

National University of Science and Technology

**School of Mechanical and Manufacturing
Engineering**

Lab Manual #06

CS-114 Fundamentals of Programming

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Introduction:

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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:

```
C:\Users\zennshi\Documents\Programming\Lab Manual 6.exe
Enter The Number Of Terms:
10
The Fibonacci Sequence is as follows:
0      1      1      2      3      5      8      13      21      34
-----
Process exited after 14.23 seconds with return value 0
Press any key to continue . . .
```

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:

```
C:\Users\zennshi\Documents\Programming\Lab Manual 6.exe
Enter number of rows: 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 4.921 seconds with return value 0
Press any key to continue . . .
```

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;
```

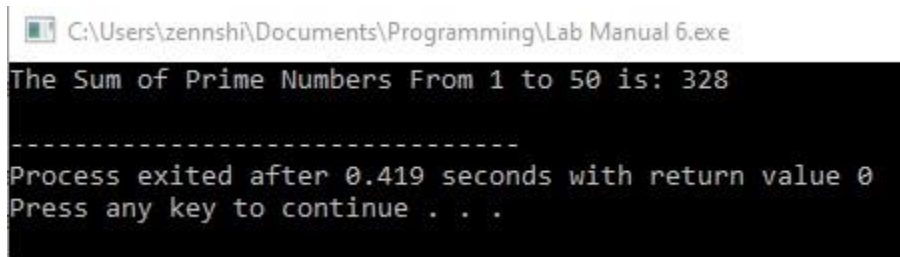
```
}
```

```

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

```

Result:



```

C:\Users\zennshi\Documents\Programming\Lab Manual 6.exe
The Sum of Prime Numbers From 1 to 50 is: 328
-----
Process exited after 0.419 seconds with return value 0
Press any key to continue . . .

```

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++){

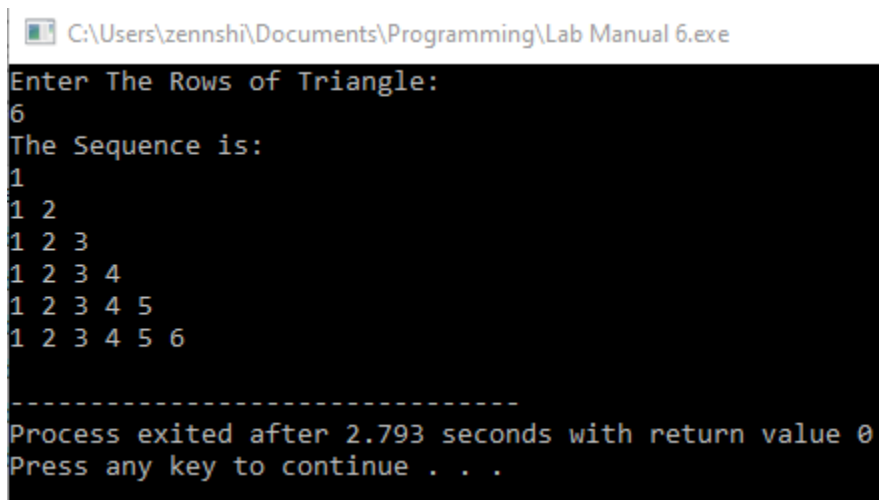
```

```

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

```

Result:



```

C:\Users\zennshi\Documents\Programming\Lab Manual 6.exe
Enter The Rows of Triangle:
6
The Sequence is:
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6

-----
Process exited after 2.793 seconds with return value 0
Press any key to continue . . .

```

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:

 C:\Users\zennshi\Documents\Programming\Lab Manual 6.exe

The Required Pattern is:

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

Process exited after 0.09599 seconds with return value 0
Press any key to continue . . .