



Green University of Bangladesh Department of Computer Science and Engineering(CSE)

**Faculty of Sciences and Engineering Semester: (Fall , Year:2022), B.Sc. in
CSE (Day)**

LAB REPORT NO : 5

Course Code : CSE 104

Course Title : Structured Programming Lab

Section : DC

Student Details

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Lab Date : 13-11-2022

Submission Date : 28-11-22

Course Teacher's Name : JARIN TASNIM TONVI

[For Teachers use only: [Don't Write Anything inside this box](#)]

Lab Report Status

Marks:.....

Comments:

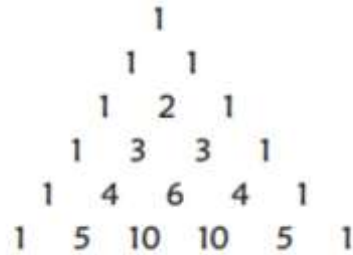
Signature:

Date:.....

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Problem 1:

•**Title:** Display Pascal's Triangle until a given row. For instance, if a user selects row = 6, the pascal triangle for the choice would be something like below:



Objectives:

- To be familiar with scanf and printf functions.
- To be familiar with logical expression.
- To be familiar with the combination part of math and power function.
- To be familiar with for loop.

Input & Output:

At first, we have to read a value which is the number from the user. Then the program uses some mathematical expressions to make Pascal's Triangle.

Implementation:

```

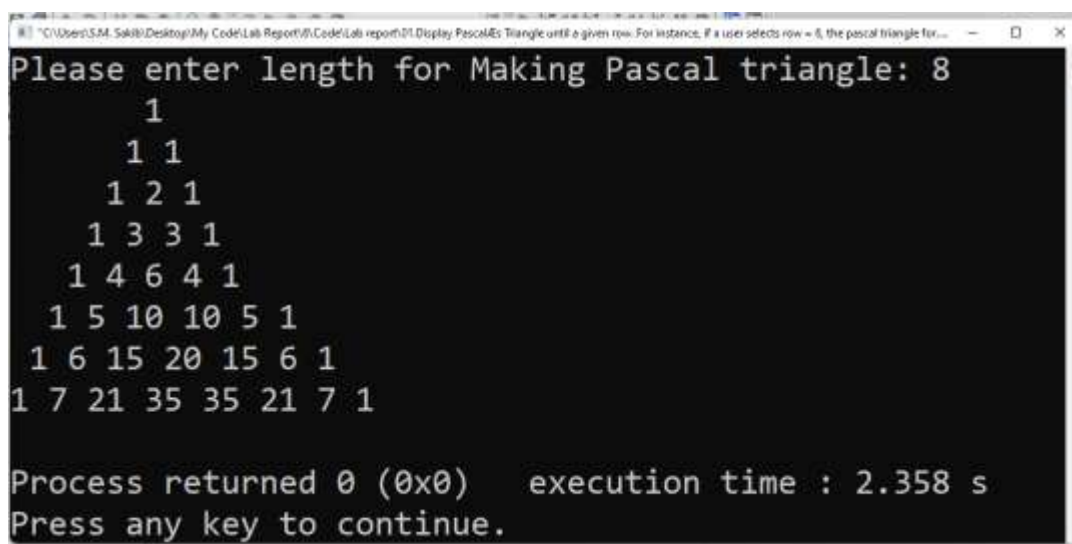
#include <stdio.h>
int factorial(int a) {
    int c=1;
    for(int i=1;i<=a;i++) {
        c*=i;
    }
    return c;
}

int combination(int a,int b) {
    //n! / r! * (n - r)!
    int c;
    c=((factorial(a))/((factorial(b)*(factorial(a-b)))));
    return c;
}

int main() {
    int len;
    printf("Please enter length for Making Pascal triangle: ");
    scanf("%d",&len);
    for(int i=0;i<len;i++){
        for(int j=1;j<(len-(i));j++){
            printf(" ");
        }
        for(int j=0;j<=i;j++){
            printf("%d ",combination(i,j));
        }
        printf("\n");
    }
    return 0;
}

```

Test Result:



```

C:\Users\SAM\Desktop\My Code\Lab Report\01\Code\Lab report\01\Display Pascal's Triangle until a given row. For instance, if a user selects row = 8, the pascal triangle for...
Please enter length for Making Pascal triangle: 8
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
1 6 15 20 15 6 1
1 7 21 35 35 21 7 1

Process returned 0 (0x0)   execution time : 2.358 s
Press any key to continue.

