

LAB MANUAL # 7



NATIONAL UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF MECHANICAL AND MANUFACTURING ENGINEERING

[FUNDAMENTALS OF PROGRAMMING –(LAB)]

LAB MANUAL # 7

SEMESTER # 01

CLASS: - ME-15 [SEC A]

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LAB MANUAL # 7

QUESTION NUMBER 1

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

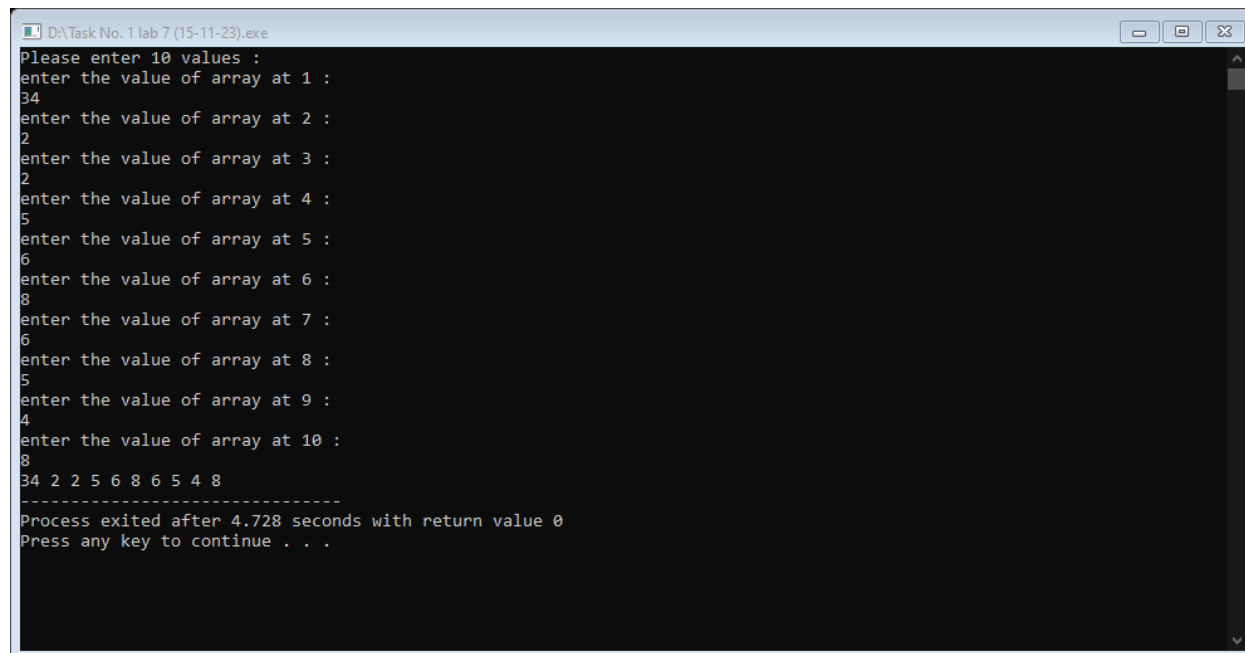
```
#include <iostream>
using namespace std;
int main(){

    //declaring array of 10 elements and getting input from user
    int arr[10];
    cout<<"Please enter 10 values : "<<endl;

    for(int i=0; i<10; i++){
        cout<<"enter the value of array at "<<i+1<<" : \n";
        cin>>arr[i]; } // getting values from user in array

    for(int i=0; i<10; i++)
    //printing values from user
        {cout<<arr[i]<<" ";}

    return 0;}
```



```
D:\Task No. 1 lab 7 (15-11-23).exe
Please enter 10 values :
enter the value of array at 1 :
34
enter the value of array at 2 :
2
enter the value of array at 3 :
2
enter the value of array at 4 :
5
enter the value of array at 5 :
6
enter the value of array at 6 :
8
enter the value of array at 7 :
6
enter the value of array at 8 :
5
enter the value of array at 9 :
4
enter the value of array at 10 :
8
34 2 2 5 6 8 6 5 4 8
-----
Process exited after 4.728 seconds with return value 0
Press any key to continue . . .
```

