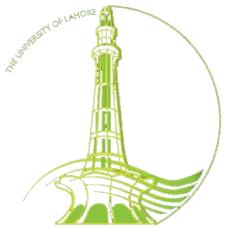

THE UNIVERSITY OF LAHORE
ISLAMABAD CAMPUS

DATA STRUCTURE

Lab Report

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Experiment # 3

Stack with Array implementation

Software Tools:-

1. **DEV C++**

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.

Insertions in Stack:

In Stacks, we know the array work, sometimes we need to modify it or add some element in it. For that purpose, we use insertion scheme. By the use of this scheme we insert any element in Stacks using array. In Stack, we maintain only one node which is called **TOP**. And **Push** terminology is used as insertions.

Deletion in Stack:

In the deletion process, the element of the Stack is deleted on the same node which is called **TOP**. In stacks, it's just deleting the index of the TOP element which is added at last. In Stacks **Pop** terminology is used as deletion.

Display of Stack:

In displaying section, the elements of Stacks are being display by using loops and variables as a reverse order. Such that, last element is display at on first and first element enters display at on last.

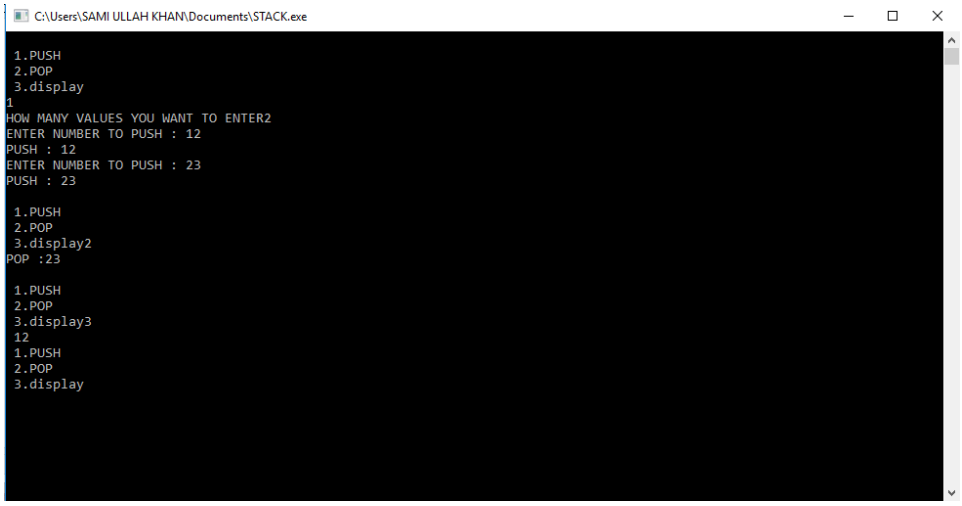
CODE:

```
#include <iostream>
using namespace std;
```

```
int A[50];
int top=-1;
   //int c=0;
void push(int n)
{
if(top<50)
{
cout<<"PUSH : "<<n<<endl;
A[++top]=n;

}
}
void pop()
{
if(top>-1)
{
cout<<"POP :"<<A[top]<<endl;
A[top]=0;
top--;
}
}
void display()
{
//int k=0;
for( int k=0; k<=top;k++)
{
cout<<" "<<A[k];
}}
int main() {
int n=0;
int b=0;
int y=0;
for(int o=0;o<50;o++)
{          cout<<"\n 1.PUSH \n 2.POP \n 3.display";
cin>>y;
switch(y){
case 1:
cout<<"HOW MANY VALUES YOU WANT TO ENTER";
```

```
cin>>b;
    for(int l=0;l<b;l++)
      {
cout<<"ENTER NUMBER TO PUSH : ";
cin>>n;
 push(n);
   }
  break;
case 2:
pop();
break;
case 3:
display();
break;
}}          return 0;
}
```



CONCLUSION:

In this lab we understand the basic concept of the Stack with its implantation using their function as given above.