National University of Science and Technology

School of Mechanical and Manufacturing Engineering

Lab Manual #06

CS-114 Fundamentals of Programming

Course Instructor: Khawaja Fahad Iqbal

Lab Instructor: Muhammad Affan

Introduction:

Name: Muhammad Furqan Ul Arsh

CMS ID: 476347

Section: ME-15B

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Lab Tasks

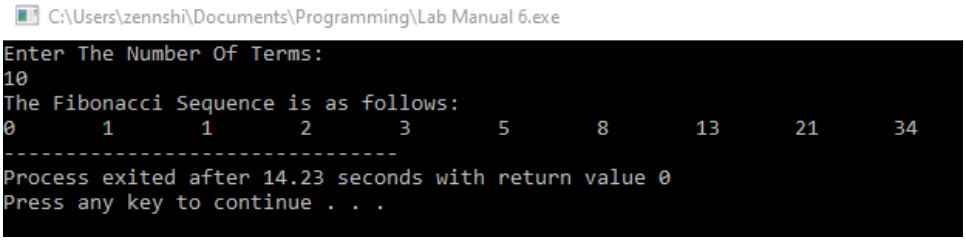
Lab Task 1:

Generate Fibonacci sequence using nested loops.

Solution:

```
//lab Task 1 Fibonacci Sequence
#include <iostream>
using namespace std;
int main(){
int first_term=0,second_term=1,i,n,sum=0;
cout<<"Enter The Number Of Terms: "<<endl;
cin>>n;
cout<<"The Fibonacci Sequence is as follows: "<<endl;
for(i=0;i<n;i++){
if(i<=1){
sum+=i;
}
else{
sum=first_term+second_term;
first_term=second_term;
second_term=sum;
}
cout<<sum<<'\t';}


}
```

Result:



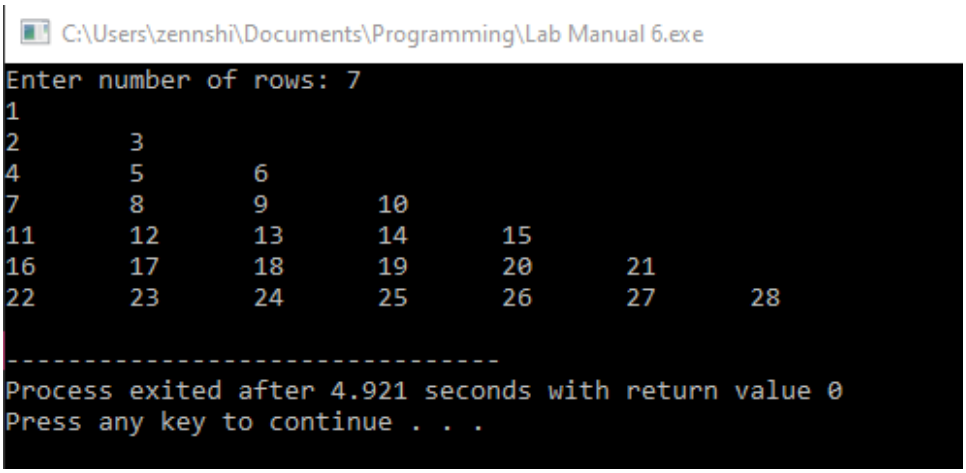
Lab Task 2:

Create Floyd's Triangle using nested loops.

Solution:

```
//Lab Task 6.2 Floyd's Triangle

#include <iostream>

using namespace std;

int main(){

   int rows,num=1;

   cout<<"Enter number of rows: ";

   cin>>rows;

   for(int i=1;i<=rows;i++){//Outer Loop Prints Values In Rows

      for(int j=1;j<=i;j++){//Inner Loop Prints Values In Columns

         cout<<num<<"\t";

         num++;}

      cout << endl;}

   return 0;

}
```

Result:



Home Tasks

Home Task 1:

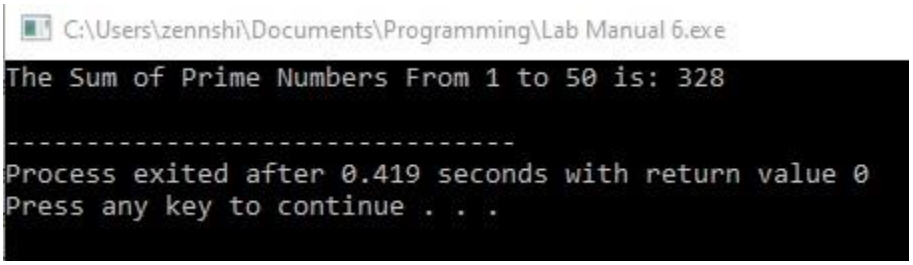
Write a program using break or continue statement that only adds prime numbers from 1 to 50 and displays the sum on screen.

Solution:

```
//Home Task 6.1

#include <iostream>

using namespace std;

int main(){

int sum=0,t;

for(int i=2;i<=50;i++){

t=1;


for(int k=2;k<=i/2;k++){

if(i%k==0){

t=0;

break;

}
```

```
}
if(t==0){
continue;
}
sum+=i;
}
cout<<"The Sum of Prime Numbers From 1 to 50 is: "<<sum<<endl;
return 0;
}
```

Result:



Home Task 2:

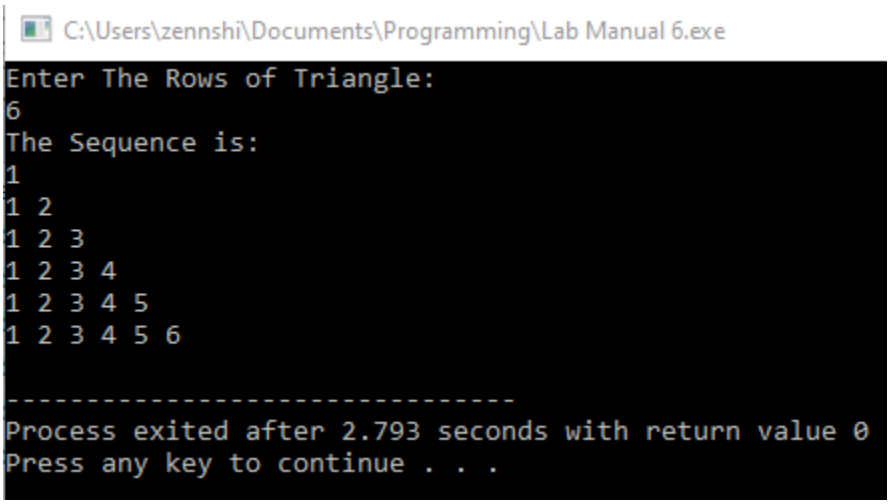
Write a program in C++ to create the following pattern.

Solution:

```
//#include <iostream>
using namespace std;
int main(){
int r;
cout<<"Enter The Rows of Triangle: "<<endl;
cin>>r;
cout<<"The Sequence is: "<<endl;
for(int i=1;i<=r;i++){
```

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

Result:



Home Task 3:

Write a C++ program to print:

Solution:

```
//Home Task 3
#include <iostream>
using namespace std;
int main(){
int a=2;
cout<<"The Required Pattern is: "<<endl;
cout<<"1"<<endl;
```

```
for(int i=1;i<=3;i++){
for(int j=0;j<=i*2-1;j++){
cout<<a<<" ";
}
a+=2;
cout<<endl;
}
return 0;
}
```

Result: