

CS & Programming Lab

Lab Manual 06

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Lab Task #1

/*1. Generate the Fibonacci sequence using nested loops.*/

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    //Declaring variables an assigning values
```

```
    int n=8, i, j, num1, num2, sum;
```

```
    //Using for loops for computation
```

```
    for ( i=0; i<=n; i++)
```

```
    {
```

```
        num1=0;
```

```
        num2=1;
```

```
        for ( j=0; j<=i; j++)
```

```
        {
```

```
            cout<<num1<<" ";
```

```
            sum = num1 + num2;
```

```
            num2 = num1;
```

```

    num1 = sum;

}

cout<<endl;}

}

```

```

1  /*1. Generate the Fibonacci sequence using nested loops.*/
2
3  #include <iostream>
4  using namespace std;
5
6  int main()
7  {
8      //Declaring variables an assigning values
9      int n=8, i, j, num1, num2, sum;
10
11     //Using for loops for computation
12     for ( i=0; i<=n; i++)
13     {
14         num1=0;
15         num2=1;
16         for ( j=0; j<=i; j++)
17         {
18             cout<<num1<<" ";
19             sum = num1 + num2;
20             num2 = num1;
21             num1 = sum;
22         }
23         cout<<endl;}
24 }

```

```

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0,
0, 1,
0, 1, 1,
0, 1, 1, 2,
0, 1, 1, 2, 3,
0, 1, 1, 2, 3, 5,
0, 1, 1, 2, 3, 5, 8,
0, 1, 1, 2, 3, 5, 8, 13,
0, 1, 1, 2, 3, 5, 8, 13, 21,
-----
Process exited after 0.126 seconds with return value 0
Press any key to continue . . .

```

Lab Task #2

/*2. Create Pascal's triangle with nested loops.*/

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int n=4, i, j, num=1;
```

```
    //Computing result and displaying output
```

```
    for ( i=0; i<=n; i++)
```

```
    {
```

```
        for ( j=0; j<=i; j++)
```

```
        {
```

```
            cout<<num<<" ";
```

```
            num++;
```

```
        }
```

```
        cout<<endl;
```

```
    }
```

```
}
```

```

1  /*2. Create Pascal's triangle with nested loops.*/
2
3  #include <iostream>
4  using namespace std;
5
6  int main()
7  {
8      int n=4, i, j, num=1;
9
10     //Computing result and displaying output
11     for ( i=0; i<=n; i++)
12     {
13         for ( j=0; j<=i; j++)
14         {
15             cout<<num<<" ";
16             num++;
17         }
18         cout<<endl;
19     }
20 }

```

```

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1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
-----
Process exited after 0.0682 seconds with return value 0
Press any key to continue . . .

```

Home 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.*/

```
#include<iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    //Declaring variables and assigning values
```

```
    int sum = 2;
```

```
    //Computing result and displaying output
```

```
    for (int number=2; number<50; number++)
```

```
    {
```

```
        for (int i=2; i<number; i++) {
```

```
            if (number%i == 0)
```

```
            {break;}
```

```
            if (number%i != 0)
```

```
                {if (i == number-1)
```

```

        {sum+=number;}

    else

        {continue;}

    }

}

cout<<"The sum of prime numbers from 1 to 50 is "<<sum<<". "<<endl;

}

```

```

1  /*1. Write a program using break or continue statement that only adds prime numbers from 1 to 50
2  and display the sum on screen.*/
3
4  #include<iostream>
5  using namespace std;
6
7  int main()
8  {
9      //Declaring variables and assigning values
10     int sum = 2;
11
12     //Computing result and displaying output
13     for (int number=2; number<50; number++)
14     {
15         for (int i=2; i<number; i++) {
16
17             if (number%i == 0)
18             {break;}
19             if (number%i != 0)
20             {if (i == number-1)
21              {sum+=number;}
22
23              else
24              {continue;}
25             }
26         }
27     }
28     cout<<"The sum of prime numbers from 1 to 50 is "<<sum<<". "<<endl;
29 }

```

```

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The sum of prime numbers from 1 to 50 is 328.
-----
Process exited after 0.1089 seconds with return value 0
Press any key to continue . . .

```

Home 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*/
```

```
#include<iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int number_of_rows=5;
```

```
    for (int i=1; i<=number_of_rows; i++)
```

```
    {
```

```
        for (int j=1; j<=i; j++)
```

```
        {cout<<j<<" ";
```

```
        cout<<endl;
```

```
    }
```


}

```
1  /*2. Write a program in C++ to create the following pattern.
2      1
3      1 2
4      1 2 3
5      1 2 3 4
6      1 2 3 4 5*/
7
8
9  #include<iostream>
10 using namespace std;
11
12 int main()
13 {
14     int number_of_rows=5;
15     for (int i=1; i<=number_of_rows; i++)
16     {
17         for (int j=1; j<=i; j++)
18             {cout<<j<<" ";}
19         cout<<endl;
20     }
21 }
```

```
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1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
-----
Process exited after 0.04589 seconds with return value 0
Press any key to continue . . .
```

Home Task #3

/*3. Write a C++ program to print:

1

2 2

4 4 4 4

6 6 6 6 6 6*/

```
#include<iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    //Declaring variables and assigning values
```

```
    int max_num=6;
```

```
    //Computing and displaying result
```

```
    for (int i=1; i<=max_num; i++)
```

```
    {
```

```
        if (i%2!=0 && i>1)
```

```
            continue;
```

```

else

{for (int j=1; j<=i; j++)

{cout<<i<<" ";}

cout<<endl;}

}

}

```

```

1  /*3. Write a C++ program to print:|
2      1
3      2 2
4      4 4 4 4
5      6 6 6 6 6 6*/
6
7  #include<iostream>
8  using namespace std;
9
10 int main()
11 {
12     //Declaring variables and assigning values
13     int max_num=6;
14
15     //Computing and displaying result
16     for (int i=1; i<=max_num; i++)
17     {
18         if (i%2!=0 && i>1)
19             continue;
20
21         else
22         {for (int j=1; j<=i; j++)
23             {cout<<i<<" ";}
24             cout<<endl;}
25     }
26 }

```

```

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1
2 2
4 4 4 4
6 6 6 6 6 6
-----
Process exited after 0.04815 seconds with return value 0
Press any key to continue . . .

```