19-11-19

Practical : 1

Aim : To study the use of different types of datatypes

Source code :

```
# include <stdio.h>
# include <conio.h>
void main()
{
    char name [40];
    char add [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 the studen \n" );
    scan f (" %. s", & add);
    Cprintf (" Roll no. of the student \n");
    scan f (" %. d" , & roll no);
    Cprintf (" Percentage of student \n" );
    scan f (" %. f , & percent ");
```


Output :

```
----- Demonstrate various datatypes -----
name of the student
Hayuvesh
Address of the student
virar
Roll no. of the student
1713
Percentage of student
75.61
Grade of student
B+
mobile no.
8282646413

Student name : Hayuvesh
Student address : virar
Student rollno. : 1713
Student percent : 75.61
Student grade : B+
Student mobileno : 8282646413
```

```
printf("Enter the number of students:\n");
scanf("%d", &num);
printf("Enter the marks of %d students:\n", num);
for(i=0; i<num; i++)
{
    printf("Enter the marks of student %d: ", i+1);
    scanf("%d", &marks[i]);
}
for(i=0; i<num; i++)
{
    if(marks[i]>=90)
        grade='A';
    else if(marks[i]>=80)
        grade='B';
    else if(marks[i]>=70)
        grade='C';
    else if(marks[i]>=60)
        grade='D';
    else if(marks[i]>=50)
        grade='E';
    else
        grade='F';
    printf("Grade of student %d is %c\n", i+1, grade);
}
```

29/11/19

Practical - 02

Aim :- Program with operator

```
# Include <stdio.h>
# include <conio.h>
void main ()
{
    int num1, num2;
    float add, sub, mul, div;
    clrscr ();
    printf ("Enter 1st Number :");
    scanf ("%d", &num1);
    printf ("Enter 2nd Number :");
    scanf ("%d", &num2);
    add = num1 + num2;
    sub = num1 - num2;
    mul = num1 * num2;
    div = num1 / num2;
    printf ("Addition = %f", add);
    printf ("Subtraction = %f", sub);
    printf ("Multiplication = %f", mul);
    printf ("Division = %f", div);
    getch ();
}
```

```
Enter 1st Number : 45
Enter 2nd Number : 8
Addition = 53
Subtraction = 37
Multiplication = 360
Division : 5.63
```

```
# include <stdio.h>
# include <conio.h>
void main ()
{
        int num1, num2;
        clrscr ();
        printf ("enter 1st Number:");
        scanf ("%d", &num1);
        printf ("enter 2nd Number:");
        scanf ("%d", &num2);
        num1 > num2 ? printf ("1st is greater");
                    : printf ("2nd is greater");

        getch ();
}
```

19/01/2020

Aim = Program on Decision statement

Q] Write a program to find odd & even number.

Algorithm:

Step 1: Start

Step 2: [Take input] Read a number from the user.

Step 3: Check if number %. 2 = = 0 then print "Even Number" else print "Odd Number"

Step 4: Exit

Program:

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


Output:

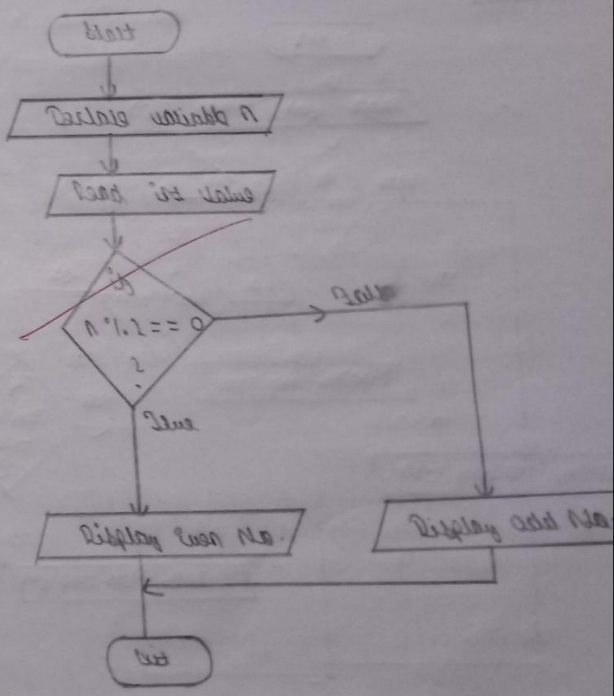
Enter a number = 13

Odd Number

Enter a number = 10

Even Number

Flowchart:



3] write a program to find the number you is leap year or not.

