

# C Programming

## Practical no. 1

Aim: Program to understand basic of data type & if

### Programs

#### Source code

```
#include<stdio.h>
#include<Conio.h>
void main()
{
    int rollno;
    char name[10];
    float Grade;
    int mobile_no;
    float Percentage;
    char address;
    clrscr();
    printf("***** DATATYPE *****");
    printf("Enter your name\n");
    printf("Enter your roll_no\n");
    scanf("%d", &rollno);
    printf("Enter your mobile_no\n");
    scanf("%d", &mobile_no);
    printf("Enter your Percentage\n");
    scanf("%f", &Percentage)
```

### \*\*\*\*\* DATATYPE \*\*\*\*\*

- Enter your name  
Aditya Pathak
- Enter your roll-no.  
- 2000
- Enter your mobile\_no.  
- 981940891
- Enter your Percentage  
- 38
- Enter your grade  
- D
- Your name is : Aditya Pathak
- Your roll no is : 2000
- Your mobile\_no is :- 981940891
- Your Percentage is - 38
- Your grade is: D

\*\* Area of triangle \*\*\*

Enter your base: 5  
- 5

Enter your height: 5  
- 5

area of triangle is: 25

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Program A

```
printf ("Enter your address\n");
scanf ("%s", &address);
printf ("Your name is %s", name);
scanf (&grade);
printf ("Your Roll no is %d\n", Roll_no);
printf ("Your Percentage is %.f \n", Percentage);
printf ("Your mobile no is %d \n", mobile_no);
printf ("Your address is %s \n", address);
printf ("Your grade is %s \n", grade);
getch();
```

Program B

Source code:

```
#include <stdio.h>
#include <conio.h>
Void main()
{
    int base, height, area;
    printf ("*** Area of triangle ***");
    printf ("Enter the base \n");
    scanf ("%d", &base);
    printf ("Enter the height \n");
    scanf ("%d", &height);
    area = 0.5 * base * height;
    printf ("Area of triangle is %d \n", area);
    getch();
}
```

Fuller 19

## Practical No. 2

- Q) Write a program which uses various different operators  
Show the use of various different operators

```

↑ Arithmetic operator
→ #include <stdio.h>
# include <conio.h>
void main()
{
    int num1, num2, addition, sub, mul, div;
    clrscr();
    printf("Enter two number");
    scanf("%d %d", &num1, &num2);
    add = num1 + num2;
    printf("\n Addition of two number is : %d", add);
    Sub = num1 - num2;
    printf("Subtraction of two number is : %d", sub);
    mul = num1 * num2;
    printf("Multiplication of two no. is : %d\n", mul);
    div = num1 / num2;
    printf("Division of two no. is : %d \n", div);
    getch();
}
  
```

Program output:

Enter two number :

224

248

Addition of two number is : 36

Subtraction of a number is : 12

Multiplication of two number is : 288

Division of two Number is : 2

$(x < y) \& \& (z > y)$  result is: 0  
 ~~$(x = y) || \& \& (z = y)$  result is: 1~~  
 ~~$\& (x == y)$  result is: 1~~  
 ~~$y == x$  result is: 1~~

- Write a C program to demonstrate logical operators
- ```

→ #include <stdio.h>
# include <conio.h>
void main();
{
    int x=2, y=3, z=6, final_value;
    clrscr();
    final_value = (x < y) && (z > y);
    printf("((x < y) && (z > y)) result is : %d\n", final_value);
    final_value = (x == y) && (z < y);
    printf("(x == y) && (z < y) result is %d\n", final_value);
    final_value = (x < y) || (z == y);
    printf("final_value =\n");
    printf("(x < y) || (z == y) result is %d\n", final_value);
    final_value = (x == y);
    printf("final_value =\n");
    printf("& (x == y) result is %d\n", final_value);
    final_value = (y == x);
    printf("final_value =\n");
    printf("y == x result is %d\n", final_value);
    getch();
}