```

Discussion: When I write the program I have to learn how Pascal's triangles are made..Then I apply logic and write the program...

Problem 2:

• **Title:** Write a program in C to count the total number of duplicate elements in an array.

Objectives:

- To be familiar with scanf and printf functions.
- To be familiar with if else conditions.
- To be familiar with logical expression.
- To be familiar with array.

Input & Output:

At first, the program read the array length and array element. And count the duplicate and finally the program print the total duplicate in the array.

Implementation:

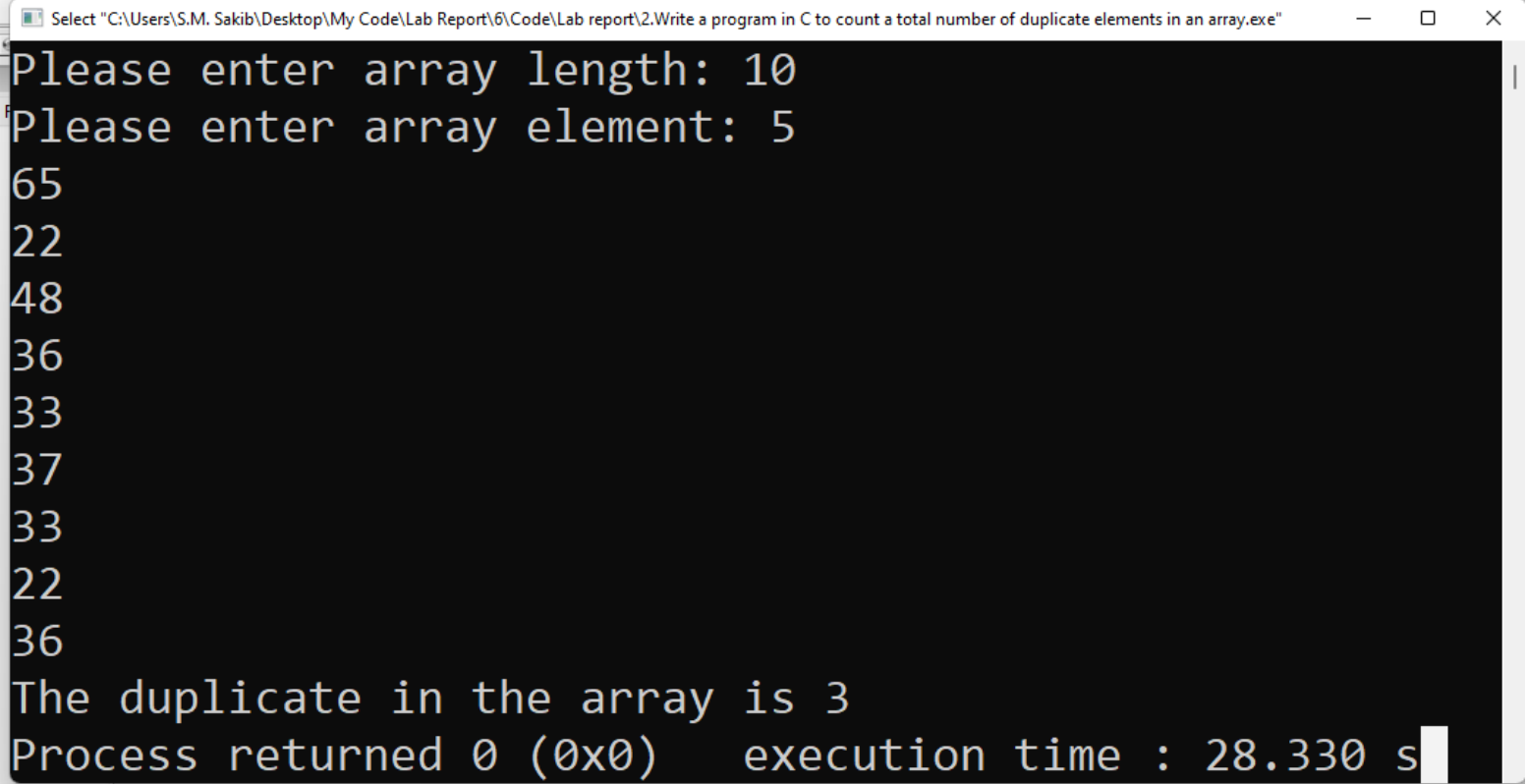
//Write a program in C to count a total number of duplicate elements in an array.

```
#include <stdio.h>
int main(){
    int a,c=0;
    printf("Please enter array length: ");
    scanf("%d",&a);
    int arr[a+2];
    printf("Please enter array element: ");
    for(int i=0;i<a;i++){
        scanf("%d",&arr[i]);
    }
    for(int i=0;i<a;i++){
        int b=0;

        for(int j=i+1;j<a;j++){
            if(arr[i]==arr[j]){

                b++;
            }
        }
        if(b>0){
            c++;
        }
    }
    printf("The duplicate in the array is %d",c);
    return 0;
}
```

Test Result:



The screenshot shows a Windows command prompt window titled "Select 'C:\Users\S.M. Sakib\Desktop\My Code\Lab Report\6\Code\Lab report\2.Write a program in C to count a total number of duplicate elements in an array.exe'". The program prompts the user to enter the array length (10) and then the array elements (5, 65, 22, 48, 36, 33, 37, 33, 22, 36). It then outputs "The duplicate in the array is 3" and "Process returned 0 (0x0) execution time : 28.330 s".

```
Select "C:\Users\S.M. Sakib\Desktop\My Code\Lab Report\6\Code\Lab report\2.Write a program in C to count a total number of duplicate elements in an array.exe"

Please enter array length: 10
Please enter array element: 5
65
22
48
36
33
37
33
22
36
The duplicate in the array is 3
Process returned 0 (0x0) execution time : 28.330 s
```

Discussion: When I solve the problem I don't face any problem....

Problem 3:

• **Title:** *Write a program in C to separate odd and even integers in separate arrays.*

Objectives:

- To be familiar with scanf and printf function.
- To be familiar with for loop.
- To be familiar with if else condition.
- To be familiar with array.

Input & Output:

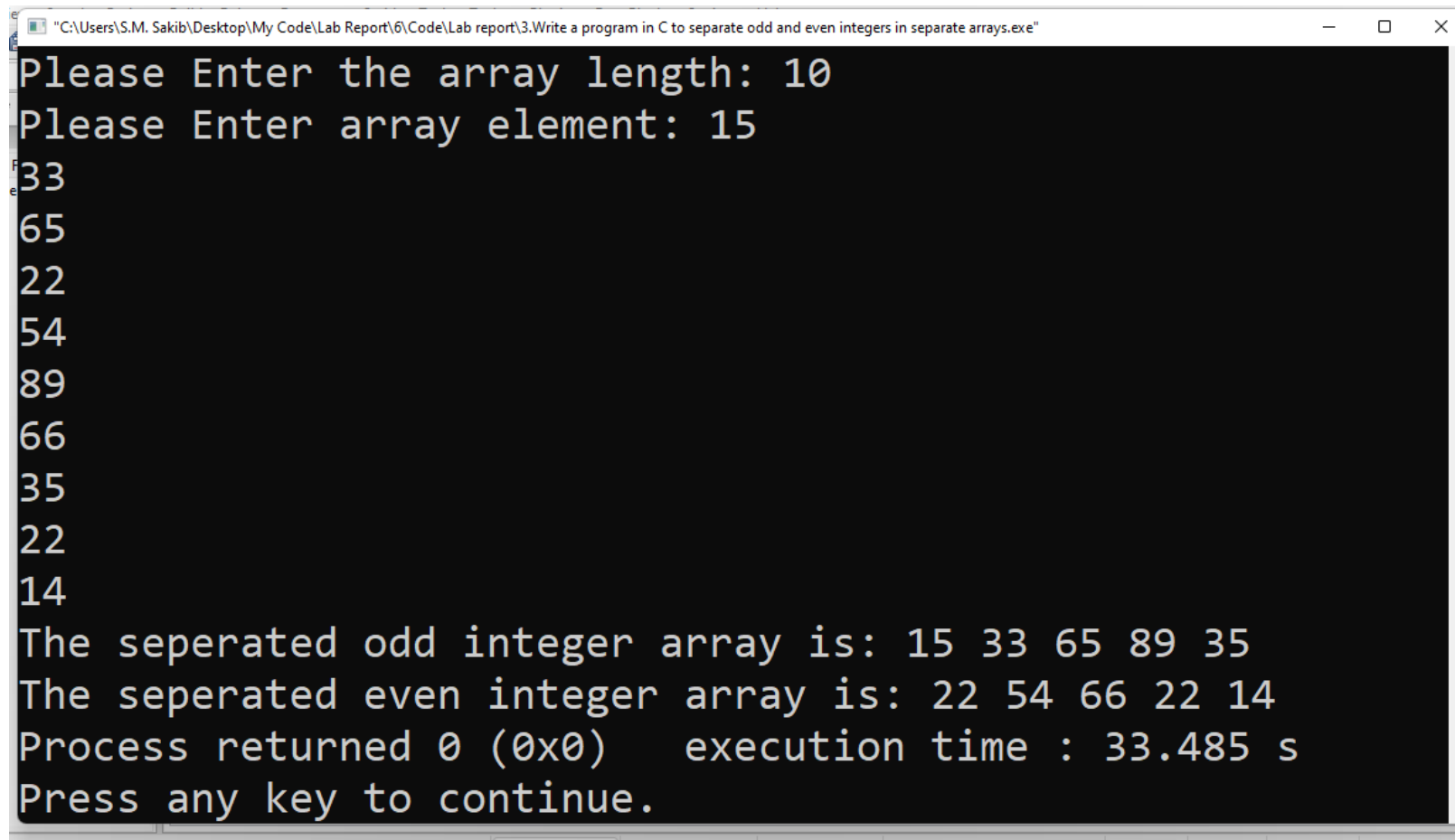
This program are input the array length and array from user..Then if the number is dvide by 2 it go to even array else it go go to odd array and print it..

