CS-114-FUNDAMETALS OF PROGRAMMING

LAB MAUAL #6

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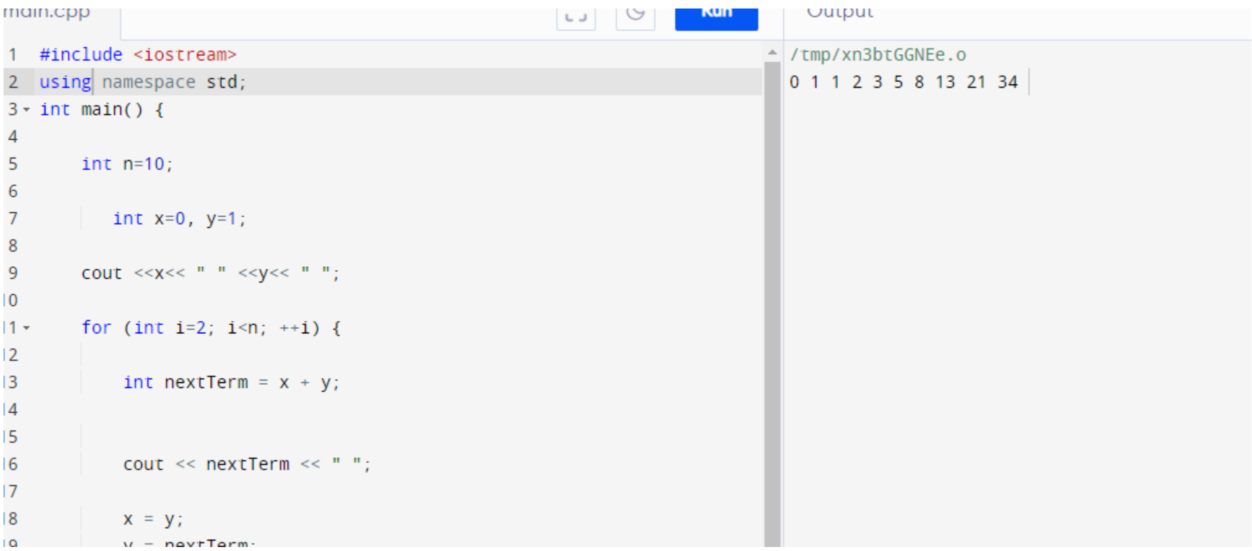
LAB TASK 01

Generate the Fibonacci sequence using nested loops.

```
#include <iostream>
using namespace std;
int main() {

    int n=10;

       int x=0, y=1;

    cout <<x<< " " <<y<< " ";

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

        int nextTerm = x + y;

        cout << nextTerm << " ";

        x = y;
        y = nextTerm;
    }
    return 0;
}
```



```
#include <iostream>
using namespace std;
int main() {

    int n=10;

       int x=0, y=1;

    cout <<x<< " " <<y<< " ";

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

        int nextTerm = x + y;


        cout << nextTerm << " ";

        x = y;
        y = nextTerm;
```

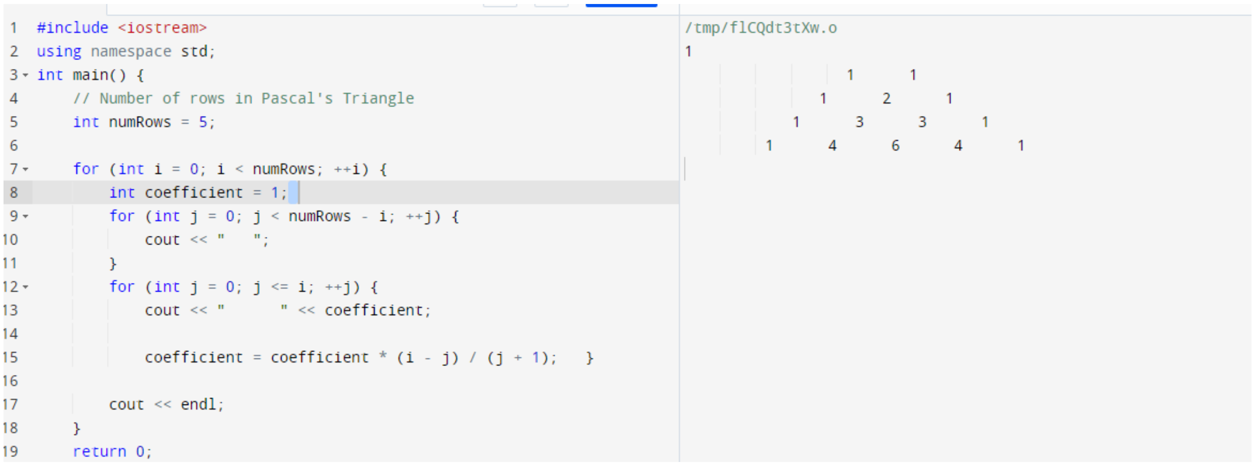
```
/tmp/xn3btGGNEe.o
0 1 1 2 3 5 8 13 21 34
```