```

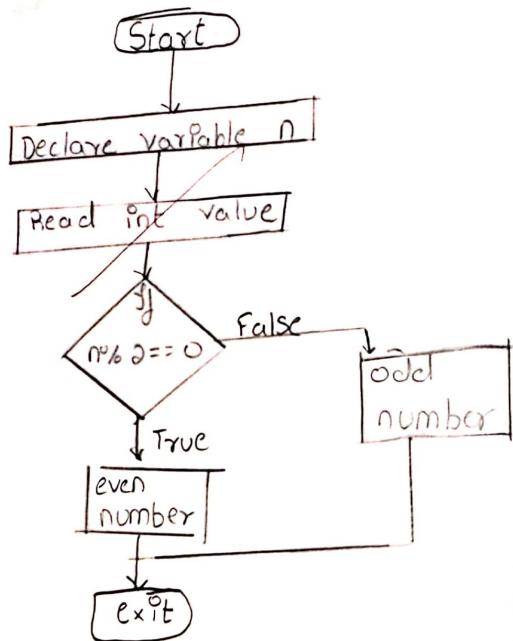
Q. Write a C program to demonstrate  
Assignment operator  
terray

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a=100, b=20, c=30, big;
    clrscr();
    if(a>b & a>c)
        printf("The biggest number is %d, %d", big);
    getch();
}
```

The biggest number is 100

8  
enter the number  
26  
Even number: 26

Flow chart



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### Practical No. 3

#### \* Decision Statement

a) write a c program to find out odd & Even number

→ Algorithm

Step 1: Start

Step 2: Read a number from user

Step 3: check the no. % with modular division with 2 is 0 then it even no.

Step 4: Else display it is odd no.

Step 5: Exit

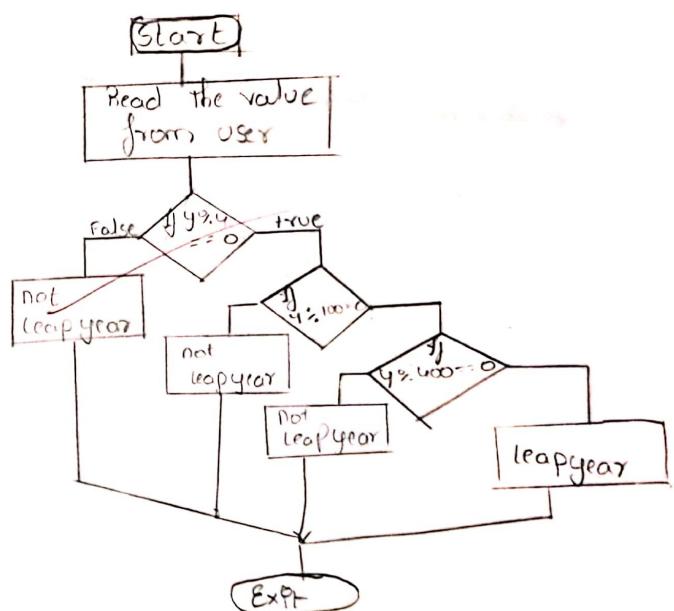
→ Program

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int n;
    clrscr();
    printf("Enter the number:\n");
    scanf("%d", &n);
    if (n % 2 == 0)
        printf("Even number : %d\n");
    else
        printf("Odd number : %d\n");
}
```

