School Of Mechanical & Manufacturing Engineering, NUST

Department of Mechanical Engineering

CS-114 - Fundamentals of Programing

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LAB REPORT # 6

LAB TASKS

TASK 1

1. Generate the Fibonacci sequence using nested loops.

CODE

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

int main()
{
    int num, t3;
    int t2 = 1;
    int t1 = 0;

    cout << "Please enter the number of terms : ";
    cin >> num;

    for(int j=0; j>=0; j++)
    {
        if(num<=0)

        {   cout<<"Invalid! enter number of terms again : ";
            cin>>num;
        }

        else
        {
            cout<<"The fibbionacci series upto "<<num<<" terms is : "<<endl<<t1<<" "<<t2<<" ";
        for(int i=1; i<=num-2; i++)
            {
            t3 = t1 + t2;
            t1 = t2;
            t2 = t3;
            cout<<t3<<" ";
            }
        }
            break;
    }
    return 0;
```

EXECUTION

```
Please enter the number of terms : 8
The fibbionacci series upto 8 terms is :
0 1 1 2 3 5 8 13
--------------------------------
Process exited after 1.553 seconds with return value 0
Press any key to continue . . .
```

TASK 2

2. Create Floyd's triangle with nested loop

CODE

```
#include<iostream>
using namespace std;
int main()
{
    int rows , num=1;
    cout<<"Input the number of rows of the triangle : ";
    cin>>rows;
    for(int i=1; i<=rows; i++)
    {
        for(int j=1; j<=i; j++)
        {
            cout<<num<<" ";
            num += 1;
        }
            cout<<endl;
    }
return 0;
}
```

EXECUTION

```
Input the number of rows of the triangle : 7
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
16 17 18 19 20 21
22 23 24 25 26 27 28

--------------------------------
Process exited after 0.9061 seconds with return value 0
Press any key to continue . . .
```

HOMETASKS

TASK 1

1. Write a program using break or continue statement that only adds prime numbers from 1 to 50 and display the sum on screen.

CODE

```
#include<iostream>
using namespace std;
int main()
{
    int sum_prime=0;
    for(int i=2; i<=150; i++)
    {
        bool is_prime = true;

        for(int j=2; j<i; j++)

        { if(i % j == 0) { is_prime=false; break; } }
    }
        if(is_prime)
        {
            sum_prime += i;
        }

    }
    cout<<"The sum of all Prime Numbers from 1 - 150 is : "<<sum_prime;

return 0;
}
```

EXECUTION

```
The sum of all Prime Numbers from 1 - 150 is : 2276
--------------------------------
Process exited after 0.1717 seconds with return value 0
Press any key to continue . . .
```

TASK 2

2. Write a program in C++ to create the following pattern.

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

CODE

```
#include<iostream>
using namespace std;
int main()
{
    int rows;
    cout<<"Input the number of rows : ";
    cin>>rows;

    for(int i=1; i<=rows; i++)
    {
        for(int j=1; j<=i; j++)
        {cout<<j<<" ";}
    cout<<'\n';
    }
return 0;
}
```

EXECUTION

```
Input the number of rows : 5
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

--------------------------------
Process exited after 0.4632 seconds with return value 0
Press any key to continue . . .
```

TASK 3

3. Write a C++ program to print:

1

2 2

4 4 4 4

6 6 6 6 6 6

CODE

```
#include <iostream>
using namespace std;
int main()
{
    cout<<"input the number of rows : ";
    int num_rows;
    cin>>num_rows;
    num_rows += 3;

    cout<<'1'<<endl;
    for (int i = 2; i <= num_rows; i += 2)
    {
        for(int j=1; j<=i; j++)
        {cout<<i<<" ";}
        cout<<endl;
    }
return 0;
}
```

EXECUTION

```
input the number of rows : 5
1
2 2
4 4 4 4
6 6 6 6 6 6
8 8 8 8 8 8 8 8

--------------------------------
Process exited after 0.6071 seconds with return value 0
Press any key to continue . . .
```