Print the same.
- Step 9: Stop.

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

```
char str [50];
char st [10];
```

```
clrscr();
```

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

```
gets (str);
```

printf ("\n Enter substring to find in the above
String ");

```
gets (st);
if (str[0] == '\0')
```

→ { printf ("\n STRING NOT FOUND!"); }

else

→ { printf ("\n String found"); }

} gets ();

1139
Enter a string : CS is all about programming
Enter substring : all
String found !