

Exam Seat No. \_\_\_\_\_

# THAKUR COLLEGE OF SCIENCE & COMMERCE

NAAC  
Accredited  
with Grade "A"  
(3<sup>rd</sup> Cycle)



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## Degree College Computer Journal CERTIFICATE

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Laboratory.

\_\_\_\_\_  
Teacher In-Charge

\_\_\_\_\_  
Head of Department

Date : \_\_\_\_\_

Examiner

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## PRACTICAL - 01

AIM : Programs to understand the basic datatype I/O.

SOURCE CODE :

```
#include <stdio.h>
#include <conio.h>
void main ()
{
    int roll;
    char name[30];
    long int mob;
    float per;
    char grade;
    char add[50];
    clrscr();
    printf("----- Demonstration of program -----");
    printf("In Enter your roll number : ");
    scanf("%d", &roll);
    printf("In Enter your name : ");
    scanf("%s", &name);
    printf("In Enter the mobile number ");
    scanf("%s", &mob);
    printf("In Enter your grade : ");
    scanf("%c", &grade);
    printf("Your roll number is : %d In ", roll);
    printf("In Name of the student is : %s In ", name);
    printf("In Your grade is : %c ", grade);
```

OUTPUT:

\_\_\_\_\_ Demonstrate of program \_\_\_\_\_

Enter your roll number : 1758

Enter your name : Himanshu.

Enter your mob no : 07045207379

Enter your grade : A

Your Roll number is : 1758

Your Name of the student is : Himanshu.

Your Grade is : A

W

"roll  
name

98

OUTPUT :

No.	
8	J
	0

Enter radius : 4

Area of circle is 50.24

```
getch();  
}
```

b) write a program to find the area of circle

```
SOURCE CODE :-  
#include <stdio.h>  
#include <conio.h>  
Void main()  
{  
    float radius , area;  
    clrscr();  
    printf ("Enter radius : ");  
    scanf ("%f", &radius);  
    area = 3.14 * radius * radius;  
    printf ("Area of circle is %.2f", area);  
    getch();  
}
```

## PRACTICAL - 2

- a. 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 number : ");
scanf ("%d", &num);
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 numbers : %d\n",
       sub);
mul = num1 * num2;
printf ("Multiplication of 2 numbers : %d\n",
       mul);
div = num1 / num2;
printf ("Division of 2 numbers : %.2f\n", div);
getch();
```

OUTPUT:  
Enter 1<sup>st</sup> number : 8  
Enter 2<sup>nd</sup> number : 6  
Addition of 2 numbers : 14  
Subtraction of 2 numbers : 2  
Multiplication of 2 numbers : 48  
Division of 2 numbers : 1.3333  
cent

OUTPUT:  
Enter 1<sup>st</sup> value: 9  
Enter 2<sup>nd</sup> value: 8  
Enter 3<sup>rd</sup> value: 2  
value 1 is: 0  
value 2 is: 1  
value 3 is: 1  
value 4 is: 0  
value 5 is: 1

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No. 8 Jyoti 05

### # Ternary operator

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

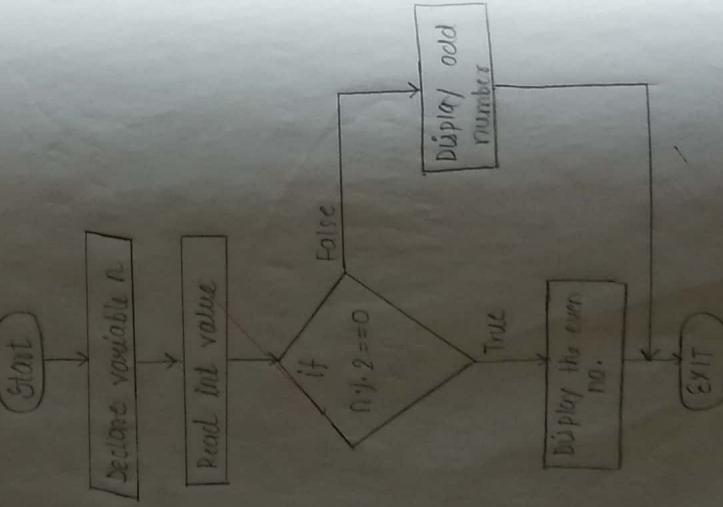
34

OUTPUT: The biggest number is 100.

PRACTICAL - 3

OUTPUT :  
Enter a number : 53  
Even number.

FLOWCHART :



AIM : Decision statements  
Write a program to find out odd & even numbers.

ALGORITHM :

- Step 1 : Start
- Step 2 : [Take Input] Read a number from the user.
- Step 3 : Check if number  $n \% 2 == 0$  then  
Print even Number or print odd number
- Step 4: EXIT.

SOURCE 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!");
```

```

else
    printf("Odd Number :");
}
getch();

```

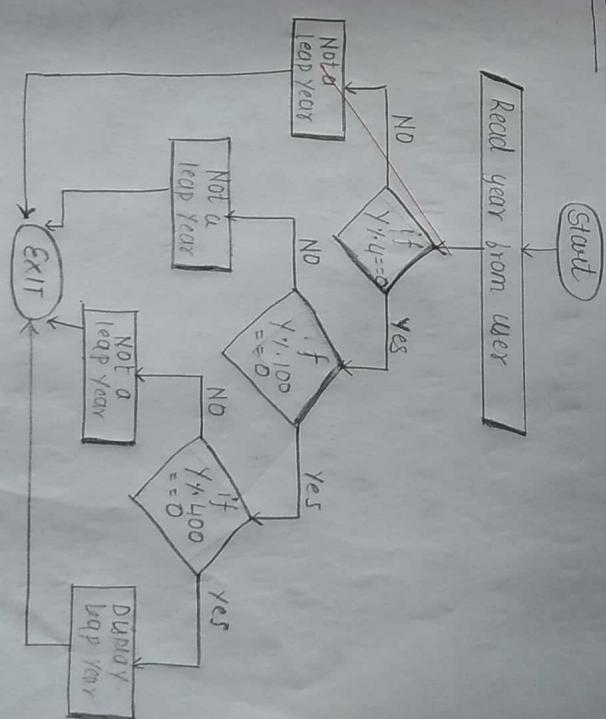
using

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

ALGORITHM :

- Step 1: Start  
 Step 2: Take Input Read year from the user  
 Step 3: if  $year \% 4 = 0$  and  $year \% 400 == 0$  or  $year \% 4 == 0$  and  $year \% 100 != 0$   
 Step 4: print NOT A LEAP YEAR  
 Step 4: EXIT.

SOURCE CODE :



FLOWCHART :

OUTPUT :  
 Enter a year : 2019  
 Not a leap year.  
 =  
 Enter a year : 2020  
 leap year.

```

#include <stdio.h>
void main()
{
    int year;
    Answer();
}

```

```
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();
```

Ques 3. Write a program to find whether the character is vowel or consonant

### Algorithm :

Step 1 : Start  
Step 2 : [Take Input] Read character value

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 alphabet:");
```

```
scanf("%c", &a);
```

```
if (a == 'a' || a == 'e' || a == 'i' || a == 'o' || a == 'u' || a == 'A' || a == 'E' || a == 'I' || a == 'O' || a == 'U')
```

