Practical No. 1

Aim: Programs to understand the basics of datatypes & I/O

Source code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int roll;
    char name[20];
    long int mob;
    float per;
    char grade;
    char add[50];
    clrscr();
    printf("******* Demonstration of datatype
                ********\n");
    printf("Roll no. of the student:\n");
    scanf("%d", &roll);
    print f("enter the name of student:\n");
    gets(name);
    scanf("%s", &name)
    print f("mobile no. of student:\n");
    scanf("%ld", &mob);
    print f("Percentage of student:\n")
    scanf("%f", &per);
```

```
printf("Grade of student:\n");
scanf("%c", &grade);
printf("Address of the student:\n");
scanf("%c", &add);
printf("\n Name of student: %s\n", name);
printf("\n Roll no. of student: %d\n", roll);
printf("\n mobile no. of student: %los\n", mob);
printf("\n percentage of student: %f\n", per);
printf("\n Grade of student: %c\n", grade);
printf("\n add of student: %s\n", add);
getch();
}
```

Program 2:

Source code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
  float rad, area, pie=3.14;
  clrscr();
  printf("radius of circle:\n")
  scanf("%f", &rad)
  area= pie * radius * radius;
  printf("Area of the circle: %f\n", area);
  getch();
}
```

22/01/2020

Output

********Demonstration of datatype ******

Roll no. of the student:
78
Name of the student:
Preet shubhang
Mobile no. of the student
70664637O >
Percentage of the student
80
Grade of student:
A
Address of the student:
Mumbai

Roll no. of student: 76
name of student: Preet
Mobile no. of student: 7066463707
Percentange of the student: 80
Grade of student: A
Address of student: Mumbai

Output:

Radius of the circle:

0.1

Area of the circle:

0.0314

Practical-2

a Aim:- Write a c programm which will show the use of variance diff. types of operator.

Source Code:- #Arithmatic Operators

```
#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("Add. of 2 no: %d\n", add);
  sub = num1 - num2;
  printf("Sub. of two no: %d\n", sub);
  mul = num1 * num2;
  printf("Mul. of two no: %d\n", mul);
  div = num1/num2;
  printf("Divi. of two no: %d\n", div);
  getch();
}
```

Logical operator

```
#include <stdio.h>
#include <conio.h>
void main()
{
  int x,y,z, value1, value2, value3, value4, value5;
  clrscr();
  printf("Enter first value :");
  scanf("%d", &x);
  printf("Enter second value :");
  scanf("%d", &y);
  printf("Enter third 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);
  getch();
}
```

Output

Enter 1st number : 4

Enter 2nd number : 10

Add of 2 no : 14

Sub. of two no: 5

mul. of two no.: 40

Divi. of two no: 0.4

Output :-

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

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 "
    getch();
}
```

output

The biggest number is 100

Practical-3

Aim :- Decision statements

a) Write a C program to find out ~~odd~~ odd/even no.

ALGORITHM
Step 1 :- Start.
Step 2 :- [Take Input] Read year from the user.
Step 3 : Check if no. %2==0 then print even no.
Step 4 : Stop.

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;");
    }
  else
    {
```

```
    printf("odd number");
}
    getch();
}
```

b) Write a programm to find the method year is a leap or not !

ALGO

Step 1 = Start
Step 2 = [Take Input] Read year from user
Step 3: if year % 4 = 0 and year % 400 = 0
or year % 4 = 0 & year % 100 != 0
print NOT A LEAP YEAR
Step 4: Exist

Code :

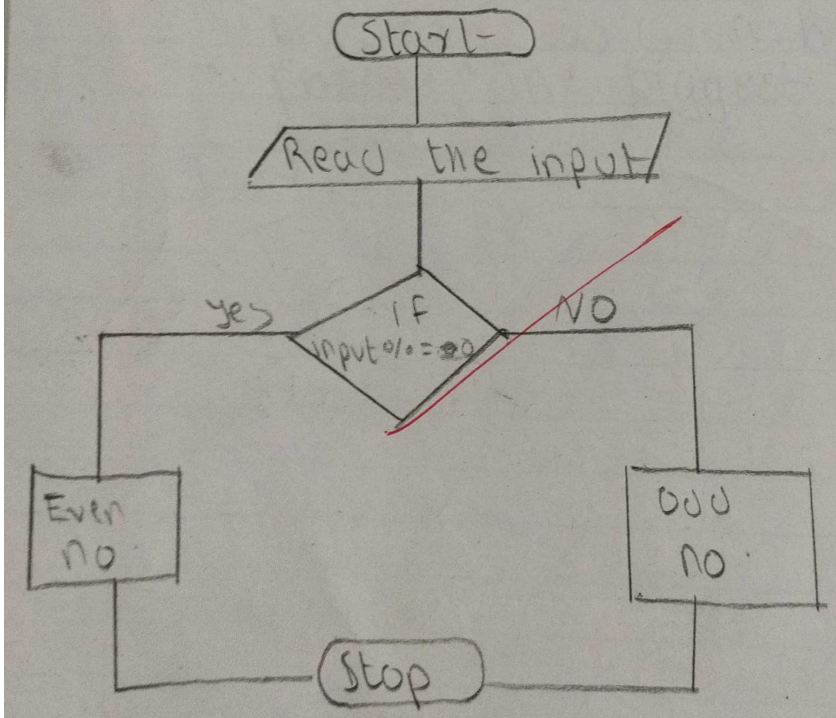
```
#include<stdio.h>
#include<conio.h>
void main()
{
    int year;
    clrscr();
    printf("Enter a year :");
    scanf("%d", &year);
    if(year % 4 == 0)
{
    if(year % 100 == 0)
{
```

Output

Enter a number: 26
Even number

Enter a number = 77
odd number

Flow chart:



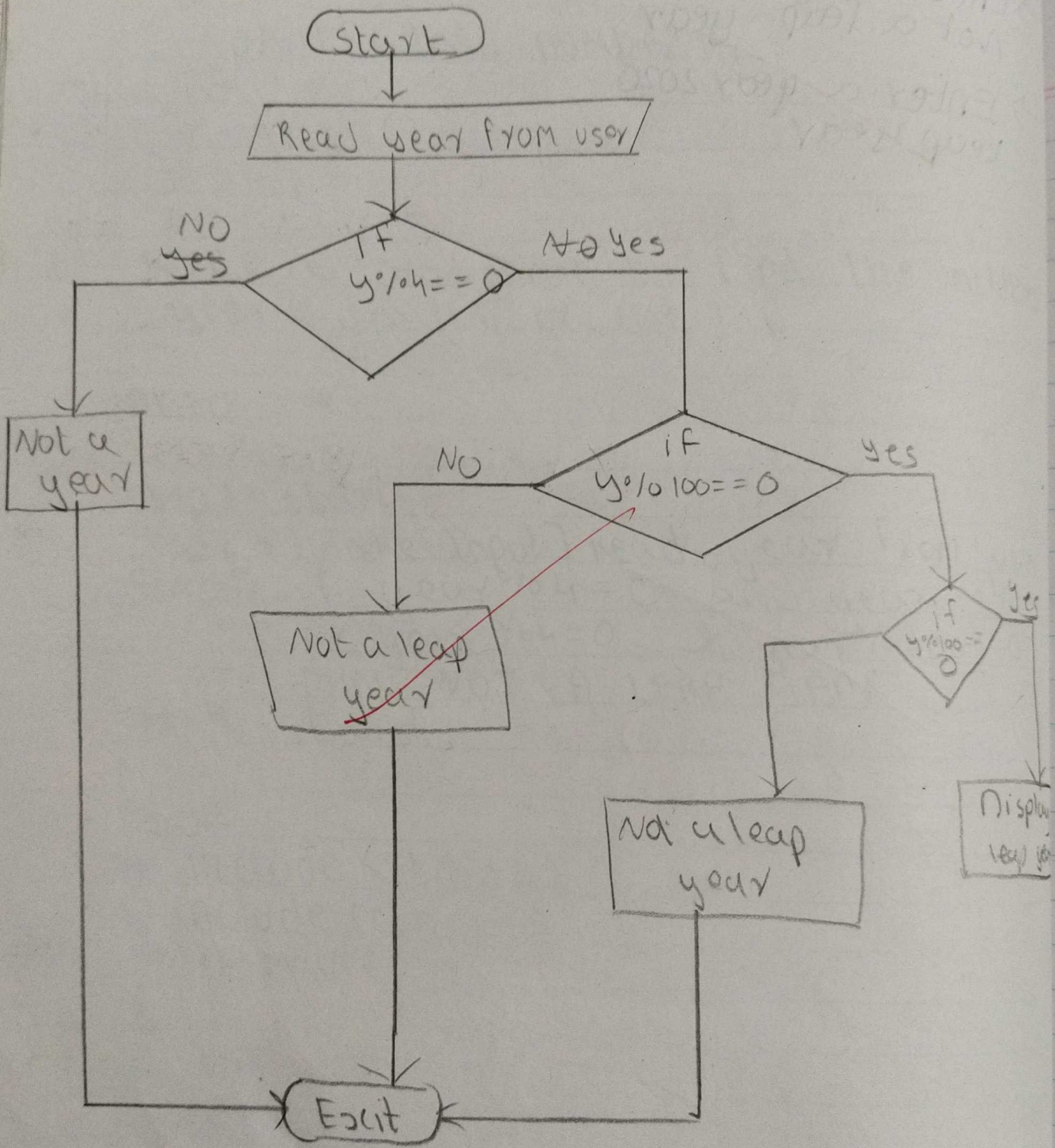
Output:

→ Enter a year: 2017
Not a leap year

→ Enter a year 2020
Leap year

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

Flowchart


Start
Read year from user
If y%4==0
NO
yes
yes
Not a year
If y%100==0
NO
yes
Not a leap year
If y%400==0
Yes
Not a leap year
Exit

c Write a programm to find whether the character is vawel or consonant

ALGORITHM:-
Step 1: Start
Step 2: [Take Input] Read character 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 alphabate:");
  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")
  }
else
```

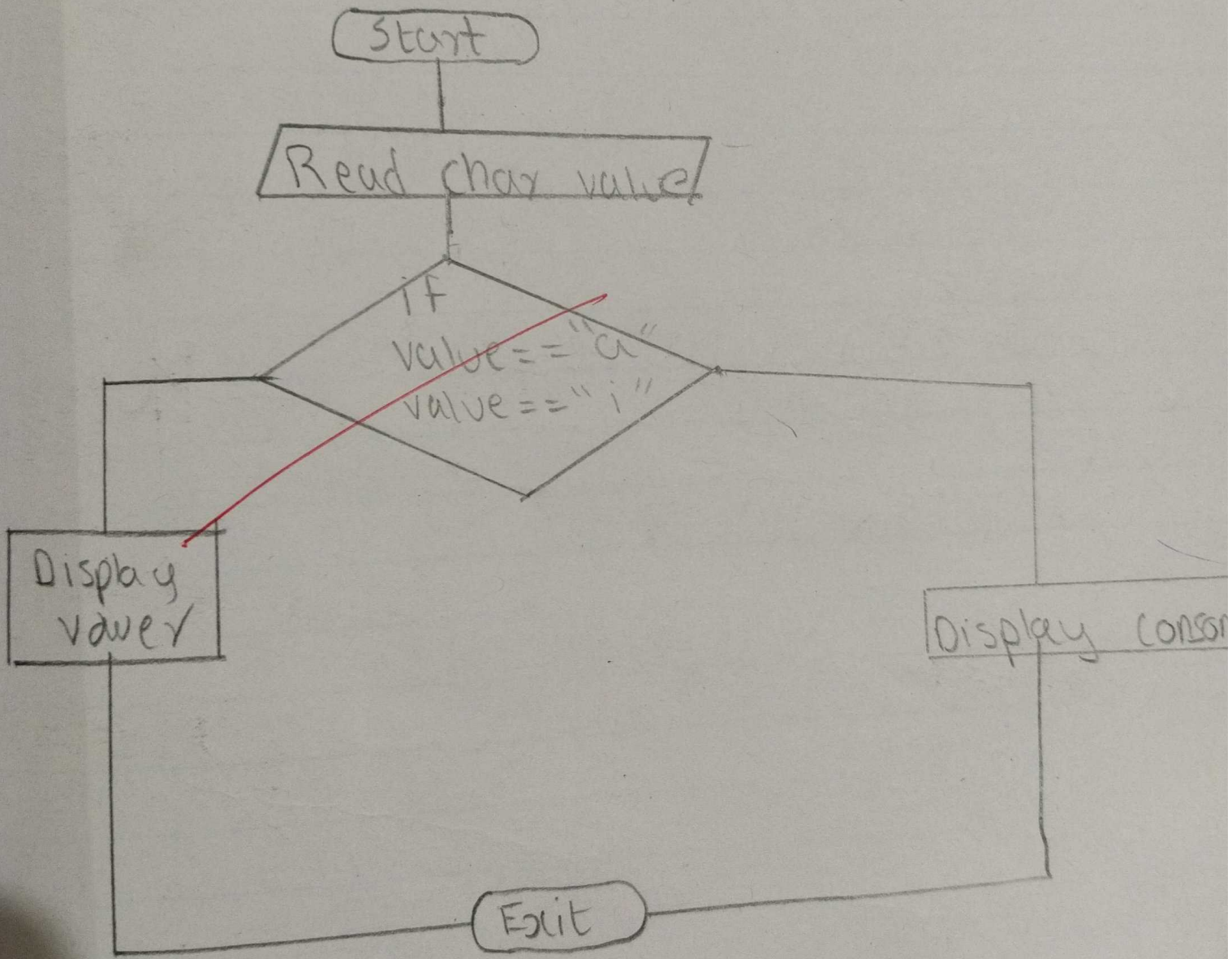
```
{
    printf("consonant");
}
    getch();
}
```

Output

Enter a alphabet: o
vowell

Enter a alphabet = b
consnant

Flowchart



Practical - 4

a) WAP to print even no. return 1 to 5 using while loop

Code

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i, n=50;
    clrscr();
    printf("\n Even no. from 1 to 50 are
            \n", n)
    i=2;
    while(i<=n)
    {
      printf("%d \n", i);
      i=i+2
    }
    getch();
}
```