Algorithm:

Step 1: start

Step 2: [Input] Read year from user

Step 3: if year % 4 == 0 and year % 400 == 0 OR year % 4 == 0 and year % 100 != 0
Print "year is a leap year"
else
Print "year is not a leap year"

Step 4: Exit

Program:

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

```
    getch();
}
```

Output:

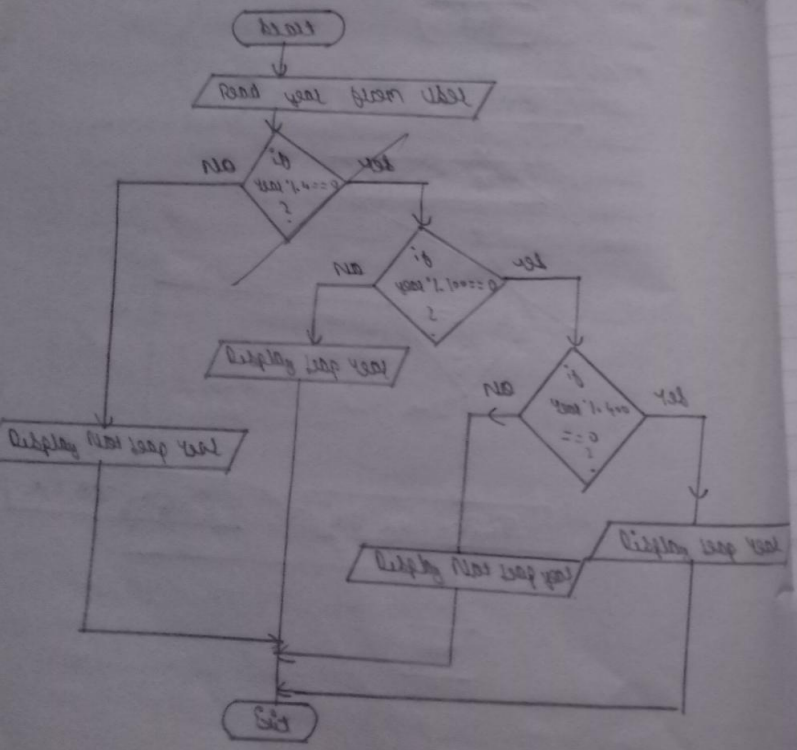
Enter a year: 2013

2013 is a leap year

Enter a year: 2016

2016 is leap year

Flowchart:



Output :

```
Enter the alphabet : A
Vowel
```

Enter the alphabet : M

Consonant

Flowchart :

print "vowel"
else print "consonant"
Step 4: Exit

Program:

```
#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();
}
```

24/01/2020

Practical - 04

Aim :- Program on looping statement

01] Write a program to find factorial of number

Algorithm :-

Step 1 : Start

Step 2 : Initialize variables fact = 1 and i = 1

Step 3 : [Take input] Read an integer number from us

Step 4 : Repeat the steps until i <= input value.

-> fact = fact * i

-> i = i + 1

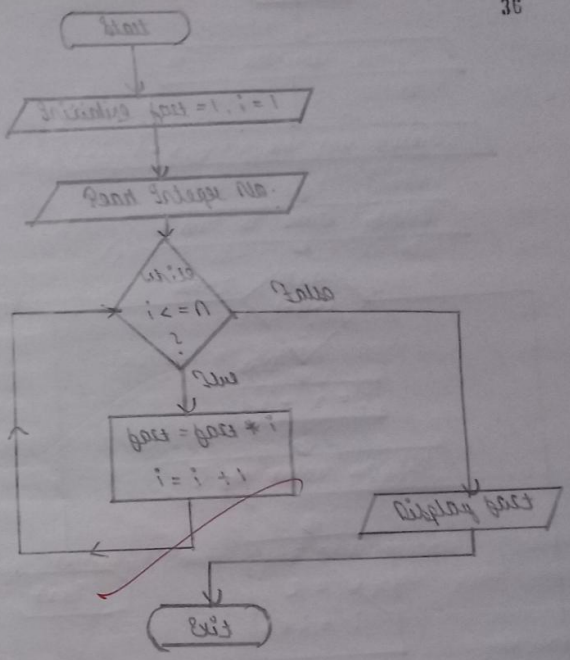
Step 5 : Display factorial

Step 6 : Exit

Program :

```
# include <conio.h>
# include <stdio.h>
void main ()
{
    int fact = 1, i = 1, n;
    clrscr ();
    printf ("enter the number:");
    scanf ("%d", &n);
    while (i <= n)
    {
        fact = fact * i;
```

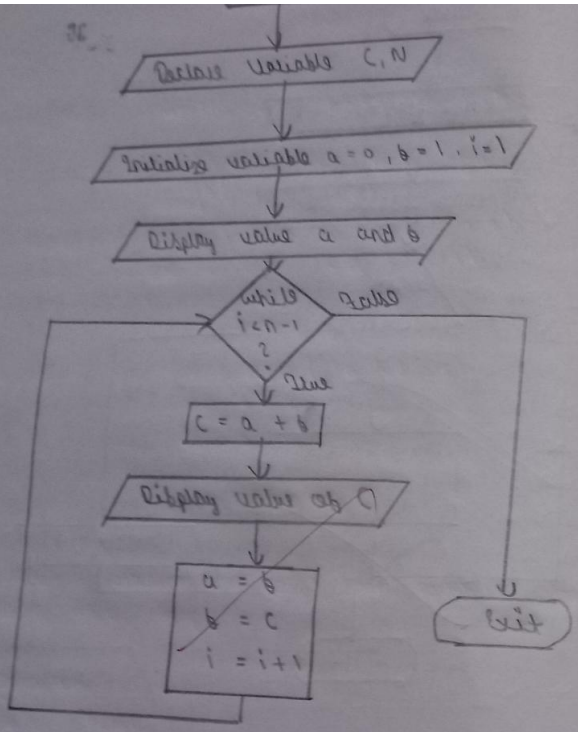
Flowchart :



Output :-

enter the number : 5

factorial = 120



output :

Enter the Range for Fibonacci series: 5

0
1
1
2
3


```
    i = i + 1;
  }
  printf ("Factorial = %d", fact);
  getch();
}
```

[2] write a program to make Fibonacci series

Algorithm :

Step 1 : Start

Step 2 : Read a number from user. [Input]

Step 3 : Declare variable C ; a = 0 , b = 1 , i = 1

Step 4 : Display a, b

Step 5 : Repeat steps until i < entered value - 1

-> C = a + b

-> Display C

-> a = b

-> b = C

-> i ++

Step 6 : Exit

Program :

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

Practical: 05

Aim : Program on Array

Q7] Write a program to perform sum of array

Algorithm :

Step 1 : Start
Step 2 : Declare A[20], size
Step 3 : Initialize i = 0, sum = 0
Step 4 : Repeat until i < size
read A[i]
sum = sum + A[i]
Step 5 : Display sum
Step 6 : Stop

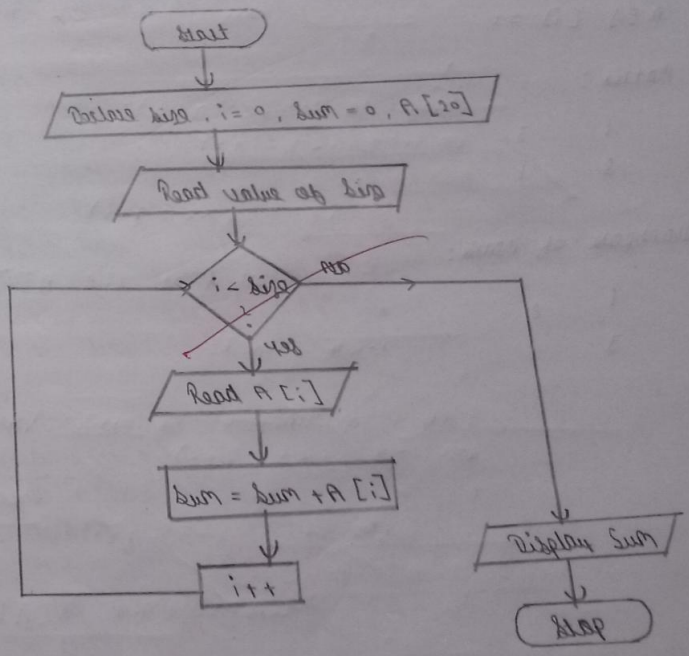
Program :

```
# include <conio.h>
# include <stdio.h>
void main()
{
    int A[20];
    int size, i, sum = 0;
    clrscr();
    printf("Enter the size: ");
    scanf("%d", &size);
    for(i=0; i<size; i++)
    {
        printf("Enter the A[%d] element: ", i);
        scanf("%d", &A[i]);
```


output :

