Aim: To study the use of different types of datatypes

SOURCE CODE:

```
#include<stdio.h>
#include<conio.h>
void main()
{
   char name[50];
   char add[50];
   float
   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",&add);
   printf("rollno of the student\n");
   scanf("%d",&roll no);
   printf("percentage of student\n");
   scanf("%f",&percent);
```

Output:

----- Demonstrate various datatypes ----------

Name of students:
Sachit
Address of student:
Andheri, mumbai
roll no of student
1734
percentage of student
80
Grade of student
A
mobile no
8416212212

student name: sachit
student Address: Andheri, mumbai
student roll no: 1734
student percent: 80
student grade: A
student mobileno: 8416212212

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

29/11/19

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

Arithmetic operator :-

```
#include <stdio.h>
#include <conio.h>
void main ()
{
int a, b, add, sub, mul, div;
  clrscr();
printf (" enter first number:" );
scanf ("%d", &a);
printf(" enter second number:");
 scanf ("%d", &b);
add= a+b;
sub= a-b;
mul= a*b;
div = a/b;
printf("Addition is :%d", add );
printf ("subtraction is %d", sub);
printf ("multiplication is %d", mul);
printf ("Division is %d", div);
 getch();
}
```

85

output:

Enter first number : 8

Enter second number : 4

Addition is : 12

Subtraction is : 4

multiplication is : 32

Division is : 2.

logical operators:

```
#include<stdio.h>
#include<conio.h>
 void main()
  {
int x, y, z;
 int val1, val2, val3; val4, val5;
 clrscr();
printf("Enter first value:");
 scanf("%d", &x);
printf("Enter second value:");
 scanf("%d", &y);
  printf("enter the third value:");
  scanf("%d", &z);
val1 = (x<y) && (z>y);
printf("value-1 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("value 4 is %d \n", val4);
val5 = (x==y);
printf("value 5 is %d \n", val5);
getch();
}
```

output :

```
Enter first value = 9
Enter second value = 8
enter third value = 2
value 1 is : 0
value 2 is : 1
value 3 is : 0
value 4 is : 0
value 5 is : 1
```

Q8.

output :-

The biggest number is 100

Ternary Operator :-

```
#include <conio.h>
#include <stdio.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();
}
```

17/01/2020

PRATICAL - 3

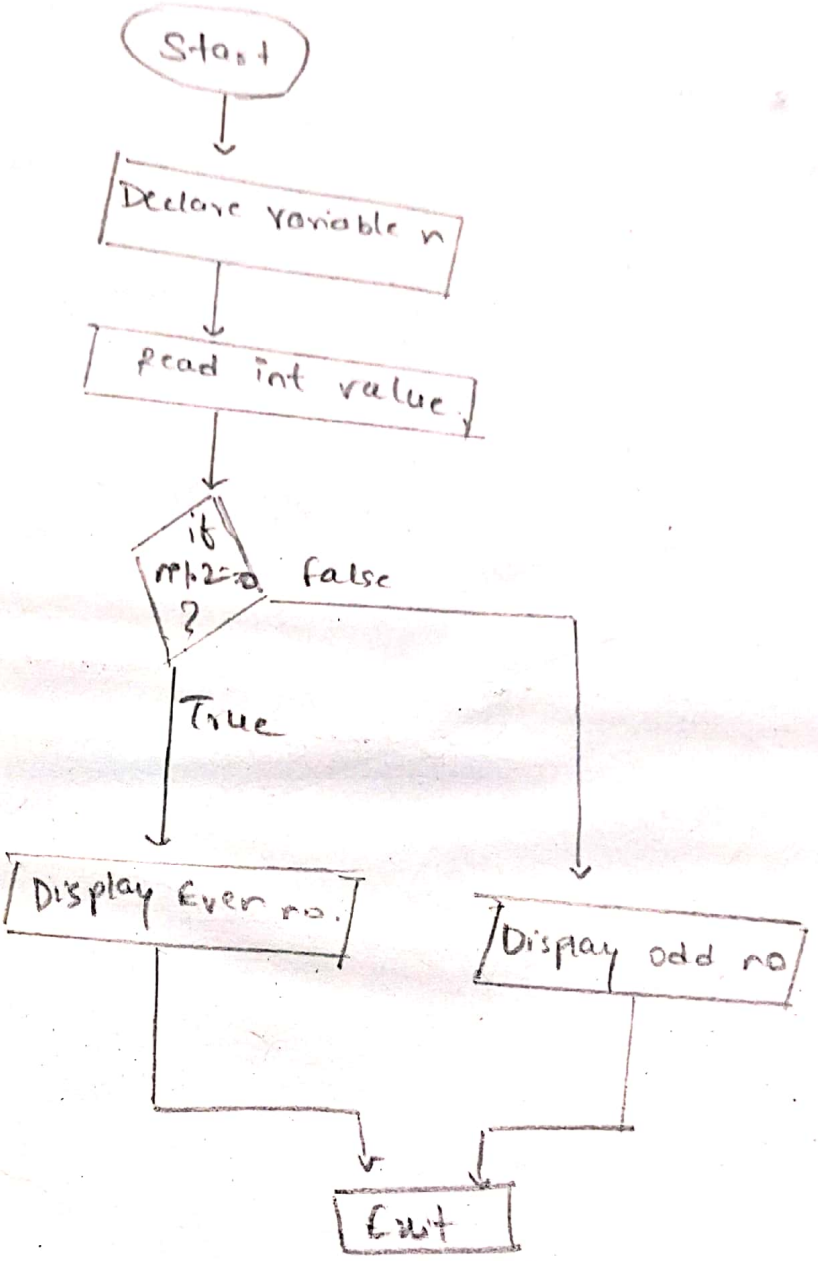
Aim: Programs on decision statement

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

Algorithm:-
step1:- start
step2:- [Take Input] Read a number from user.
step3:- check if number % 2==0 then print "Even Number"
else print "Odd Number".
step4:- 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");
 }
  else
  {
     printf("Odd Number");
}
 getch();
}
```



Output:

Enter a number : 34

Even number

Enter a number : 35

Odd Number.

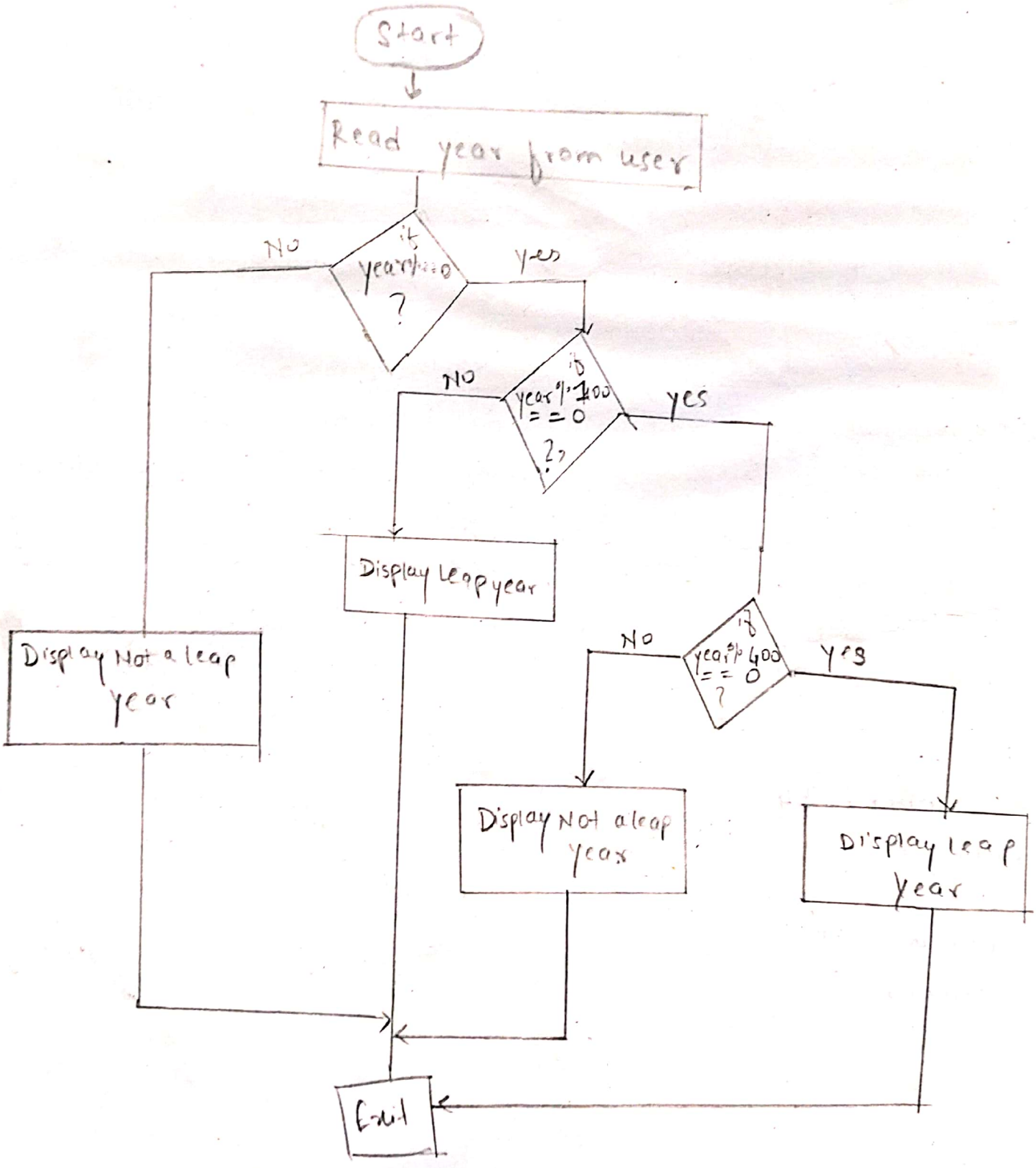
66.

Output :-

Enter a year : 2017
Not a leap year

Enter a year : 2020
Leap year

Flowchart



2) write a program to find the entered year is leap year or Not

Algorithm:

Step1: start

Step2: [Take Input] Read year from user

Step3: if year % 4==0 and year % 100 != 0
print "Leap year".
else print "Not a leap year".

Step4: Exit

Program:

```
#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("Leap year");
    }
}
else
{
    printf("Not a leap year")
}
getch
}
```

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

Algorithm:

step1: start

step2: [Take Input] Read character value from user.

step 3: [Check] if value == 'a' || value == 'e' || value == "i" || value ==
value == 'u' || value == 'A' || value == 'E' || value == 'I
value == 'o' || value == 'u'.

print" vowel".

else print print " consonant".

Step4: Exit

A5

Output:

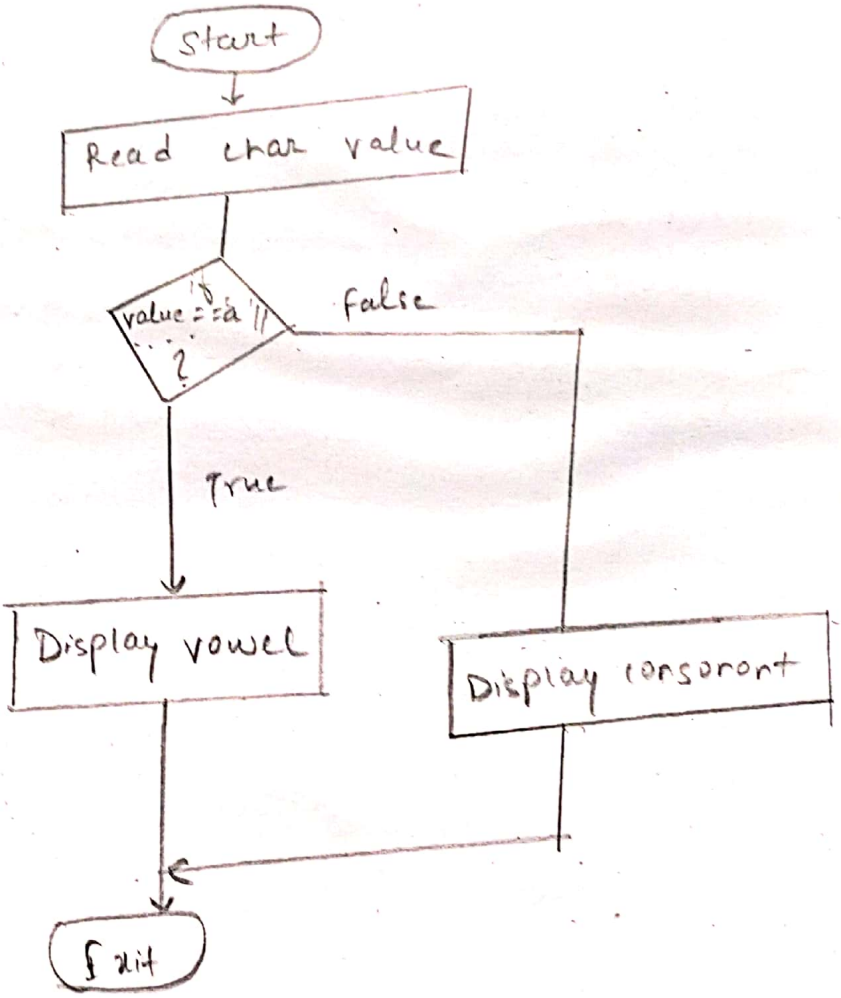
Enter the Alphabet : O

Vowel

Enter the Alphabet : x

consonant

Flowchart



Program :-

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

PRATICAL - 4

1) Aim: write a program to print even numbers between 1-50 using while loop.

Algorithm:-

Step1:- Start.

Step2:- Initilize two variable with static variable where n=50 & i=2.

Step3:- Use while loop for printing the even number upto the range 50.

Step4:- Adding 2 to current even number will give next even number

Step5:- Display the appropriate output

Step 6:- Stop

Source Program:-

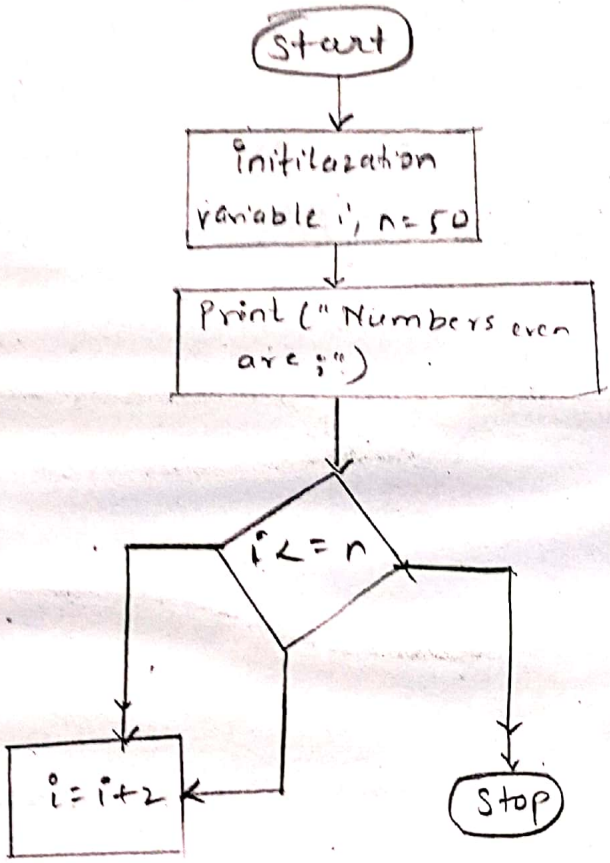
```
#include <stdio.h>
#include <conio.h>
void main()
{
        int i, n=50;
        Clrscr();
        Printf("All even numbers from 1 to 50 are: \n");
        i=2;
        while(i<=n)
        {
            Print("%d \n", i);
            i = i+2;
    }
```

Output :-

All even numbers from 1 to 50 are :

2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 34, 36, 38, 40, 42, 44, 46, 48, 50

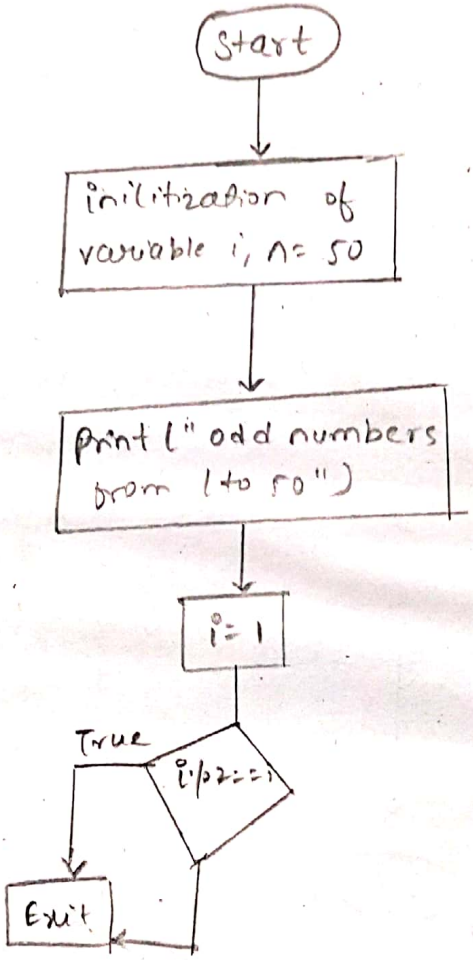
Flow chart :-



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.