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 no. upto range 50

Step 4: Add 2 to current even no. will given next even no.

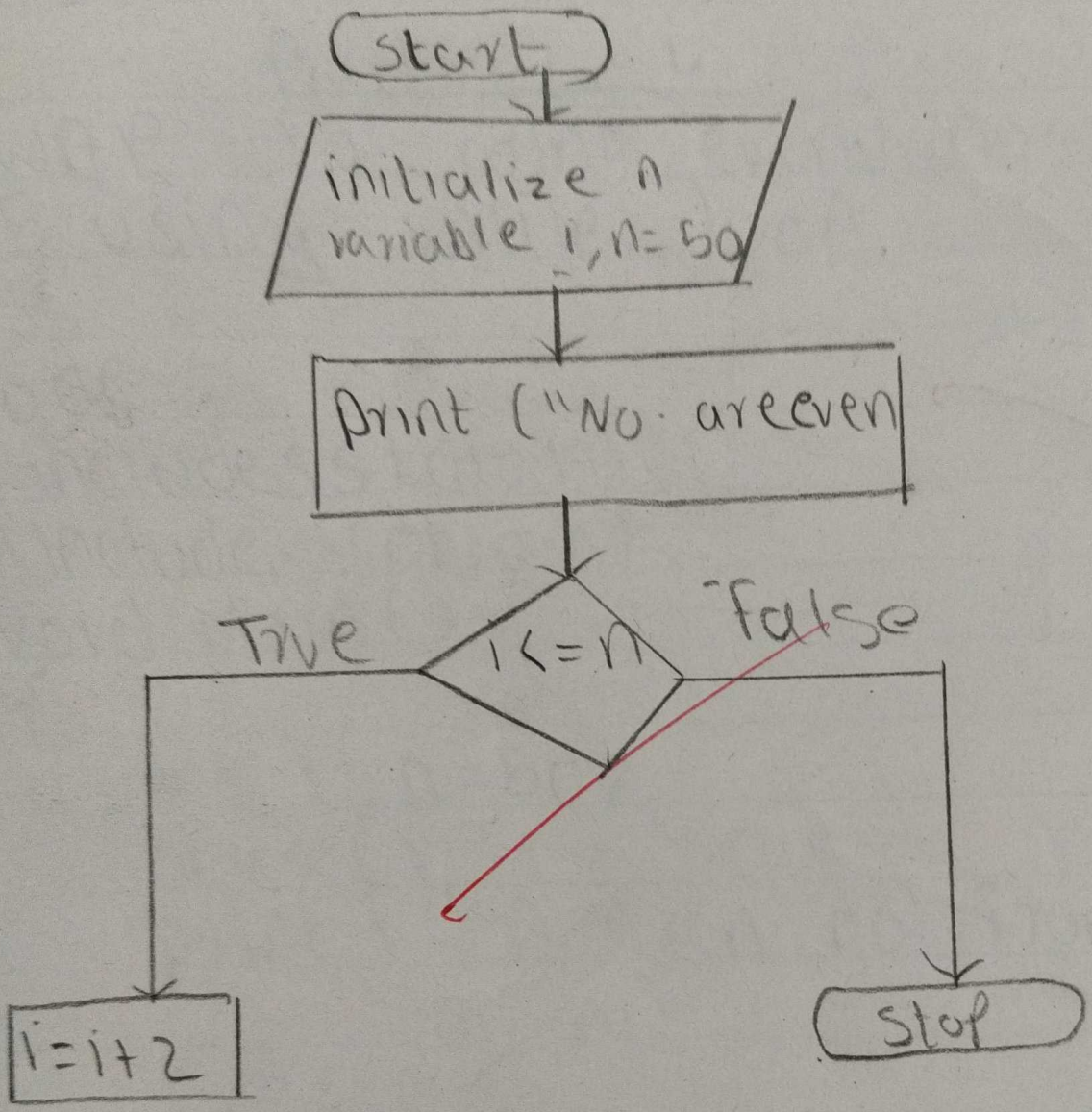
Step 5: Display the appropriate outpt

Step 6: exit.

Output

All even no. from 1 to 50

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


Start
initialize n
variable i, n=50
Print ("No. are even
i<=n
True
False
i=i+2
Stop

b) Write a c programm to print odd number return 1 to 50 using do while

Source code:

```
#include<stdio.h>
#include<conio.h>
  void main()
{
   int i, n=50;
   clrscr();
   printf("odd no from 1 to 50 are
          :\n",n);
   i=1;
   do
   {
     if(i%2==1)
   {
     printf("%d\n",i);
   }
     iff
  }
  while(i<=n);
  getch();
}
```

Algorithm:

Step 1 : Start

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

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

Step 4 : Use if cond^n statement to check whe ther given no is ever or odd

Step 5 : Increment the value of i.

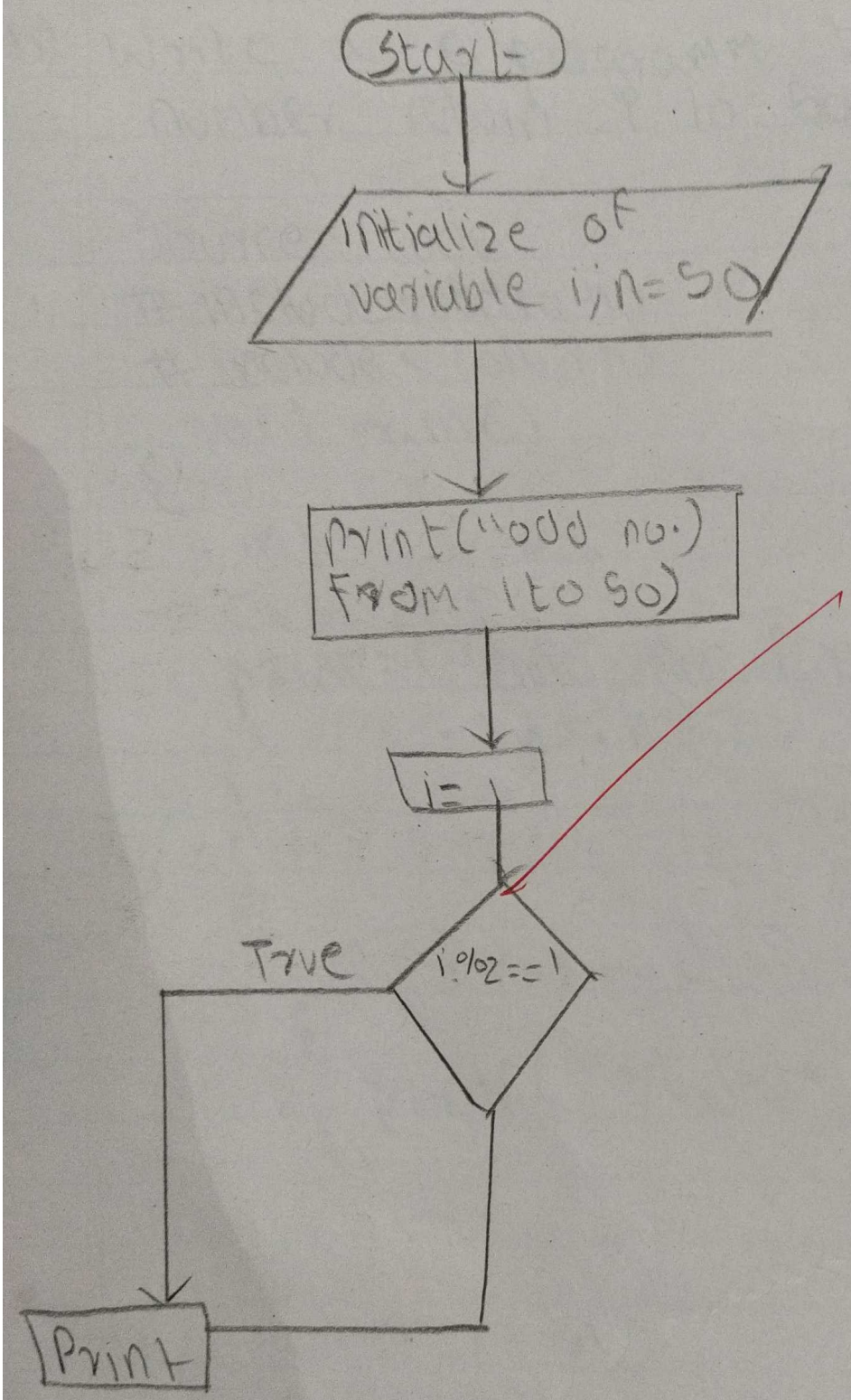
Step 6 : Display the appropriate output

Step 7 : Stop

05/02/2020

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


Start
Initialize of variable i, n=50
Print("odd no. From 1 to 50)
i=1
True
i%2==1
Print

Practical-5
Arrays

Q1 Basics of Array
Write a program in C to read array elements from the user & display them

Algorithm

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

Source Code:

```
#include<stdio.h>
#include<conio.h>
 void main()
{
   int a[20], size, i;
   clrscr()
   printf("Enter the size of array you wa
   scanf("%d", &size);
   for(i=0 ,i<size; i++)
{
```

```
printf("\n The array element are :");
for (i=0; i<size; i++)
{
    printf ("\n a[%d]=", i);
    scanf ("%d", a[i]);
}
getch();
}
```

Output:-

Enter the size of array you want 3
Enter the value of a[a] element 1
Enter the value of a[1] element 2
Enter the value of a[2] element 4

The array element are
a[0] = 1
a[1] = 2
a[2] = 3
a[3] = 4

Write a program in C to develop Fibon -acci 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 term");
    scanf("%d", &n);
    a[0] = 0;
    a[1] = 1;
    for(i=2; i<n; i++)
    {
    printf(" The fibonacci series upto
                n term is %d", n);
    for(i=0; i<n; i++)
    {
      printf("%d \t", a[i]);
    }
getch();
}
```

Algorithm:

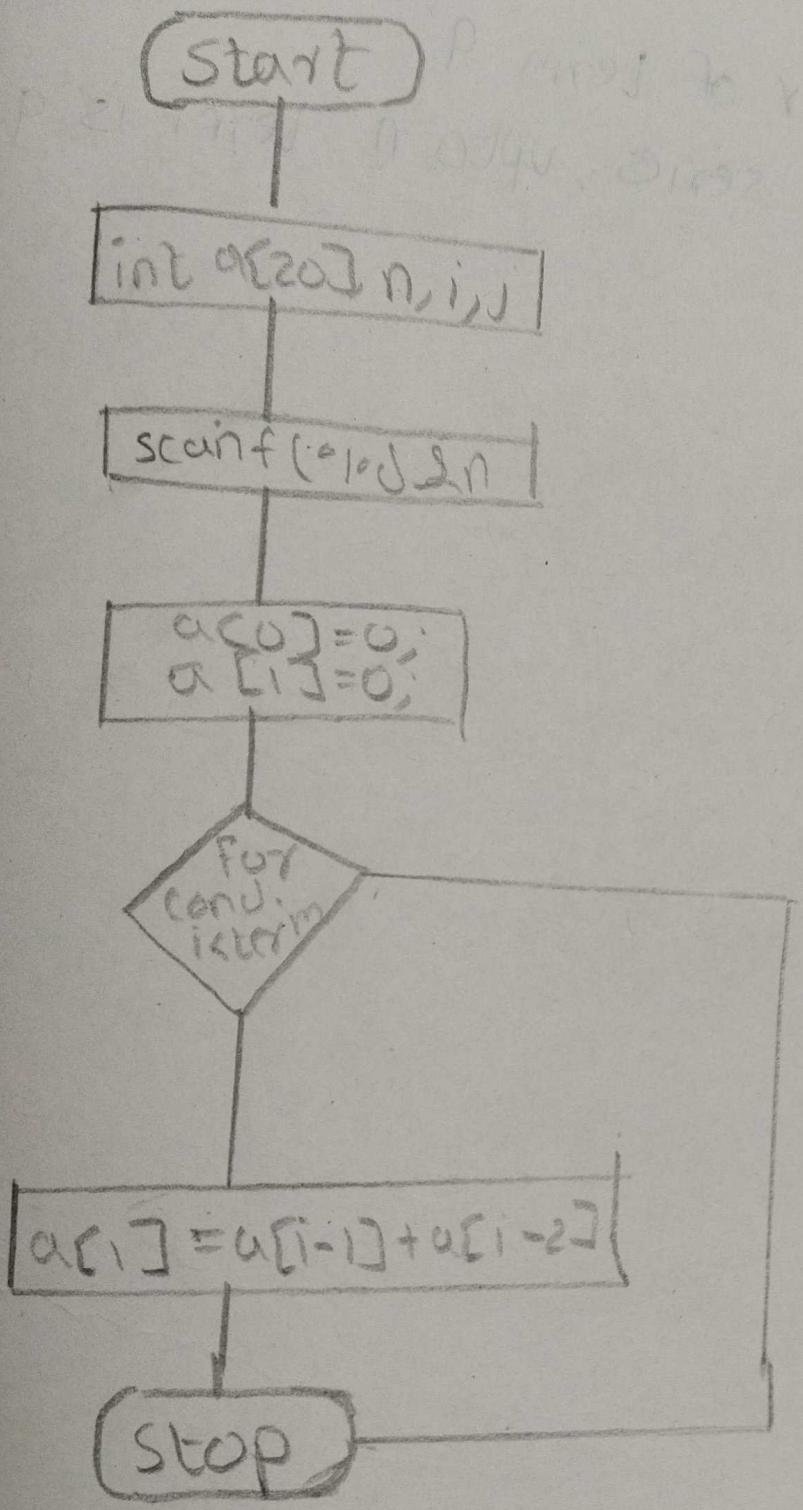
step 1: Declare array of a size of data type int.

step 2: Accept a value from user till you want to display the Fibonacci seri

step 3: Initialize first element to 0 a serie of array to 0 and second elemen to 1 a series starts form 0 & 1.

step 4: Use for loop to develop Fibonacci series

step 5: Display the series using prin f() function


Start
int a[20] n, i, j
scanf("%d",&n
a[0]=0;
a[1]=0;
for condition
a[i]=a[i-1]+a[i-2]
Stop

Output:

Enter the number of term 9

The fibonacci series upto n term is 0 1 1 2 3 5
8 13 21

c) Write a program to accept row & column value from user & display the in matrix format

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