Enter the size : 3
Enter the A[0] element : 13
Enter the A[1] element : 19
Enter the A[2] element : 69
Sum of entered numbers = 100

Flowchart :



output :

Enter number of rows : 2

Enter number of columns : 2

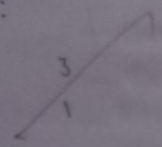
A[0] [0] = 1

A[0] [1] = 3

A[1] [0] = 3

A[1] [1] = 1

Matrix :



1	3
3	1

Transpose of matrix :

1	3
3	1


```
        sum = sum + a[i];
    }
    printf("sum of entered numbers = %d", sum);
    getch();
}
```

2] Write a program to find transpose of matrix

Algorithm :

Step 1 : Start

Step 2 : Declare A[10][10], r, c

Step 3 : Initialize i=0 and j=0

Step 4 : Read r, c and A[][]

Step 5 : Repeat until i < r

Repeat until j < c

Display A[j][i]

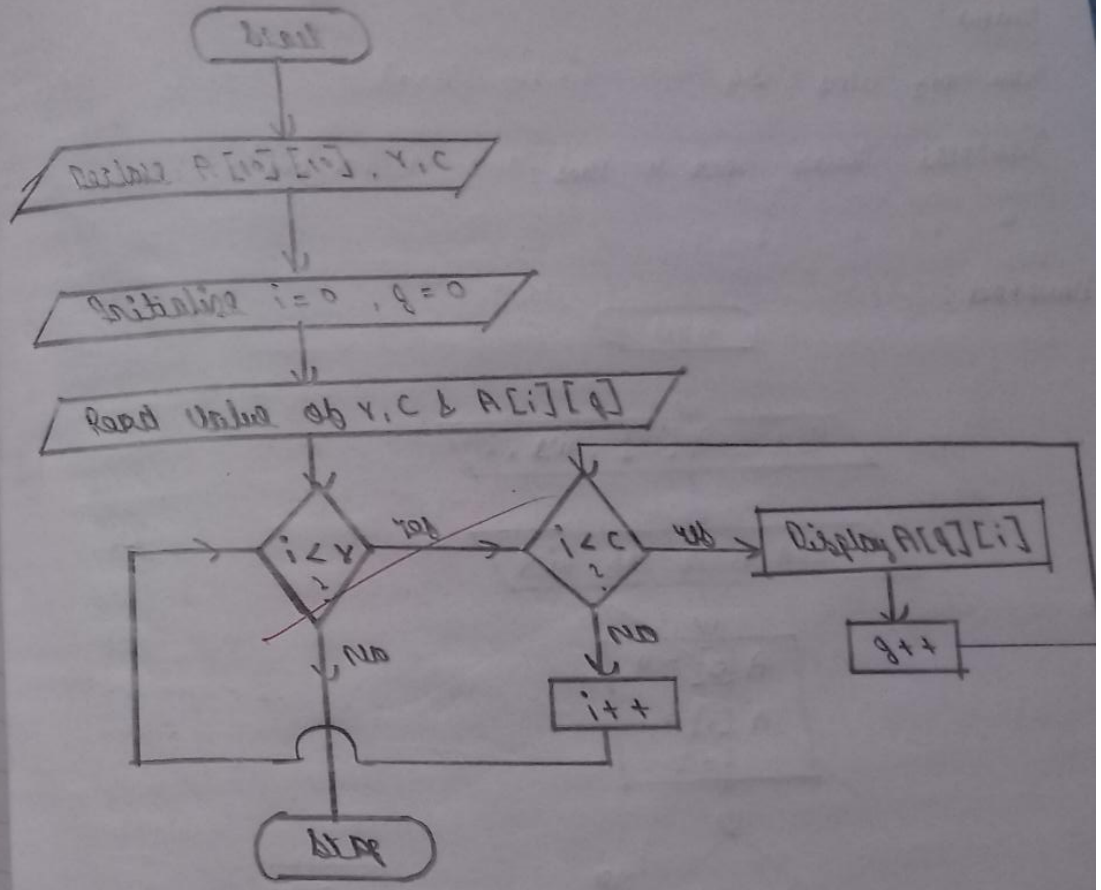
Step 6 : Stop

Program :