```
getch ();
}
```

3) write a program to print odd number between 1-50 using 1-50 using do while loop.

Algorithm:
Step1:- start
Step2:- Initialize two static variable n=50, i=1,
Step3:- Use do while loop which iterates from 1 to 50.
Step4:- Use if condition statement to check whether given number is even or odd
Step5:- Increment the value of i
Step6:- Display the appropriate output
Step7:- stop

Program:-

```
#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();
}
```

2) write a program to print sum of all even number between 1 to n using for loop

Algorithm:-

Step 1:- Start.

Step 2:- Initilize three variable from these two is static and one is dynamic
i= 2 ; sum= 0; n;

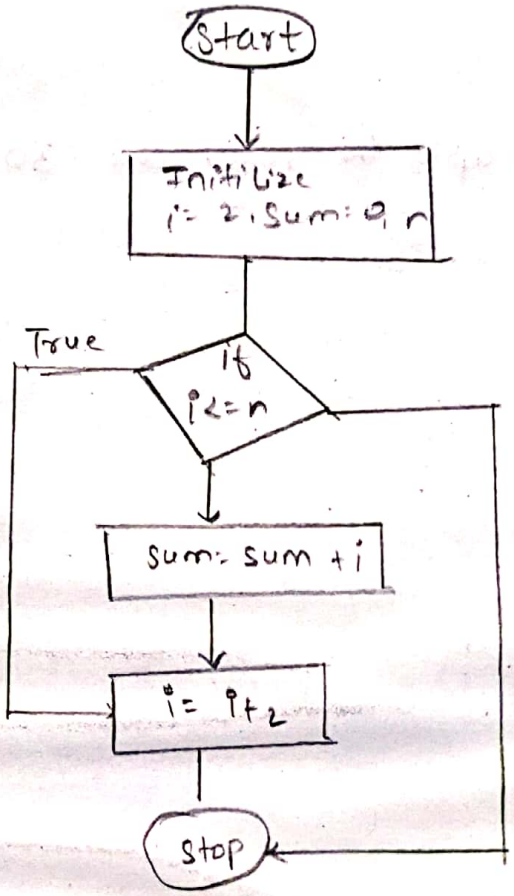
Step 3:- Use for loop for checking the even number & print upto the given range.

Step 4:- Add current even number to sum.

Step 5:- Display the appropriate output

Step 6:- Stop

flow chart:-



Output:-

Enter the range : 10

Sum of all even numbers upto the range are. 30

Program :-

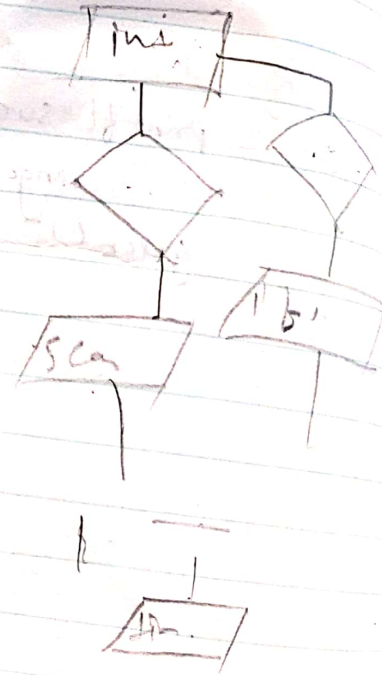
```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, n, sum=0;
    clrscr();
    printf("Enter the range : ");
    scanf("%d ", &n);
    for (i= 2; i<=n; i= i+2)
    {
        sum= sum +i;
    }
    printf("sum of all even numbers upto the
        range are :", sum);
    getch();
}
```

PRATICALS

Aim:- To understand the concept of Arrays

→ One Dimensonal Arrays:-
Find the largest number in an array of 10 numbers.

