School Of Mechanical & Manufacturing Engineering, NUST

Department of Mechanical Engineering

CS-114 - Fundamentals of Programing

Course Instructor: Dr Jawad Khan

Lab Instructor: Sir Saqib

Student Name: Juveriah Waqqas

CMS ID: 460510

LAB REPORT # 7

LAB TASKS

Lab Task:

1. Take 10 integer inputs from user and store them in an array and print them on screen.
2. Write a program to find the sum and product of all elements of an array with 5 integer elements.
3. Print diamond pattern using a single array.

LAB TASK 1

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 num[10];
    cout<<"Input the numbers ";
    for(int i=0; i<10; i++)
    {
        cin>>num[i];
    }

    cout<<"The numbers are : ";
    for(int i=0; i<10; i++)
    {
        cout<<num[i]<<",";
    }
    return 0;
}
```

EXAMPLE EXECUTION

```
Input the numbers 3
5
6
7
8
2
3
5
6
44
The numbers are : 3,5,6,7,8,2,3,5,6,44,
--------------------------------
Process exited after 5.856 seconds with return value 0
Press any key to continue . . .
```

LAB TASK 2

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];
    int sum=0, product=1;
    cout<<"Input the elements of the array : ";
    for(int i=0; i<5; i++)
    {
        cin>>arr[i];
    }

//sum of the elements
    for(int i=0; i<5; i++)
    {
        sum += arr[i];
    }
    cout<<"The sum of the elements is :"<<sum<<endl;

//product of the elements
    for(int i=0; i<5; i++)
    {
        product *= arr[i];
    }
    cout<<"The product of the elements is :"<<product<<endl;

    return 0;
}
```

EXAMPLE EXECUTION

```
Input the elements of the array : 3
5
5
7
3
The sum of the elements is :23
The product of the elements is :1575

--------------------------------
Process exited after 3.032 seconds with return value 0
Press any key to continue . . .
```

LAB TASK 3

3. Print diamond pattern using a single array

CODE

```cpp
#include<cstring>
#include<iostream>
using namespace std;
int main()
{
    int num_rows;
    cout<<"Enter the number of rows of the diamond";
    cin>>num_rows;

    if(num_rows % 2 == 0 )
    {cout<<"Please enter an odd number of rows"<<endl; return 0;}

    else
    {
        char diamond[num_rows];
        int half = num_rows/2;
// upper half of the diamond
        for(int i=0; i<=num_rows; i++){diamond[i]=' ';}
        for(int j=0; j<=half; j++)
        { diamond[half-j]='*';
          diamond[half+j]='*';
            for(int x=0; x<num_rows; x++){cout<<diamond[x];}
        cout<<endl;
        }
//for lower half of diamond
        for(int a=0; a<half; a++)
        {diamond[num_rows-1-a]=' ';
         diamond[a]=' ';
            for(int b=0; b<num_rows; b++){cout<<diamond[b];}
            cout<<endl;
        }
    }
return 0;
}
```

EXAMPLE EXECUTION

```
Enter the number of rows of the diamond4
Please enter an odd number of rows

--------------------------------
Process exited after 1.111 seconds with return value 0
Press any key to continue . . .
```

```
Enter the number of rows of the diamond5
  *
 ***
*****
 ***
  *

------------------------------
Process exited after 0.5115 seconds with return value 0
Press any key to continue . . .
```

```
Enter the number of rows of the diamond7
   *
  ***
 *****
*******
 *****
  ***
   *

------------------------------
Process exited after 0.4939 seconds with return value 0
Press any key to continue . . .
```