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QUESTION NUMBER 2

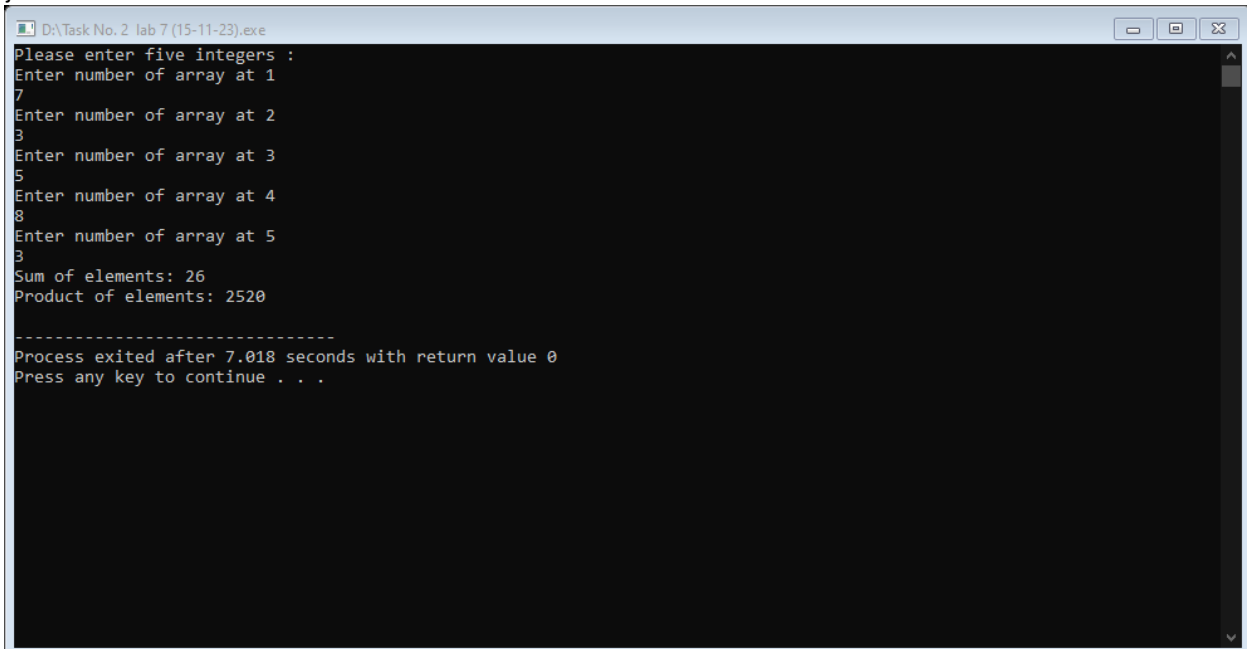
//-----\\

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

```
#include <iostream>
using namespace std;
int main()
{
    //declaring the array with number of 5 elemets :
    int arr[5];
    //input values from user :
    cout<<"Please enter five integers :\n";

    for(int i=0; i<5; i++)
        {cout<<"Enter number of array at "<<i+1<<endl;
        cin>>arr[i];}
    //for sum & product of integers :
    int array_sum=0;
    int array_product=1;

    for(int i=0; i<5; i++)
        {array_sum+=arr[i];
        array_product*=arr[i];
        }
    //output results :
    cout << "Sum of elements: " << array_sum << endl;
    cout << "Product of elements: " << array_product << endl;
    return 0;
}
```



```
D:\Task No. 2 lab 7 (15-11-23).exe
Please enter five integers :
Enter number of array at 1
7
Enter number of array at 2
3
Enter number of array at 3
5
Enter number of array at 4
8
Enter number of array at 5
3
Sum of elements: 26
Product of elements: 2520

-----
Process exited after 7.018 seconds with return value 0
Press any key to continue . . .
```

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QUESTION NUMBER 3

//-----\\

Print diamond pattern using a single array

```
#include<iostream>
```

```
using namespace std;
```

```
int main() {
```

```
//n represents number of rows:
```

```
int n, half;
```

```
//taking input from user:
```

```
// *enter a odd number to get a perfect diamond*
```

```
cout<<"Enter the number of rows for diamond"<<endl;
```

```
cin>>n;
```

```
//delaring character array:
```

```
char diamond[n];
```

```
half = n/2;
```

```
//replacing elements of array with spaces:
```

```
for ( int i = 0; i<n; i++ ) {
```

```
    diamond[i] = ' ';
```

```
}
```

```
//for row :
```

```
for ( int i = 0; i<= half; i++ ) {
```

```
    diamond[half] = '*';
```

```
    diamond[half - i] = '*';
```

```
    diamond[half + i] = '*';
```

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```
//for column :
```

```
for ( int j = 0; j<n; j++ ) {  
    cout<<diamond[j];  
}
```

```
cout<<endl;} // to move onto the next column used endl:
```

```
//for bottom rows :
```

```
for ( int i = half; i >= 1; i-- ) {  
    diamond[half - i] = ' '  
    diamond[half + i] = ' '  
}
```

```
for ( int j = 0; j<n; j++) {  
    cout<<diamond[j];  
}  
  
cout<<endl; // to move onto the next row used endl :  
  
}  
  
return 0;
```

}

The screenshot shows a Windows command prompt window titled "C:\Users\HP\Downloads\Question No. 03.exe". The user has entered "11" in response to the prompt "Enter the number of rows of your diamond". The output displays a diamond shape made of asterisks (*). Below the diamond, it says "Process exited after 1.283 seconds with return value 0" and "Press any key to continue . . .".

```
C:\Users\HP\Downloads\Question No. 03.exe
Enter the number of rows of your diamond
11
      *
     ***
    *****
   *********
  ***********
 *****
*****
****
***
**
*

-----
Process exited after 1.283 seconds with return value 0
Press any key to continue . . .
```