```
#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
int i,l,n[10];
printf("\n Enter 10 data of array : ");
for (i=0; i<10; i++)
{
scanf("%d",&a[i]);
}
l=a[0];
for(i=l; i<10; i++)
if (l<a[i])
{
l=a[i];
}
}
printf("\n largest : %d",l);
getch();
}
```

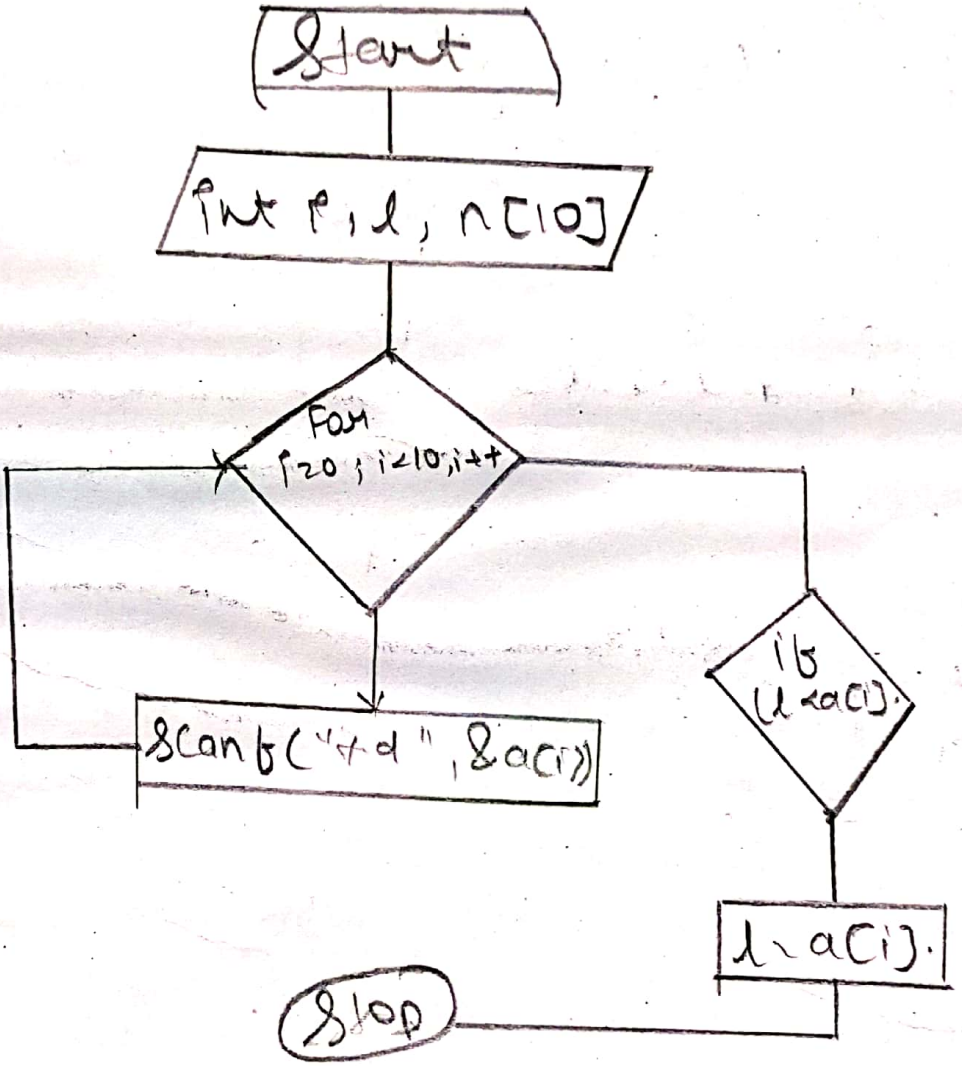


Output:-

Enter 10 data of array:.

1 2 3 4 5 6 7 8 9 10 11

Largest = 11.



3) Find ~~no~~ of ~~even numbers~~.

Algorithm:-

Step1:- Start.

Step2:- Declare i, n[10].

Step3:- Initialize i=0, sum=0.

Step4:- Repeat until i< n.
repeat A[i].

Step5:- Display largest number.

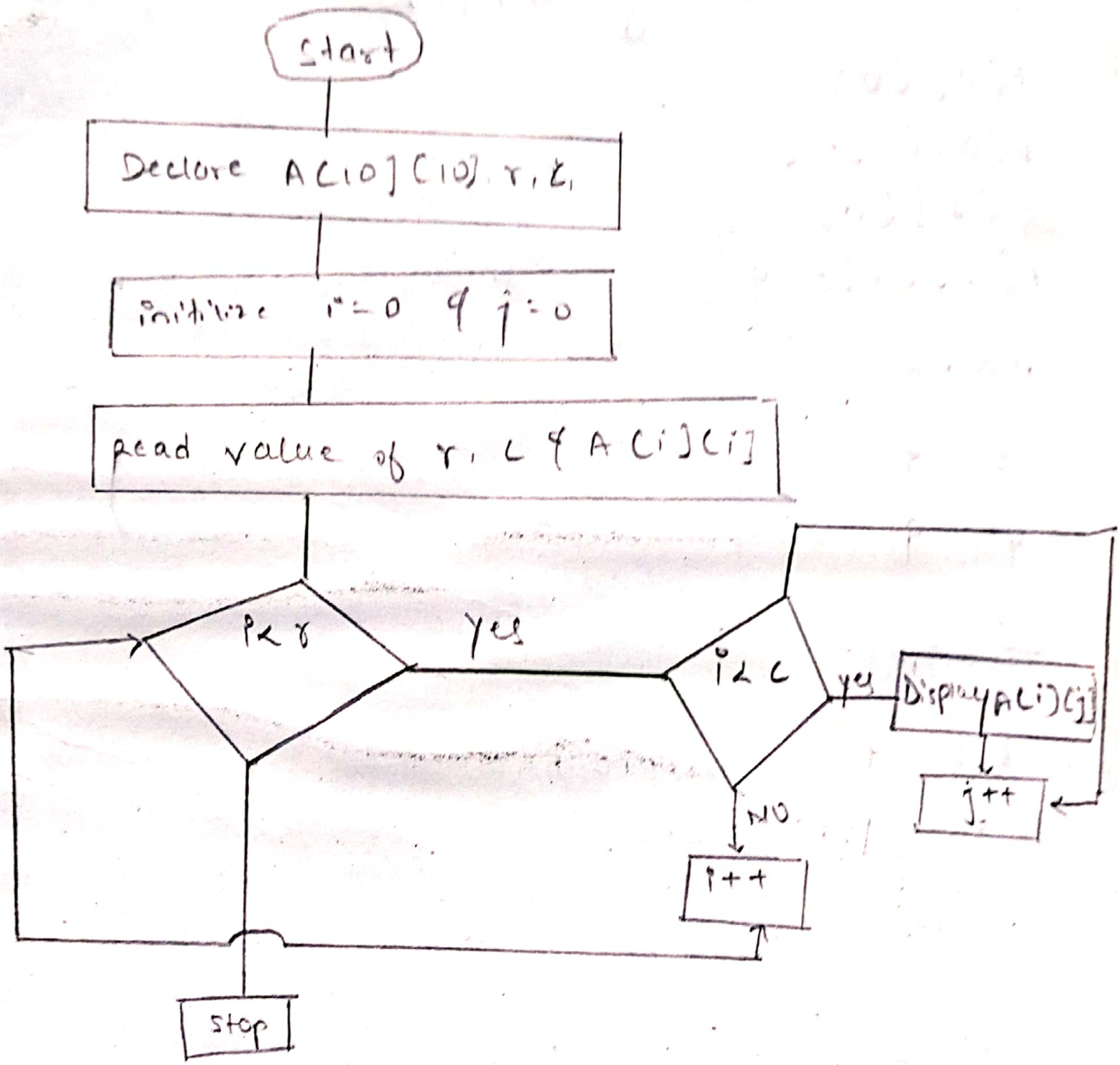
Step6:- stop.

2) Write a program to find transpose of a matrix.

Algorithm:-
Step 1:- Start.
Step 2:- Declare A[10][10], r, c.
Step 3:- Initialize i:=0, j:=0
Step 4:- Read r, c and A[][].
Step 5:- Repeat until i<r
Repeat until j<c.
Display A[j][i]
Step 6:- Stop

program:-
```
#include <stdio.h>
#include <conio.h>
void main()
{
 int A[10][10], r, c, i, j;
 clrscr();
printf ("Enter the numbers of rows : ");
 scanf ("%d", &r);
printf ("Enter the number of column: ");
```

Flow chart:-



Output :

Enter the number of rows : 2

Enter the number of columns : 2

A[0][0] = 3

A[0][1] = 5

A[1][0] = 4

A[1][1] = 9

matrix

3 5

4 9

Transpose :-

3 4

5 9.