```
{
```

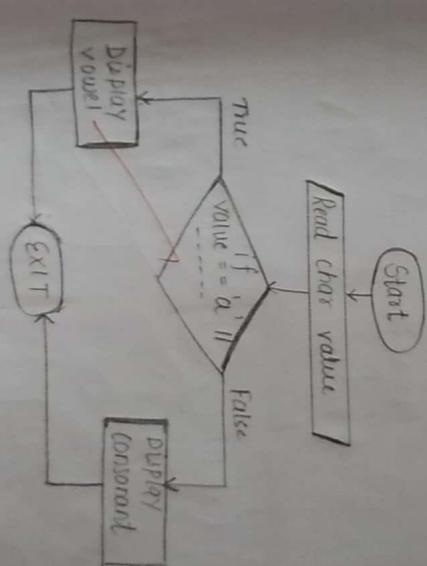
```
    printf("Vowel");
```

```
}
```

INPUT :  
Enter a character : O  
vowel

= Enter a character : X  
Consonant

### Flowchart :



38.

the

1-JAPANESE

39

printf ("consonant");

getchar();

else if (c == 'v')

cout <<

"vowel";

else if (c == 'n')

cout <<

"neutral";

else if (c == 's')

cout <<

"sharp";



## PRACTICAL - 4

AIM : to loop statements  
# WHILE LOOP  
# to write a program to print even numbers between 1-50 using while loop.

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

40

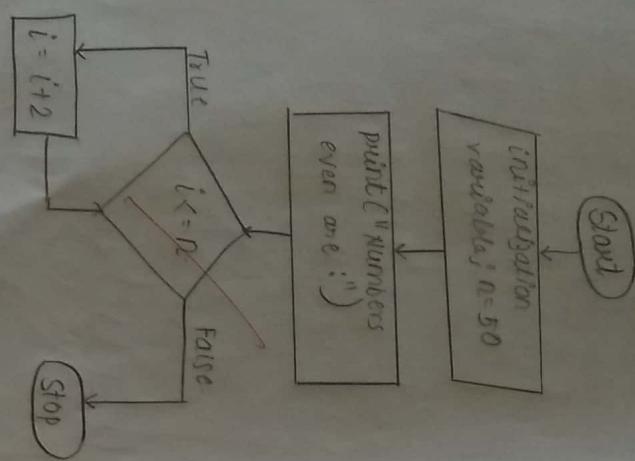
OUTPUT

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
---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

No.

8

FLOWCHART :ALGORITHM :

Step 1: start  
 Step 2: Initialize two variable with static  
 variable where  $n=50$  &  $i=2$ .  
 Step 3: We 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.

- No. 8
- # DO WHILE LOOP  
b. write a c program to print odd numbers between 1-50 using do while loop.

SOURCE CODE :

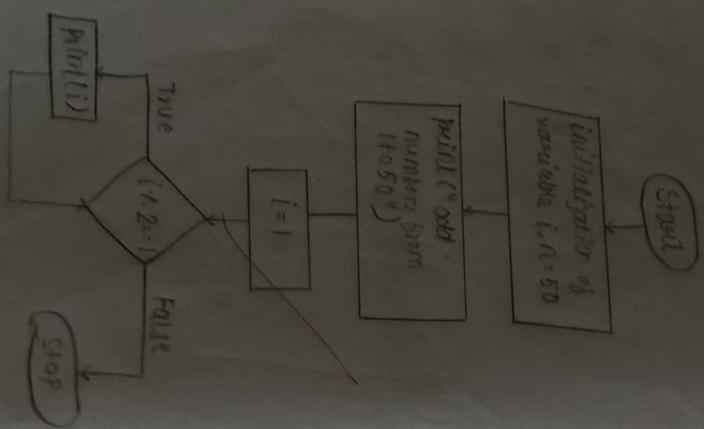
```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, n=50;
    clrscr();
    print ("Odd numbers from 1 to 50 are : \n");
    i = 1;
    do
    {
        if (i % 2 == 1)
        {
            print ("%d\n", i);
            i++;
        }
    } while (i <= n);
    getch();
}
```

OUTPUT :

odd number from 1 to 50 are :

1  
3  
5  
7  
9  
11  
15  
17  
19  
21  
23  
25  
27  
29  
31  
33  
35  
37  
39  
41  
43  
45  
47  
49

FLOWCHART :-



b) ALGORITHM :

Step 1 : start

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

Step 3 : we do while loop for iterates from  $1$  to  $50$

Step 4 : we 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

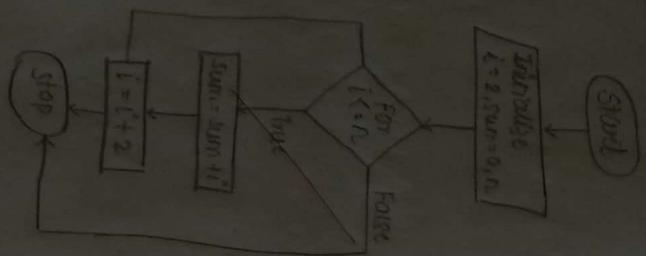
OUTPUT:  
Enter the range = 10  
sum of all even numbers upto the range are : 30

- C. Write a C program 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 are : ", sum);
    getch();
}
```

FLOWCHART:



FOR LOOP  
C. ALGORITHM:

Step 1: start

Step 2: Initialize three variables from user input, of which one is dynamic and two are static.

Step 3: Use for loop for checking the number is even and print upto given range.

Step 4: Add current even number to sum and display the sum variable.

Step 5: stop.

*Author: 2020*

## PRACTICAL - 5

### TOPIC : ARRAYS

Q1 Basics of Arrays.  
write a program in C to read array elements  
from the user and display them.

#### ALGORITHM :

Step 1: Declare a Array of any size.

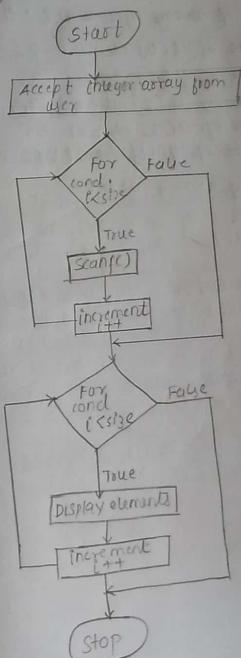
Step 2: Accept the number of elements user  
want to enter in Array.

Step 3: use for loop to accept the array  
elements from the user.

Step 4: Again use for loop to display array  
elements.

FLOWCHART :

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OUTPUT :-

Enter the size of array you want: 5  
Enter the value of a[0] element: 22  
Enter the value of a[1] element: 33  
Enter the value of a[2] element: 44  
Enter the value of a[3] element: 55  
Enter the value of a[4] element: 66  
Enter the value of array are:

The elements of array  
a[0] = 22  
a[1] = 33  
a[2] = 44  
a[3] = 55  
a[4] = 66.

47

```
SOURCE CODE:  
#include <stdio.h>  
#include <conio.h>  
void main()  
{  
    int a[5], size, i;  
    clrscr();  
    printf("Enter the size of array you want: ");  
    scanf("%d", &size);  
    for(i=0 ; i<size ; i++)  
    {  
        printf("\nEnter the value of a[%d]\n", i);  
        element : "i");  
        scanf("%d", &a[i]);  
    }  
    printf("\nThe array elements are: ");  
    for(i=0 ; i<size ; i++)  
    {  
        printf("\n a[%d] = %d", i, a[i]);  
        printf("\n a[%d] = %d", i, a[i]);  
    }  
    getch();
```

# Fibonacci series using Array

- Write a program in C to develop fibonacci series using Array.

#### ALGORITHM :

Step 1 : Declare a array of any size of data type int.

Step 2 : Accept a value n from user till you want to display the fibonacci series.

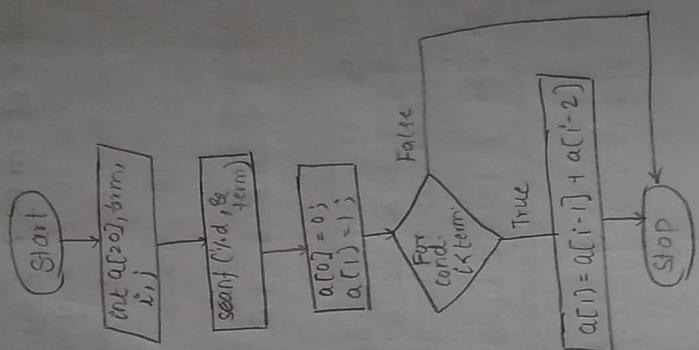
Step 3 : Initialize first element to 0 of array to and second element to 1 as series starts from 0 and 1.

Step 4 : use for loop to develop fibonacci series.

Step 5 : Display the series using printf() function.

#### FLOW CHART :

48



**OUTPUT :**  
Enter the number of terms : 7

0 1 2 3 5 8

49

SOURCE CODE :