Enter a year: 2020

leap year

Flow chart



a write a c program to find entered year is leap year or not

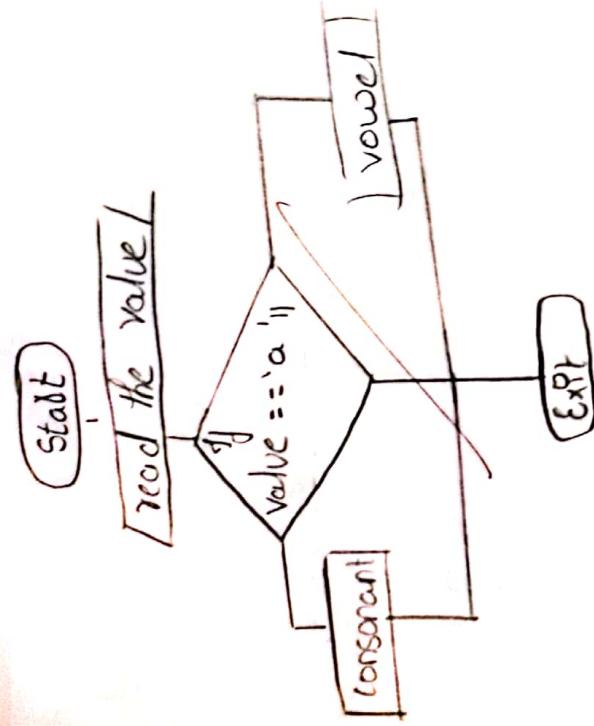
Algorithm

- Step 1: Start
- Step 2: Read the year from user
- Step 3: if year % 4 == 0 & year % 100 != 0 print is leap
- Step 4: year
- Step 5: Exit

```

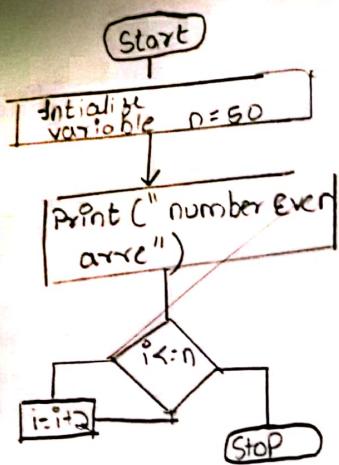
Program
#include <stdio.h>
#include <conio.h>
void main()
{
    int year;
    clrscr();
    printf("Enter the year");
    scanf("%d", &year);
    if (year % 4 == 0)
        if ((year % 100) == 0)
            if ((year % 400) == 0)
                printf("leap year!");
            else
                printf("not leap year");
        else
            printf("not a leap year");
}
  
```

Enter a character : a  
vowel



a write a c program to find whether the character is vowel or consonant

Algorithm  
 Step 1 : Start  
 Step 2 : Initialize the value from user  
 Step 3 : Read character value from user  
 Step 4 : if value == 'a' || value == 'e' ||  
           value == 'i' || value == 'o' || value == 'u' ||  
           value == 'A' || value == 'E' || value == 'I' ||  
           value == 'O' || value == 'U' || value =  
 Steps : Exit  
 Program  
 \* #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 ");  
 else  
 printf ("consonant ");  
 }



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### Practical No.4

Aim: write a c program to print even number between 1-50 using while loop

#### Algorithms

- Step 1 : Start
- Step 2 : Initialize the variable with static value  $n = 50$  &  $i = 2$
- Step 3 : Use while loop for printing the even number up to range 20-50
- Step 4 : Adding a current even number will give an even number
- Step 5 : DPS play the appropriate output
- Step 6 : Stop