LAB TASK 02

Create Pascal's triangle with nested loops.

```
#include <iostream>

using namespace std;

int main() {

   // Number of rows in Pascal's Triangle

   int numRows = 5;


   for (int i = 0; i < numRows; ++i) {

      int coefficient = 1;

      for (int j = 0; j < numRows - i; ++j) {

         cout << "   ";

      }

      for (int j = 0; j <= i; ++j) {

         cout << "      " << coefficient;


         coefficient = coefficient * (i - j) / (j + 1);   }


      cout << endl;
```

```
    }
    return 0;
}
```



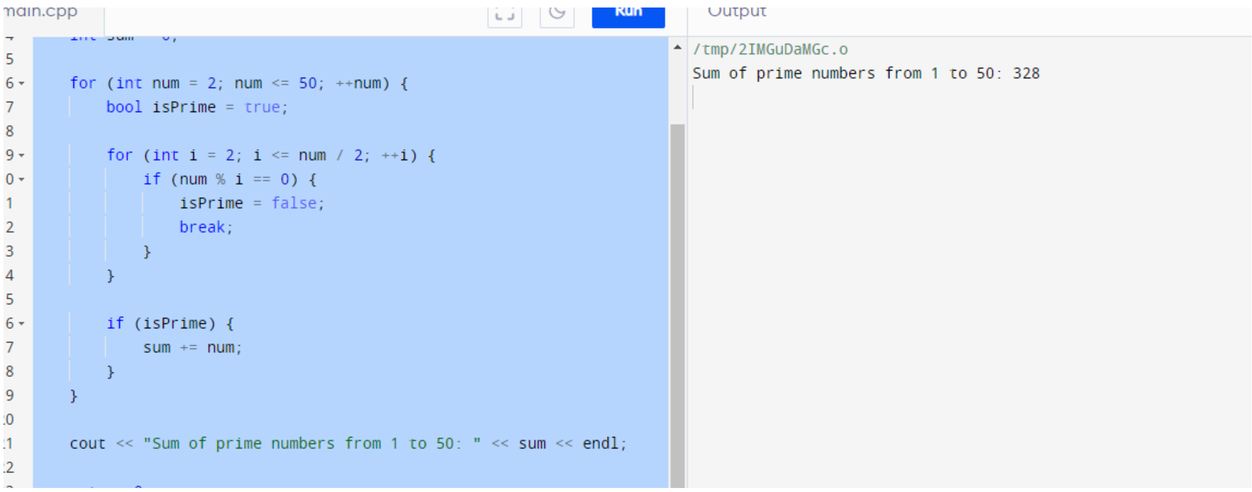
```
#include <iostream>
using namespace std;
int main() {
    // Number of rows in Pascal's Triangle
    int numRows = 5;

    for (int i = 0; i < numRows; ++i) {
        int coefficient = 1;
        for (int j = 0; j < numRows - i; ++j) {
            cout << "    ";
        }
        for (int j = 0; j <= i; ++j) {
            cout << "        " << coefficient;

            coefficient = coefficient * (i - j) / (j + 1);    }

        cout << endl;
    }
    return 0;
```

```
/tmp/flCQdt3tXw.o
1
                   1       1
                1       2       1
             1       3       3       1
          1       4       6       4       1
```