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

Flowchart:



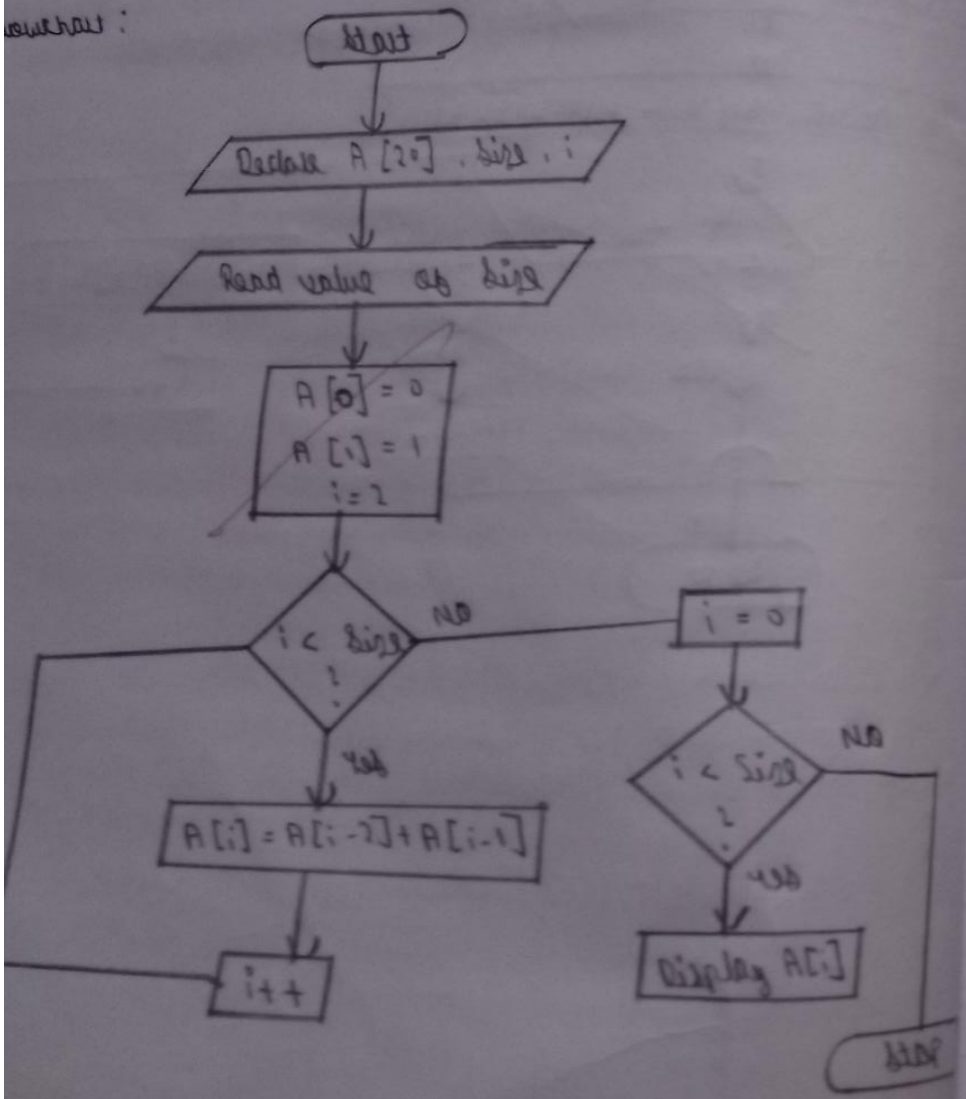
Output:

How many terms ? - 4

Fibonacci series upto 4 terms :

0 1 1 2

owchart:



03) Write a program to perform Fibonacci series using Array.