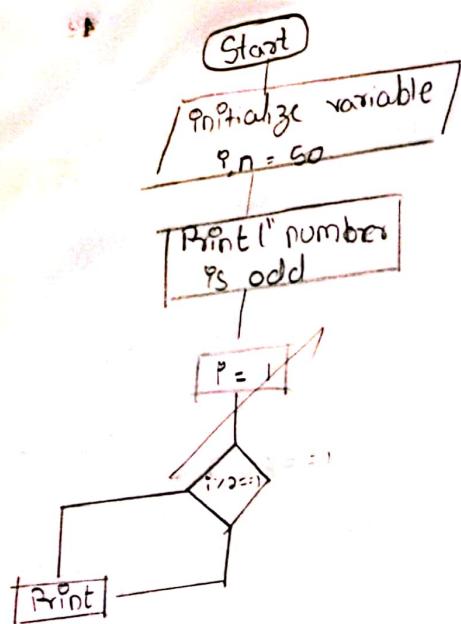
Program

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, n = 20;
    clrscr();
    printf("All even number from 1 to 50\n");
    i = 2;
    while (i <= n)
    {
        printf("%d\n", i);
        i = i + 2;
    }
    getch();
}
```

Output:

All Even number 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



b) write a c program to print odd no. return 1 to 50 using do while

Algorithm

Step 1: start

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

Step 3 use ~~do~~ while loop for iterates from 1 to 50

Step 4 use if condition statement to check whether it is Even or odd

Step 5 increment value of  $i$

Step 6 display output

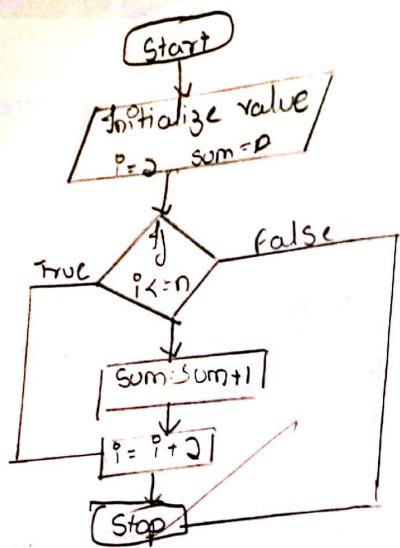
Step 7 Stop

### Program

```
#include < stdio.h>
#include < conio.h>
void main()
{
    int i=1, n=50;
    clrscr();
    printf("odd number from 1 to 50 \n", n);
    do
    {
        if (i%2 == 1)
            printf("%d \n", i);
        i++;
    } while (i<=n)
}
```

output  
odd number from 1 to 50 :

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



o write a c program to print sum of all even number using for loop

Algorithm

step 1 : Start

step 2 : Initialize the variable and one is dynamic of  $i=2$   
Sum = 0 ;  $n$

step 3 : Use for loop for check the condition given range

step 4 : Add current even no.

step 5 : OIS play output

step 6 : Stop

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 no. is", sum);  
 getch();  
}

Enter the range : 10

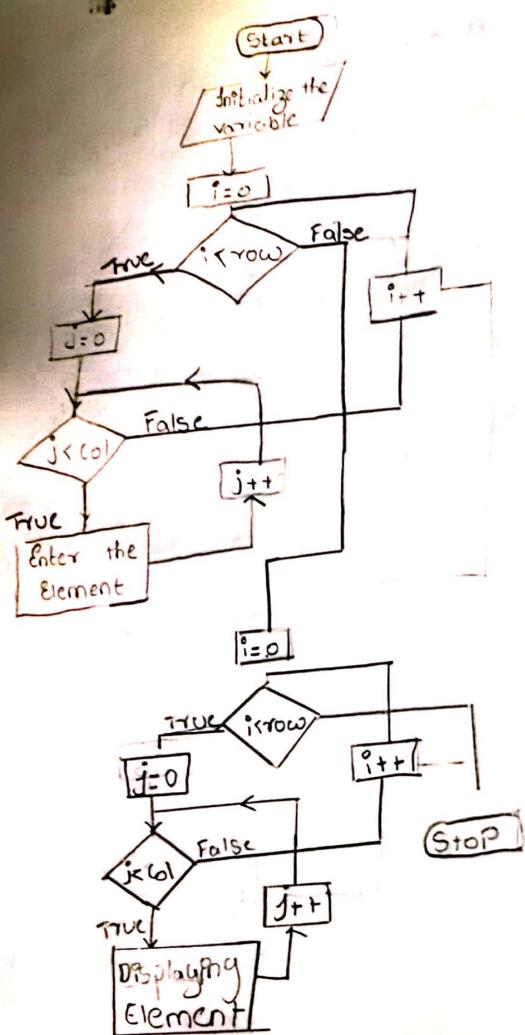
Sum of all even no. is 30

### Practical No. 5

- Q1 write a c program to take input as array as matrix & display to user by using array
- Step 1: Start
  - Step 2: Initialize a variable & declare the size of array
  - Step 3: Accept the row & column from user
  - Step 4: Using a for loop accept the element
  - Step 5: Using again nested for loop & display output to user
  - Step 6: Stop

#### \* Program

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int arr[100], row, col, i, j;
    clrscr();
    printf("Enter the no. of rows");
    scanf("%d", &row);
    printf("Enter the no. of column \n");
    scanf("%d", &col);
```



```

for (i=0; i<row; i++)
{
    for (j=0; j<col; j++)
    {
        printf("Enter the a[%d][%d] element : ", i, j);
        scanf("%d", &a[i][j]);
    }
}

printf("Displaying the matrix is:\n");
for (i=0; i<row; i++)
{
    for (j=0; j<col; j++)
    {
        printf("%d\t", a[i][j]);
    }
    printf("\n");
}
getch();

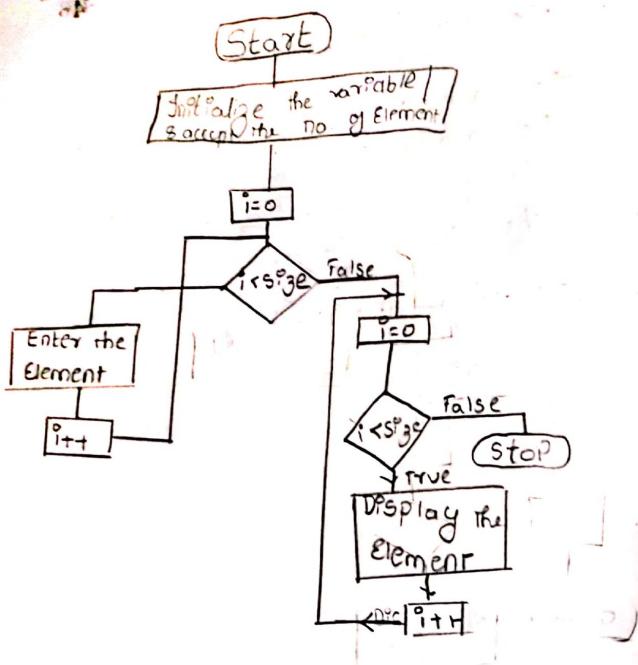
```