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

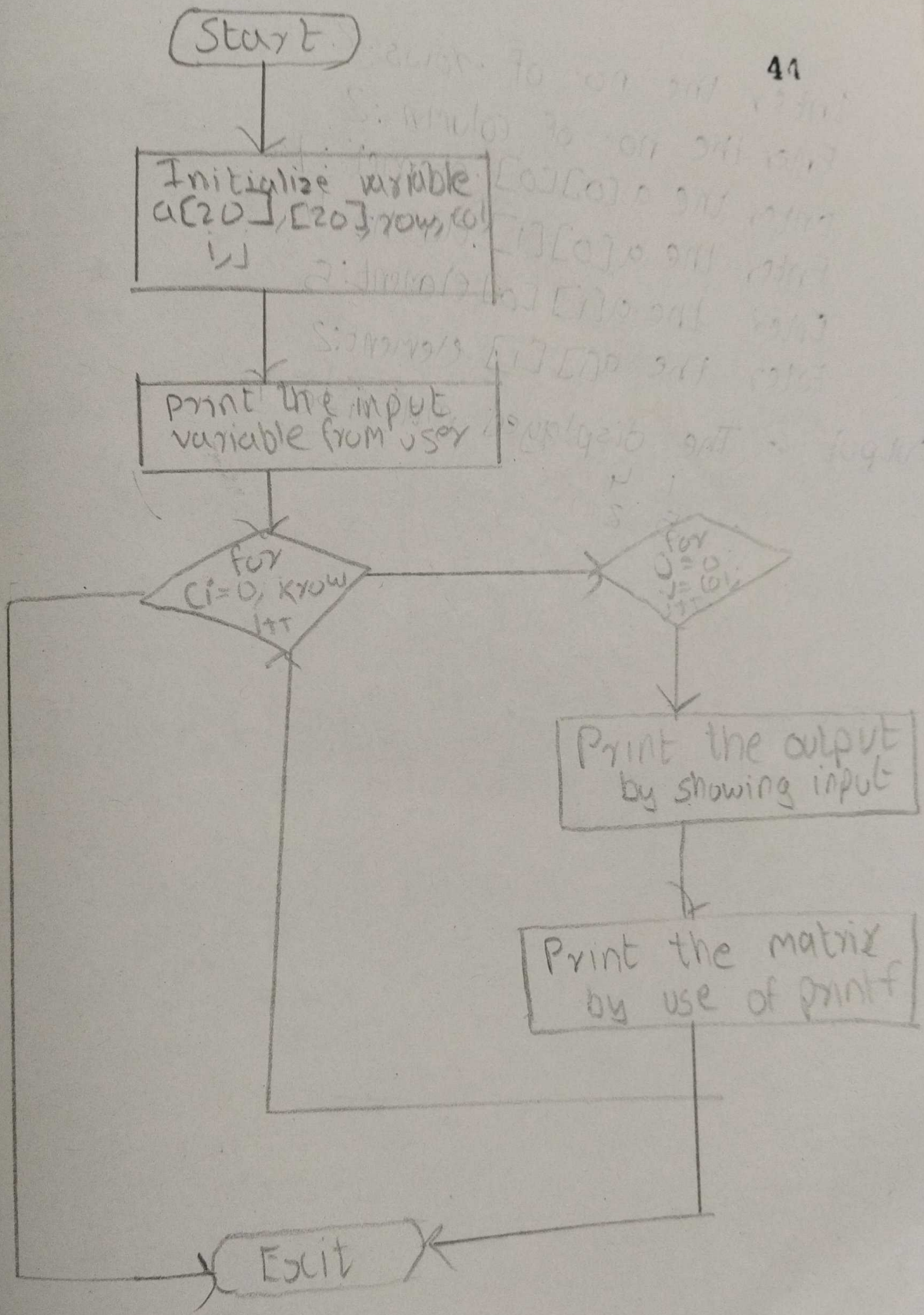
Algorithm:-

step 1: Declare a multidimensional array

step 2: Accept the valve of row & columns from user want to create.

step 3: Use 2 for accepting the values of elements of array

step 4: Again use 2 for loops to display the element of rows & column accordingly


Start
Initialize variable a[20][20], row, col
print the input variable from user
for i=0, i<row, i++
for j=0, j<col, j++
Print the output by showing input
Print the matrix by use of printf
Exit

Enter the no. of rows: 2
Enter the no. of column: 2
Enter the a[0][0] elemet: 1
Enter the a[0][1] element: 4
Enter the a[1][0] element: 5
Enter the a[1][1] element: 2

Output :- The displayed matrix is

1 4
5 2

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 no.

Step 4 :- Call the fn. declared above main function to calculate factional

step 5: Now define the body of function which calculate factional.

step 6: use the if conditional statement & calculate the value accordingly.

step 7: Return the value to the user.

Step 8 : Stop.

Enter a number :

5

Factorial of 5 is

120.

SOURCE CODE:

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

int factorial (int, n);
void main()
{
 int num, fact;
 clrscr();
 printf ("\n Enter a no : \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);
}
```

5A.

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 no from user which contains atleabt two digit.
Step 4: call the function defined above main function to calculati sum of digit.
Step 5: Defi the body of functio defined above & accept def two integer variables
Step 6: use the while loop a perform the calculati according
Step 7: print the value of sum of so calculated.
Step 8: Stop.

SOURCE CODE :-

```
#include <studio.h>
#include <conio.h>
void sum (int n)
void main()
{
    int num;
    clrscr();
    printf("\n Enter a number : \n");
    scanf("%d", &num);
    sum (num);
    getch();
}
void sum (int n)
{
    int v, s=0;
    while (n>0)
    {
        v = n % 10
        s = str
        n = n/10
    }
    printf ("\n Sum of digits is : \n %d", s);
}
```

OUTPUT :-

Enter a number : 51

Sum of digit is : 6.