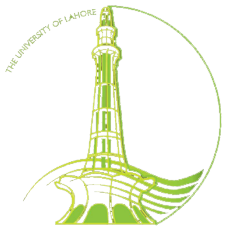

THE UNIVERSITY OF LAHORE
ISLAMABAD CAMPUS

Data Structure and Algorithms (CS13217)

Lab Report

Name:	M.Usman Ali
Registration #:	SEU-F16-135
Lab Report #:	03
Dated:	30-04-2018
Submitted To:	Sir. Usman Ahmed

The University of Lahore, Islamabad Campus
Department of Computer Science & Information Technology

Experiment # 3
Stack with Array implementation

Objective
The objective of this session is to understand the various operations in stack using array structure in C++.

Software Tool
1. Language: C++

1 Theory

Stacks are the most important in data structures. The notation of a stack in computer science is the same as the notion of the Stack to which you are accustomed in everyday life. For example, a recursion program on which function call itself, but what happen when a function which is calling itself call another function. Such as a function 'A' call function 'B' as a recursion. So, the firstly function 'B' is call in 'A' and then function 'A' is work. So, this is a Stack. This is a Stack is First in Last Out data structure.

2 Task

2.1 Procedure: Task 3

Write a C++ code to perform : 1. Insertion in stack 2. Deletion in stack 3. Display the stack

Create a complete menu for the above options and also create option for reusing it.

```
#include<iostream>
using namespace std;
        int max=10;
        int a[10];
```

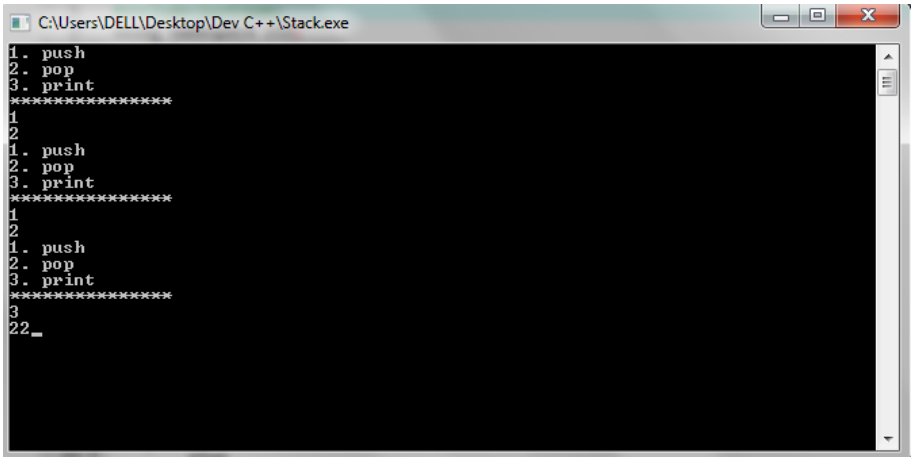

Figure 1: Link List

```
        int top=-1;
void push(int x)
        {
                if(top==10)
                {
                        cout<<"Error:Over flow";
                }
                else
                {
                        a[++top]=x;
                }
        }
void pop()
        {
                if(top==-1)
                {
                        cout<<"Stack is empty";
                }
                else
                {
                        top--;
                }
        }
        int print()
```

```
        {
                for(int i=0;i<top+1;i++)
                {
                        cout<<a[i];
                }
        }
int main()
{
        us: cout<<"1. push"<<endl;
        cout<<"2. pop"<<endl;
        cout<<"3. print"<<endl;
        cout<<"***************"<<endl;
        char k,y;
        while(y==0)
        {
        cin>>k;
        switch(k)
        {
                case '1':
                int a;
                cin>>a;
                push(a);
                goto us;
                break;
                case '2':
                pop();
                goto us;
                break;
                case '3':
                print();
                break;
}
}
}
```

3 Conclusion

In this lab we learned how to create stack and display it on a screen and its various functions.