```
scanf("%d", &c);
printf("\n");
for(i=0; i<r; i++)
{
    for(j=0, j<c; j++)
    {
        printf("A[%d][%d]=", i, j);
        scanf("%d", &A[i][j]);
    }
}
printf("\n matrix : \n\n");
for(i=0; i<r; i++)
{
    for(j=0; j<c; j++)
    {
        printf("\t %d", A[i][j]);
    }
    printf("\n");
}
printf("\n Transpose of matrix : \n\n")
for(i=0, i<r; i++)
{
    for(j=0; j<c; j++)
    {
        printf("\t %d", A[j][i]);
    }
    printf("\n");
}
getch();
}
```

03) Write a program to perform fibonacci series using array.

Algorithm:-
step1:- start.
step2:- Declare A[20], i, size;
step3:- initilize i:=0, A[0]=0, A[1]=1;
step4:- read from the user.
step5:- Repeat until i<=size
A[i]= A[i-2]+ A[i-1].
step6:- Declare result
step7:- stop.

Program:-

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int A[20], size, i;
    clrscr();
    printf("How many terms() :- ");
    scanf("%d", &size);
    A[0]=0;
    A[1]=1;
    for(i=2; i<size ;i++)
    {
        A[i]= A[i-2]+A[i-1]
    }
print("\n Fibonacci series upto %d terms: \n", size
```