Enter the no. of row: 2  
 Enter the no. of column: 2

Enter the a[0][0] Element: 44  
 Enter the a[0][1] Element: 48  
 Enter the a[1][0] Element: 45  
 Enter the a[1][1] Element: 41

The displaying matrix is

|    |    |
|----|----|
| 44 | 48 |
| 45 | 41 |



→ Write a C program to print input array size of array

Algorithm

- Step1 - Start
- Step2 - Initialize a variable & Accept the no. of Element from user want to enter in array
- Step3 - Use for Loop to accept the array element from user
- Step4 - Again use for Loop to display to user
- Step5 - Stop

Program

```

#include <stdio.h>
#include <conio.h>
void main()
{
    int a[10];
    int size;
    printf("Enter the size of array");
    scanf("%d", &size);
    for (i=0; i<size; i++)
    {
        printf("\nEnter the value of a[%d] element:");
        scanf("%d", &a[i]);
    }
}
  
```

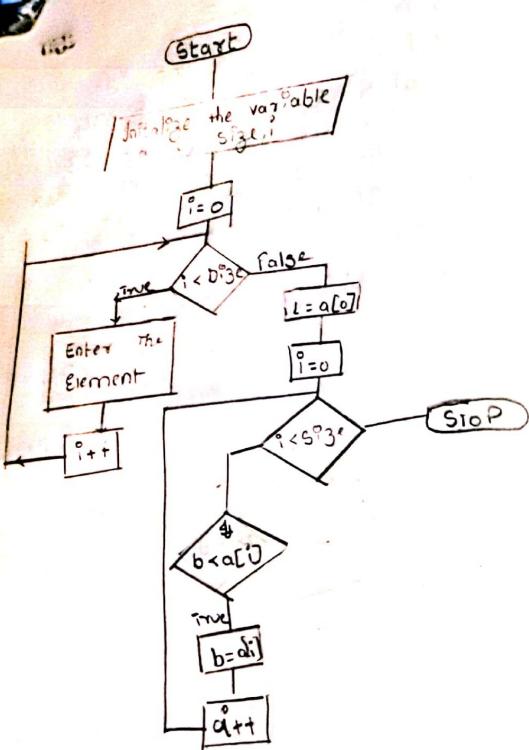
```
3 printf("In the array element are ");  
for (i=0; i<size; i++)  
{  
    printf("In a[%d] = ", i);  
    printf("%d", a[i]);  
}  
getch();
```

