NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF MECHANICAL AND MANUFACTURING ENGINEERING

CS-114 - Fundamental of Programing

LAB MANUAL # 7 (Lab tasks)

ME -15 (C)

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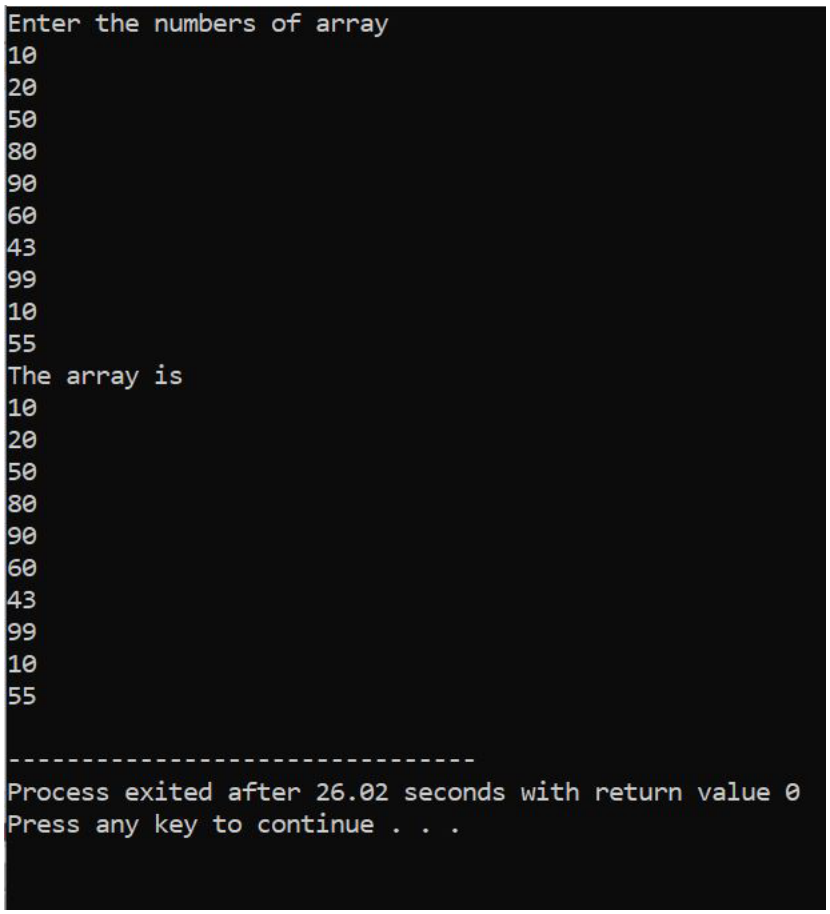
1. **Take 10 integer inputs from user and store them in an array and print them on screen.**

Code:

```
#include<iostream>
using namespace std;
int main(){
	int arr [10]={};
	for(int i=0;i<=9;i++){ //to get input from user and store it in arr
		cin>>arr[i];
	}
	cout<<"The array is\n";
	for(int j=0;j<=9;j++){   //to show each number of array
		cout<<arr[j]<<endl;
	}
	return 0;
}
```

Result:

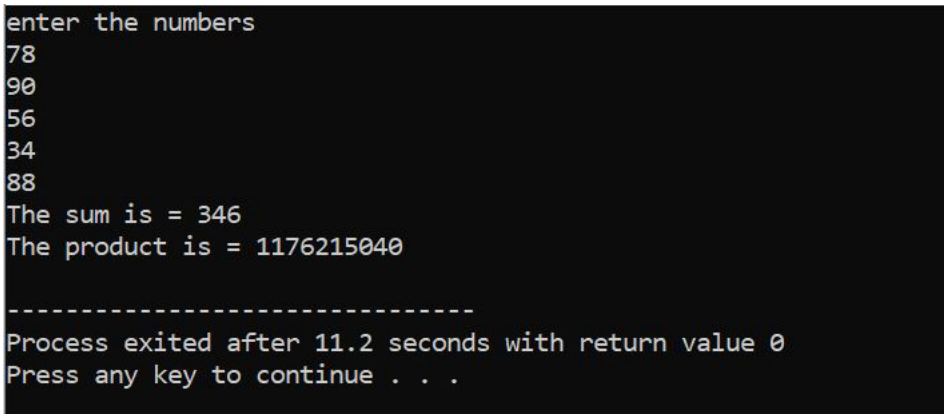


2. **Write a program to find the sum and product of all elements of an array with 5 integer elements.**

Code:

```
#include<iostream>
using namespace std;
int main(){
	int arr[5]={},S=0,P=1;
	cout<<"enter the numbers\n";
	for(int i=0;i<5;i++){   //loop to get input from user and store it in array
		cin>>arr[i];
	}
	for(int j=0;j<5;j++){  //for loop to calculate the sum
		S=S+arr[j];
	}
	cout<<"The sum is = "<<S<<endl;//shows the sum
	for(int k=0;k<5;k++){     //for loop to calculate produt
		P=P*arr[k];
	}
	cout<<"The product is = "<<P<<endl;  //shows the output of product
	return 0;
}
```

Result:



3. **Print diamond pattern using a single array.**

Code:

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

int main(){
    int c=9,d=9;
    char sta[c];
    for (int i=0;i<c;i++){
        sta[i] =' ';
    }
    for (int j=0;j<d/2;j++){   //for loop to print up side of diamond which is for rows
        for (int k=0;k<c;k++){      //for loop to assign '*' according to condition
            if (k >=c/2-j&&k<=c/2+j){  //condition to assign '*' at specified positions
                sta[k]='*';
            } else{
                sta[k] = ' ';
            }
            cout<<sta[k];
        }
        cout<<endl;
    }
    for(int k=0;k<d/2;k++){    //for loop to print lower side of diamond which is for rows
        for (int i=0;i<c;i++){   //for loop to assign '*' according to condition
            if (i>=k+1&&i<=c-(k+2)) {   //condition to assign '*' at specified positions
                sta[i]='*';
            } else{
                sta[i]=' ';
            }
            cout<<sta[i];
        }
        cout<<endl;
    }
    return 0;
}
```

Result: