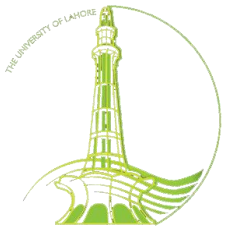

THE UNIVERSITY OF LAHORE
ISLAMABAD CAMPUS

DATA STRUCTURE

Lab Report

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Experiment # 1
Introduction to Arrays and its operation

Software Tools:-

1. **DEV C++**

Theory:-

We have already studied array in our computer programming course. We would be using the knowledge we learned there to implement different operation on arrays.

Traversing Linear Arrays:-

Let A be the collection of data elements stored in the memory of the computer. Suppose we want to print the contents of each element of A or suppose we want to count the number of elements of A with a given property. This can be accomplished by traversing A that is by accessing and Processing each element of A exactly once.

The following algorithm traverses a linear array. The simplicity of the algorithm comes from the fact that LA is a linear structure. Other linear structures such as linked list can also be easily traversed. On the other hand the traversal of non-linear structures such as trees and graphs is considerably more complicated.

Inserting and Deleting: -

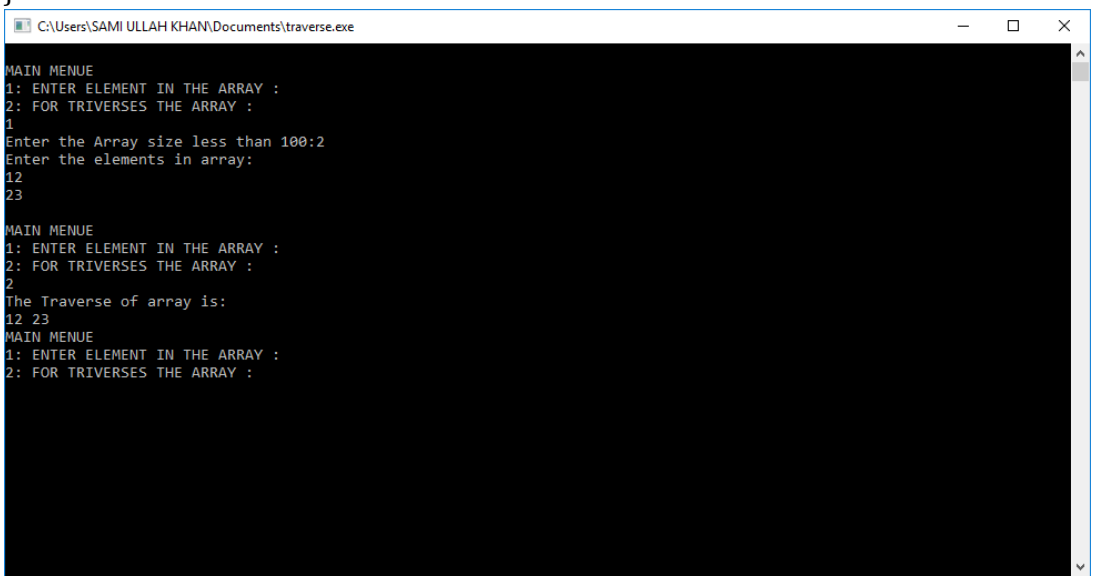
Let A be a collection of data elements in the memory of computer. "Inserting" refers to the operation of adding another element to the collection A and "deleting" refers to the operation of removing one of the elements from A. Here we discuss the inserting and deleting when A is a linear array.

Inserting an element at the "end" of the linear array can be easily done provided the memory space allocated for the array is large enough to accommodate the additional element. On the other hand suppose we need to insert an element in the middle of the array. Then on average half of the elements must be moved downward to the new location to accommodate the new element and keep the order of other elements.

CODE:

```
    #include<iostream>
using namespace std;
int main()
{
int A[100],K=0,UB;
int LB=0,counter=0,n;
loop:
cout<<endl<<"MAIN MENUE"<<endl;
cout<<"1: ENTER ELEMENT IN THE ARRAY :"<<endl;
cout<<"2: FOR TRIVERSES THE ARRAY :"<<endl;
cin>>n;
switch(n)
{
case 1:
{cout<<"Enter the Array size less than 100:" ;
cin>>UB;
cout<<"Enter the elements in array: \n";
while(K<UB)
{
counter++;
cin>>A[K];
K++;
}}
break;
case 2:
{
cout<<"The Traverse of array is:\n";
K=LB;
while(K<UB)
{
cout<<A[K]<<" ";
K++;
}
}
break;
```

```
}
goto loop;
return 0;
}
```



CONCLUSION:

In this lab we understand the basic concept of Array and their function of deletion and insertion.