ECS-102 LAB TASK 7 – Recursive functions and Arrays

Example:

```c
// Program to find the average of n numbers using arrays

#include <stdio.h>
int main()
{
    int marks[10], i, n, sum = 0, average;

    printf("Enter number of elements: ");
    scanf("%d", &n);

    for(i=0; i<n; ++i)
    {
        printf("Enter number%d: ",i+1);
        scanf("%d", &marks[i]);

                // adding integers entered by the user to the sum variable
        sum += marks[i];
    }

    average = sum/n;
    printf("Average = %d", average);

    return 0;
}
```

LAB TASK 7

1.Write a program (using "Functions") for checking a number to be a Palindrome using recursion.

2.Write a program (using "Functions") to print a Fibonacci Series up to 10 digits using recursion.

3.Write a program using a 1D array to evaluate the following expressions:

$$\text{Total} = \sum (X_i)^2$$
where summation is from i=1 to 10.

Program uses a one-dimensional array X to read the 10 values and compute the sum of their squares.

```
Expected output:
ENTER 10 REAL NUMBERS
  1.1  2.2  3.3  4.4  5.5  6.6  7.7  8.8  9.9  10.10
X[1]=1.1
X[2]=2.2
.
.
.
X[10]=10.10
Total= 446.86
```

Practice Problems: (Submission not required)

1. Write a program to search a number (Binary search) in an array and print that number with its location in the array.

3	4	7	11	18	29	45	71	87	89	93	96
0	1	2	3	4	5	6	7	8	9	10	11

[Hint: In the above array if we search for '66' and '71', then in case of '66' the print on the screen must be "Not an element of the array". While if you search for '71', then the print on the screen must be "71 is an element of an array and its position is 8th".]

2. Write a program to find the smallest element of the array along with its position in the array.

11	29	7	11	45	29	18	96	71	89	99	3
0	1	2	3	4	5	6	7	8	9	10	11

[Hint: In the above array the smallest element is '3' and its position is 11th.]