HOME TASK 01

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() {
    int sum = 0;

    for (int num = 2; num <= 50; ++num) {
        bool isPrime = true;

        for (int i = 2; i <= num / 2; ++i) {
            if (num % i == 0) {
                isPrime = false;
                break;
            }
        }

        if (isPrime) {
            sum += num;
        }
    }

    cout << "Sum of prime numbers from 1 to 50: " << sum << endl;

    return 0;
}
```



```
    int sum = 0;

    for (int num = 2; num <= 50; ++num) {
        bool isPrime = true;

        for (int i = 2; i <= num / 2; ++i) {
            if (num % i == 0) {
                isPrime = false;
                break;
            }
        }

        if (isPrime) {
            sum += num;
        }
    }

    cout << "Sum of prime numbers from 1 to 50: " << sum << endl;
```

```
/tmp/2IMGuDaMGc.o
Sum of prime numbers from 1 to 50: 328
```

HOME TASK 02

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

1

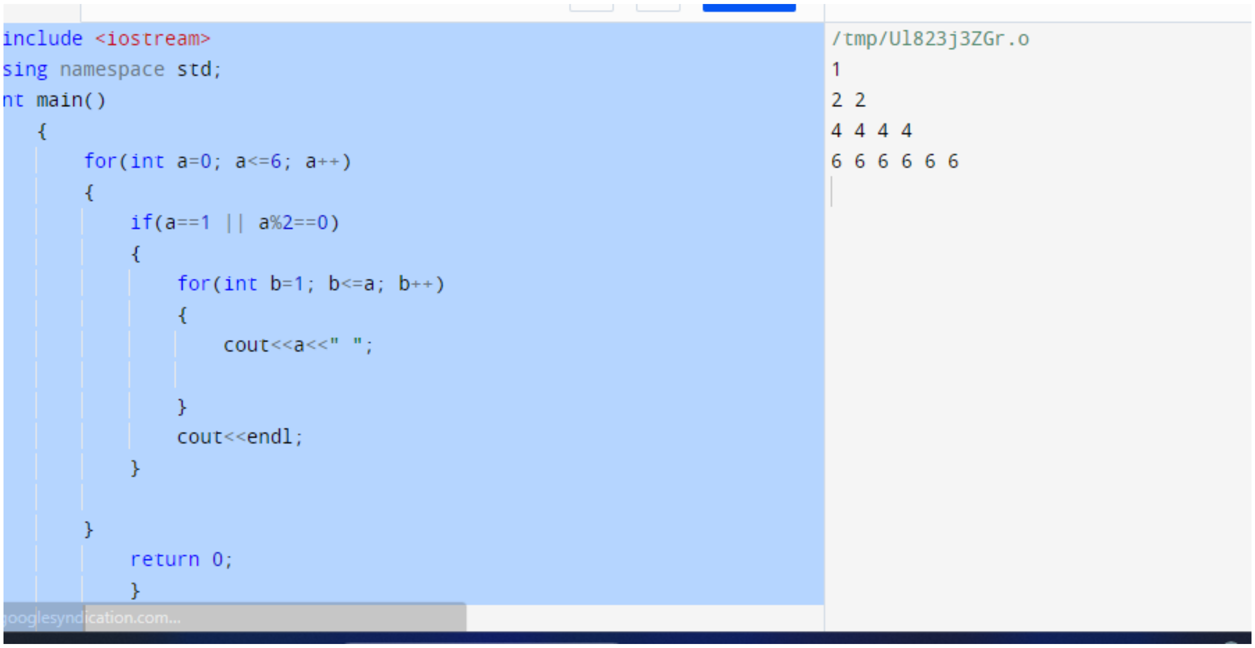
1 2

1 2 3

1 2 3 4

1 2 3 4 5