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a[20], term, i, j;
    clrscr();
    printf("Enter the number of terms : ");
    scanf("%d", &term);
    a[0] = 0;
    a[1] = 1;
    printf("%d %d", a[0]);
    printf("%d\n", a[1]);
    for (i = 2; i < term; i++)
    {
        a[i] = a[i-1] + a[i-2];
        printf("\n%d", a[i]);
    }
    getch();
}
```

## # Multidimensional Array

Q) Write a program to accept rows and columns value from user and display them in Matrix format.

ALGORITHM :

Step 1 : Declare a Multidimensional array with any size.

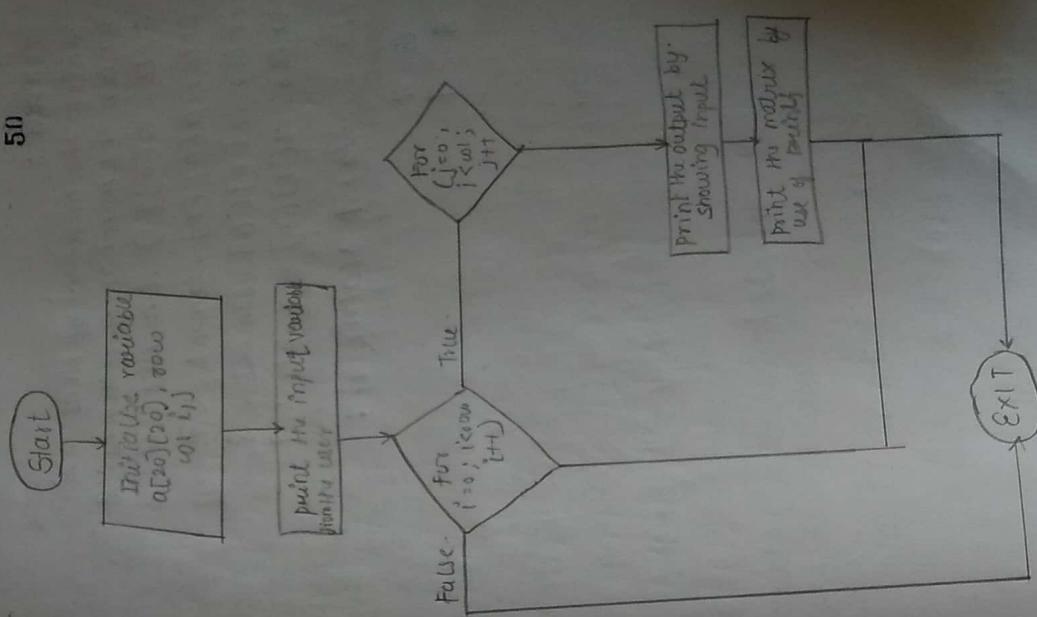
Step 2 : Accept the value of rows and columns from user want to create.

Step 3 : use 2 for loops for accepting the values of elements of array using `scanf()`

Step 4 : Again use 2 for loops to display the elements of rows and columns accordingly using `printf()`

Flowchart:-

50



**OUTPUT:**

```

12
Enter the number of rows : 2
Enter the number of columns : 2
Enter a[0][0] element : 6
Enter a[0][1] element : 7
Enter a[1][0] element : 8
Enter a[1][1] element : 9.
The Displayed Matrix is :
6 7
8 9

```

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SOURCE CODE :

```

#include <conio.h>
#include <stdio.h>
void main()
{
    int a[10][10], row, col, i, j;
    clrscr();
    printf("Enter the number of rows : ");
    scanf("%d", &row);
    printf("\n Enter the number of columns : ");
    scanf("%d", &col);
    for(i=0; i<row; i++)
    {
        for(j=0; j<col; j++)
        {
            printf("Enter the element : ");
            scanf("%d", &a[i][j]);
        }
    }
    printf("\n\n The Displayed Matrix is : \n\n");
    for(i=0; i<row; i++)
    {
        for(j=0; j<col; j++)
        {
            printf("%d\t", a[i][j]);
        }
        printf("\n");
    }
    getch();
}

```

### PRACTICAL - 06.

AIM : Programs on functions.

1. Write a program to find factorial of a number using recursive function

```
#include <stdio.h>
#include <conio.h>
int factorial(int n);
void main()
{
    int num, fact;
    clrscr();
    printf("Enter a number : ");
    scanf("%d", &num);
    fact = factorial(num);
    printf("Factorial of %d is : %d", num, fact);
    getch();
}
```

DOUTPUT:  
Enter a number :  
6  
Factorial of 6 is :  
720

```
}
```

```
    return(F);
```

### 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  
number from the user Also Define another  
variable of integer datatype.

Step 4 : call the function declared above main  
function to calculate factorial and print  
the value.

Step 5 : Now define the body of function which  
calculate factorial.

Step 6 : use the if conditional statement and calculate  
the value accordingly

Step 7 : Return the value to the user.

Step 8 : Stop

2. Program to find sum of digits of entered number.

ALGORITHM :

step 1 : Start

step 2 : Define a function which will calculate  
the sum of digits

step 3 : Take a number from user which  
contains atleast two digits

step 4 : Call the function defined above main  
function to calculate sum of digits

step 5 : Define the body of function defined above  
and accept define two integer variables

step 6 : use the while loop and perform the  
calculation accordingly.

step 7 : Print the value of sum so calculated

step 8 : stop .

```

CODE :
#include <stdio.h>
#include <conio.h>
void sum (int n);
void main()
{
    int sum ;
    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 = S+V;
        n = n/10;
    }
    printf ("\\n Sum of digits is : \\n %d ", S);
}

```

OUTPUT :  
 Enter a number :  
 1758  
 sum of digits is :  
 21