School Of Mechanical & Manufacturing Engineering, NUST

Department of Mechanical Engineering

CS-114 - Fundamentals of Programming

Lab Manual # 6

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LAB TASKS

Q1: Generate the Fibonacci sequence using nested loops.

main.cpp

Run

```cpp
// Online C++ compiler to output the Fibonacci Sequence
#include <iostream>
using namespace std;
int main() {
    int a=0,b=1,n,c=0;
    cout<<"Insert range for Fibonacci Sequence:";
    cin>>n;
    cout<<a<<" "<<b<<" ";
    for (int x=n;x<=n;x++)
    {
        for (int j=1;j<x;j++)
       { c=a+b;
        cout<<c<<" ";
         a=b;
         b=c;
       }

    }
    return 0;
}
```

Output

Clear

```
/tmp/xlQd6ZOUze.o
Insert range for Fibonacci Sequence:5
0 1 1 2 3 5
```

Q2:Create Floyd's triangle with nested loops.

main.cpp

Run

```cpp
// Online C++ compiler to output Floyd's triangle
#include <iostream>
using namespace std;

int main() {
    int b=1;
    for (int a=1;a<=5;a++)
    {
        for (int x=1;x<=a;x++)
        {
            cout<<b<<" ";
            b++;
        }
        cout<<endl;
    }
    return 0;
}
```

Output

Clear

```
/tmp/bEqasEQ5hV.o
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

HOME TASKS

Q1: Write a program using break or continue statement that only adds prime numbers from 1 to 50 and display the sum on screen.

main.cpp — Run — Output — Clear

```
// Online C++ compiler to sum prime numbers less than 50
#include <iostream>
using namespace std;

int main() {
    int sum;
    sum=2;
    for (int x=3;x<50;x++)
    {
        for (int y=2; y<x;y++)
        {
            if (x%y==0)
            break;
            else if (y==x-1)
            sum=sum+x;
            }
        }
    cout<<sum;
    return 0;
}
```

```
/tmp/DZrYsztHRw.o
328
```

Q2: 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

main.cpp — Run — Output — Clear

```
// Online C++ compiler to output a triangle of numbers
#include <iostream>
using namespace std;

int main() {
    for (int x=1;x<=5;x++)
    {
        for (int y=1;y<=x;y++)
        {
            cout<<y<<" ";
        }
        cout<<endl;
    }

    return 0;
}
```

```
/tmp/bq4AIoUs8h.o
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

Q3: Write a C++ program to print:

1
2 2
4 4 4 4
6 6 6 6 6 6