```
#include <iostream>
using namespace std;;
int main() {
    int rows = 5;

    for (int i = 1; i <= rows; ++i) {
        for (int k = 1; k <= i; ++k) {
            cout << k << " ";
        }
        cout << std::endl;
    }

    return 0;
}
```



```
include <iostream>
sing namespace std;
nt main()
 {
     for(int a=0; a<=6; a++)
     {
         if(a==1 || a%2==0)
         {
             for(int b=1; b<=a; b++)
             {
                 cout<<a<<" ";

             }
             cout<<endl;
         }

     }
         return 0;
         }
```

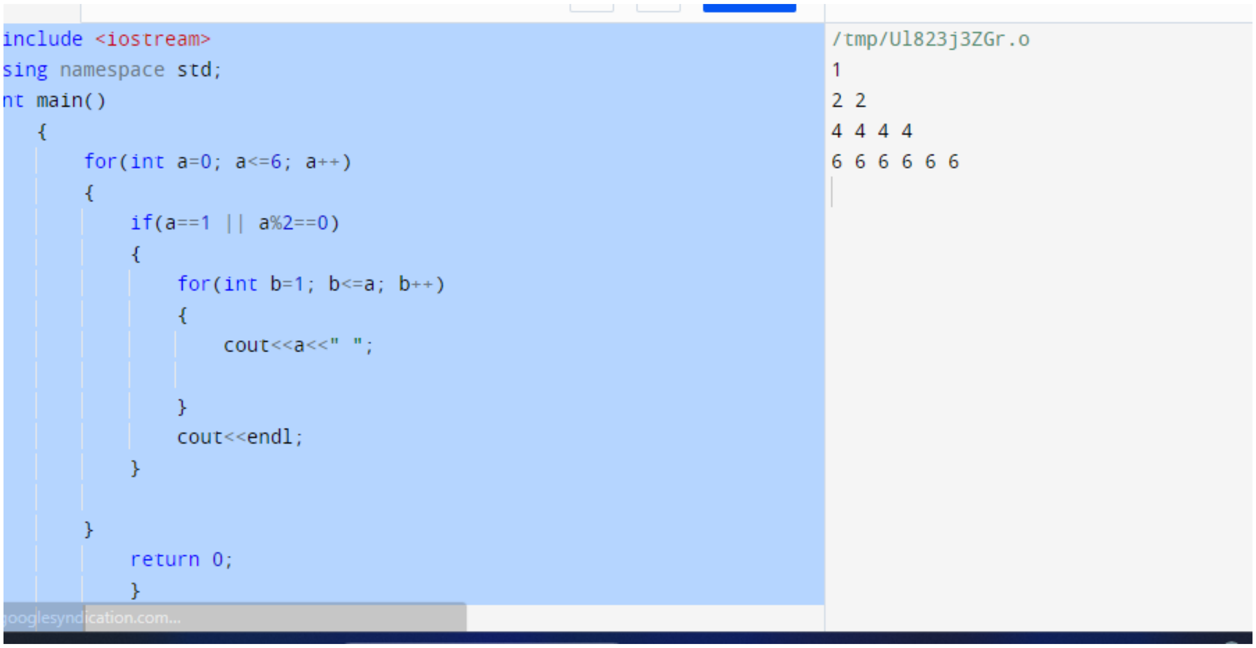
```
/tmp/U1823j3ZGr.o
1
2 2
4 4 4 4
6 6 6 6 6 6
```

HOME TASK 03

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()
  {
    for(int a=0; a<=6; a++)
    {
      if(a==1 || a%2==0)
      {
        for(int b=1; b<=a; b++)
        {
          cout<<a<<" ";

        }
        cout<<endl;
      }

    }
      return 0;
      }
```



```
include <iostream>
sing namespace std;
nt main()
   {
       for(int a=0; a<=6; a++)
       {
           if(a==1 || a%2==0)
           {
               for(int b=1; b<=a; b++)
               {
                   cout<<a<<" ";

               }
               cout<<endl;
           }

       }
           return 0;
           }
```

```
/tmp/Ul823j3ZGr.o
1
2 2
4 4 4 4
6 6 6 6 6 6
```