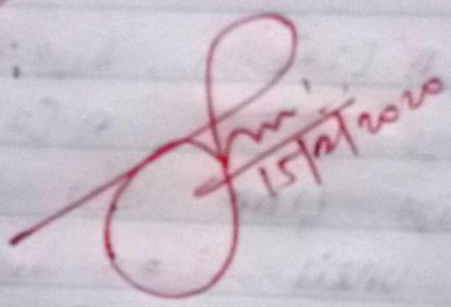
Algorithm:

Step 1: Start
Step 2: Declare A[20], i, size
Step 3: Initialize i = 2, A[0] = 0, A[1] = 1
Step 4: Read size from user
Step 5: Repeat until i <= size
A[i] = A[i-2] + A[i-1]
Step 6: Display result
Step 7: Stop

Program:

```
#include <conio.h>
#include <stdio.h>
void main()
{
    int A[20], i, size;
    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]
    }
    printf("\n Fibonacci series upto %d terms: \n", size);
```

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



Output :

Enter student details :

Enter roll no : 1713

Enter the name : Mayuresh

Enter percentage : 84

Roll	Name	Percentage
1713	Mayuresh	84.000

Program on Structures

Step 1 : Declare the structure with initialization of variables.

Step 2 : Call the declared structure with structure object.

Step 3 : Print in the user to enter the student details of roll no, name and percentage with following format specifier.

Step 4 : Display the same to user.

Code :

```
# include <stdio.h>
# include <conio.h>
void main ()
{
    struct stud
    {
        char name [20];
        int roll;
        float per;
    };
    struct stud s1;
    clrscr ();
    printf ("\n Enter student details:");
```

```
        printf ("\n Enter roll no: ");
        scanf ("%d", &s1.roll);
        printf ("\n Enter the name :");
        scanf ("%s", &s1.name);
        printf ("\n Enter percentage :");
        scanf ("%f", &s1.per);
        printf ("\n\t Roll\t Name\t Per");
        printf ("\n\t %d\t %s\t %f",
        s1.roll, s1.name, s1.per);
        getch ();
}
```

#2 Algorithm:

Step 1: Start

Step 2: Define structure WWE which will take input as name in character, championship in character, no of championship in integer.

Step 3: Depending upon the number of inputs declare the structure objects

Step 4: Display the user to take input for the 1st, 2nd name respectively

Step 5: Display the name by storing the input

Output:

```
Enter
Championship
Number_of_Championship
- - - - - - - - - -
WWE
World Heavyweight Championship
1
NXT
NXT Championship
1

Enter          Championship          Number_of_Championship
WWE            World Heavyweight Championship        1
NXT            NXT Championship                      1
```

#1 call by value :

```
# include <stdio.h>
# include <conio.h>
int sample (int , int)
void main ()
{
    int x, y, z;
    clrscr ();
    printf ("enter the value of x:");
    scanf ("%d", &x);
    printf ("enter the value of y:");
    scanf ("%d", &y);
    z = x + y;
    printf ("\n before function call the number are:");
    printf ("\n x = %d  \t y = %d  \t z = %d", x, y, z);
    z = sample (x, y);
    printf ("\n x = %d  \t y = %d  \t z = %d", x, y, z);
    getch ();
}
int sample (int a, int b)
{
    int result;
    a = 2*a;
    b = 3*b;
    result = a + b;
```

printf("\n inside the function");
printf("\n x = %d it y = %d it z = %d", x, y, z);
return (result);
}

Algorithm :

Step 1 : Start
Step 2 : Declare function with integer parameters
Step 3 : Declare variable display the user enter the value of x & y respectively and scan the same
Step 4 : add the value and store in an another variable
Step 5 : Display the number before function call.
Step 6 : call the function and the display same.
Step 7 : Define the declared function & print the same
Step 8 : Stop.

output :

enter the value of x : 1
enter the value of y : 1
Before function call the number are
x = 1 y = 1 z = 2

Inside the function
x = 20 y = 30 z = 50
after function call the numbers are.
x = 1 y = 1 z = 50

#2

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
    char str[50];
    char st[20];
    clrscr();
    printf("\n Enter a string:");
    gets(str);
    printf("\n Enter substring to find in the above stri
    gets(st);
    if(strstr(str,st)==NULL)
    {
        printf("\n String not found!");
    }
    else
    {
        printf("\n String found");
    }
    getch();
}
```

output:

Enter a string: Hello MR. Robot Hola!

Enter substring: world

String not found!