Enter the size of array : 5 50  
Enter the value of a[0] element : 25  
Enter the value of a[1] element : 24  
Enter the value of a[2] element : 23  
Enter the value of a[3] element : 21  
Enter the value of a[4] element : 22  
The array elements are  
25  
24  
23  
21  
22

a write a c program to find the largest no. in array

#### Algorithm:

- : Step 1 : Start
- : Step 2 : Accept the size  $n$  that is initialize the variable
- : Step 3 : Use for loop to enter the element in array from user
- : Step 4 : Initialize the array and  $L \leftarrow$
- : Step 5 : Use for loop again to find largest in for loop use if conditional statement to find largest no. in arry
- : Step 6 : Display output to user
- : Step 7 : Stop



Program :

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a[20], L, size, i;
    clrscr();
    printf("Enter the size of array ");
    scanf("%d", &size);
    for (i=0; i<size; i++)
    {
        printf("Enter the a[%d] Element", i);
        scanf("%d", &a[i]);
    }
    L = a[0];
    for (i=0; i<size; i++)
    {
        if (b < a[i])
            b = a[i];
    }
    printf("the largest value is: %d", b);
    getch();
}
```

Enter the size of array 4  
Enter the a[0] Element : 82  
Enter the a[1] element : 88  
Enter the a[2] element : 34  
Enter the a[3] element : 92  
the largest value is : 88

# Practical No.6

Topic: Functions

write a C program to find factorial of number with function

Step 1: Start

Step 2: Define a function globally which can be call easily throughout program

Step 3: Initialize the variable & call the function in body of program

Step 4: In inside the function initialize variable i & fact = 1

Step 5: Now use for loop inside function

Step 6: ~~for~~ fact = fact \* i

Step 7: & display the output to user

Step 8: Stop

Enter the Number : 5  
factorial of 5 is : 120

```
Program
#include <conio.h>
#include <stdio.h>
void factorial (int),
void main()
{
    int a;
    clrscr();
    printf ("Enter the number");
    scanf ("%d", &a);
    factorial (a);
}
void factorial (int n)
{
    int i, fact = 1;
    for (i=1; i<=n; i++)
    {
        fact = fact * i;
    }
    printf ("factorial of %d is %d", fact);
    getch();
}
```

• write c program to find the sum of entered digit

Step 1 : Start

Step 2 : Define a function globally which can be use throughout Program

Step 3 : Initialize the variable n  
call the function in body of program

Step 4 : Now inside the function  
initialize the variable s, str

Step 5 : Inside while loop function  
use while loop by giving a condition that n should not equal to zero

Step 6 : In inside while loop  
 $r = n \% 10$        $s = s + r$        $n = n / 10$   
until condition becomes false

Step 7 : Display output to user

Step 8 : Stop

Enter the no. 526  
The sum of digits = 13

```
Program
#include <stdio.h>
#include <conio.h>
void Sum (int n);
void main()
{
    int n;
    clrscr();
    printf ("n Enter the no. : ");
    scanf ("%d", &n);
    Sum (n);
    getch ();
}
void Sum (int n)
{
    int r, s=0;
    while (n != 0)
    {
        r = n % 10;
        s = s + r;
        n = n / 10;
    }
    printf ("n Sum of digit = %d ", s);
}
```

\* To find the average of 3 no.  
by using nested function

Algorithm

Step 1: Start

Step 2: Define function sum & average  
that can be use throughout  
program

Step 3: Now initialize the all variable &  
take input from user &  
call the function of sum in  
body of program

Step 4: Now inside the sum function  
add all 3 inputed number  
& call the average function  
In side the body of sum function

Step 5: Now inside the average function  
divide it by 3 to the no. of  
input

Step 6: Display output to User

Step 7: Stop

Enter the first value : 6  
 Enter the second value : 9  
 Enter the third value : 3

Average : 6.000

```
#include <stdio.h>
#include <conio.h>
void average (int sum);
void sum (int a, int b, int c);
void main()
{
    int a, b, c;
    clrscr();
    printf ("Enter the first value\n");
    scanf ("%d", &a);
    printf ("Enter the second value\n");
    scanf ("%d", &b);
    printf ("Enter the third value\n");
    scanf ("%d", &c);
    sum (a, b, c);
    getch();
}
void sum (int a, int b, int c)
{
    int s;
    s = a+b+c;
    average (s);
}
void average (s)
{
    float average;
    average = s/3;
    printf ("\n Average : %f", avg);
}
```