Implementation:

```
//Write a program in C to separate odd and even integers in separate arrays.
#include <stdio.h>
int main(){
    int a;
    printf("Please Enter the array length: ");
    scanf("%d",&a);
    int arr[a+2],oddarr[a],evenarr[a];
    printf("Please Enter array element: ");
    for (int i=0;i<a;i++){
        scanf("%d",&arr[i]);
    }
    int count=0;
    printf("The seperated odd integer array is: ");
    for(int i=0;i<a;i++){
        if(arr[i]%2!=0){
            oddarr[count]=arr[i];
            printf("%d ",oddarr[count]);
            count++;
        }
    }
    printf("\n");
    count=0;
    printf("The seperated even integer array is: ");
    for(int i=0;i<a;i++){

        if(arr[i]%2==0){
            evenarr[count]=arr[i];
            printf("%d ",evenarr[count]);
            count++;
        }
    }
}
```

Test result:



```
"C:\Users\S.M. Sakib\Desktop\My Code\Lab Report\6\Code\Lab report\3.Write a program in C to separate odd and even integers in separate arrays.exe"
Please Enter the array length: 10
Please Enter array element: 15
33
65
22
54
89
66
35
22
14
The seperated odd integer array is: 15 33 65 89 35
The seperated even integer array is: 22 54 66 22 14
Process returned 0 (0x0)    execution time : 33.485 s
Press any key to continue.
```

Discussion: When I solve this programme I don't face any problem.