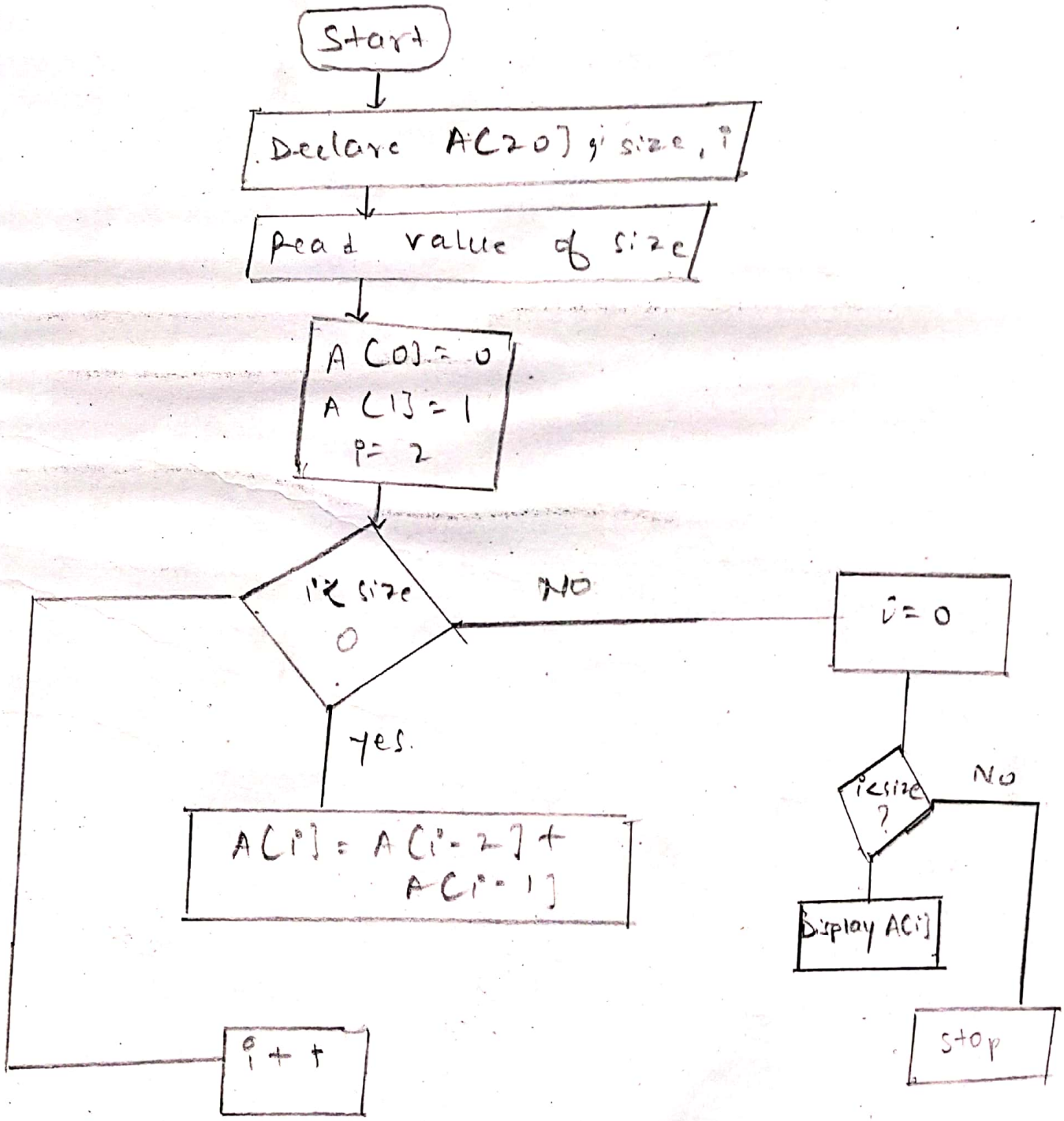
output :-

How many terms? :- 6

fibonacii series upto 6 terms:.

0 1 1 2 3 5.

flow chart.



```
for (i= 0 ; i<size ; i++);
{
        printf("%d \t", A[i]);
}
getch();
}
```

PRATICAL : 06

Aim:- To understand the concept of structure.

Algorithm:-
Step 1:- Declare the structure with initialization of variable
Step 2:- call the declared structural with structure object
Step 3:- print to the user to enter the structure detail as roll no, name and percentage with following format specified
Step 4:- Display the same to user.

Program:-

```
#include<stdio.h>
#include<conio.h>
void main()
 {
  struct stud
   {
      char name[20];
      int rollno;
      float percent;
};
struct stud s1;
clrscr();
printf("\n Enter student detail:");
printf("\n Enter roll no:");
```

output :-

```
Enter student details:
enter roll no: 1734
Enter the name: Sachit Pandey
Enter the percent: 70.30
```

Rollno	Name	Percent
1734	Sachit Pandey	~~70.00~~ 70.30

Output :-

roll no
Name
percentage
1739
Adarsh
74.40
~~Gaurav~~
1732
Gaurav
70.0

Roll no	Name	percentage
1739	Adarsh	74.40
1732	Gaurav	70.0

```
scanf ("%d", &s1.rollno);
printf ("\n Enter the name :");
scanf ("%s", &s1.name);
```

Algorithm :-

Step1:- Start

Step2:- Declare structure student which will take input as roll number in integer, name in character & percentage in float.

step 3:- Depending upon the number of inputs declare the structure object

step4:- Display to the user to enter roll no, Name & percentage for the 1st user & 2nd user respectively

Step5:- Display the same by scaning the inputs

~~to~~ program:-

```
#include <stdio.h>
#include <conio.h>
void main()
{
 Struct student
 {
    int roll no;
    char name[30];
     float percent;
 }
```

```
    s1, s2;
    clrscr();
    printf("\t rollno\t Name \t percentage");
    scanf("%d %s %f", &s1.rollno, &s1.name,
                      s1.percent);
    scanf("%d %s %f", &s1.rollno, &s2.name,
                      s2.percent);
    printf("\n %d \t %s \t %f", s1.rollno, s1.name,
                      s1.percent);
    printf("\n %d \t %s \t %f", s2.rollno, s2.name,
                      s2.percent);
    getch();
}
```

3)

```
#include <stdio.h>
#include <conio.h>
void main()
{
    struct employee
    {
        int id;
        char name[30];
        char add[30];
};
```

Output:-

1. Enter the ID : 5
1. Enter the name : sachit
1. Enter the address : mumbai

2 Enter the ID : 6
2. Enter the name : shubham
2. Enter the address : Gujrat

3. Enter the ID : 7
3. Enter the Name : Adarsh
3 Enter the address : UP

Employee record is :

ID	Name	Address
5	sachit	mumbai
6	Shubham	Gujrat
7	Adarsh	UP

```
struct employee e[60];
int size i i;
clrscr();
Printf ("\n Enter how many record you want
    to enter: ");
Scanf ("%d", &size);
for (i=1; i<=size; i++)
{
   printf ("\n %d Enter the ID: ", i);
   scanf ("\n %d", &e[i].id);
   printf ("\n %d " Enter the name: ", i);
   Scanf ("\n %s " &e[i].name);
   printf ("\n %d " Enter the address: ", i);
   scanf ("%p %s", e[i].add);
}
printf ("\n\n Employee record is: ");
printf ("\n\t ID \t Name \t Address \n");
getch();
}
```