

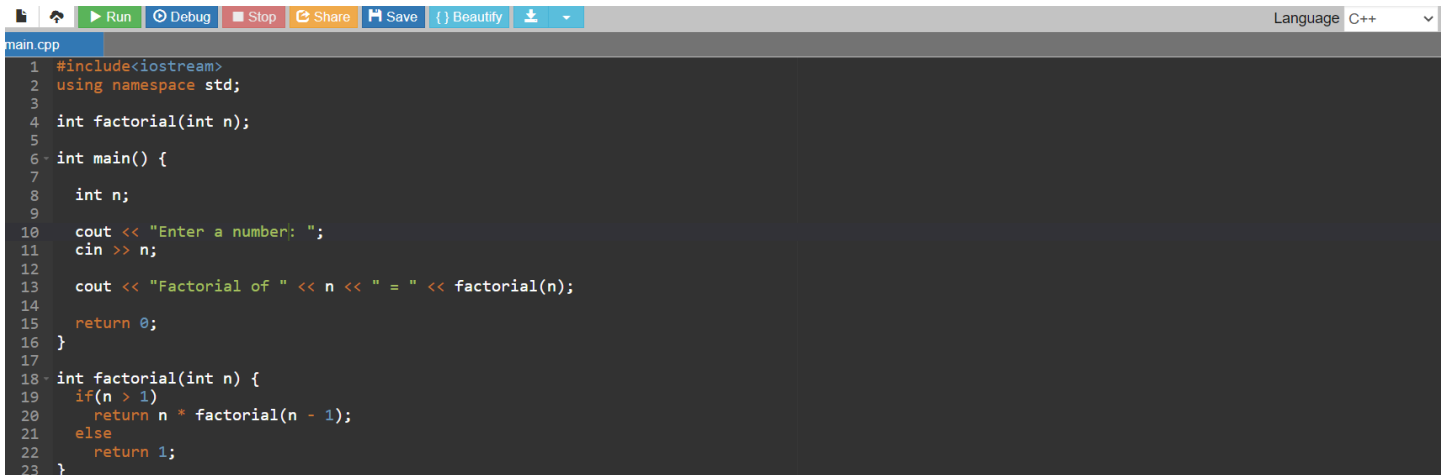
Discrete Structures 2

Seatwork 1

Programming

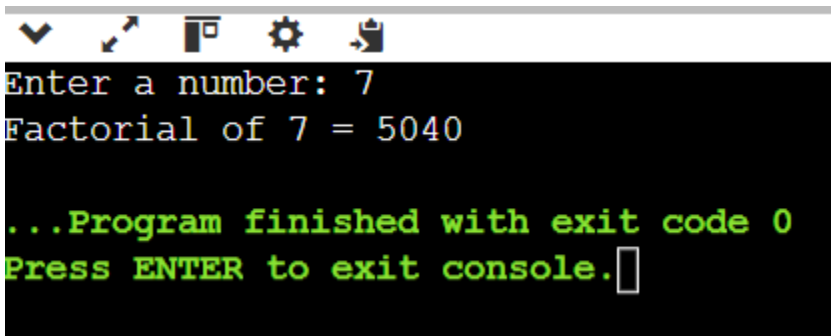
1. Factorial

Input



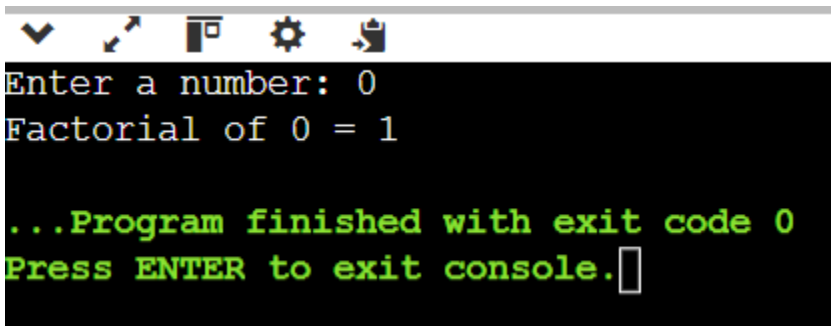
```
1 #include<iostream>
2 using namespace std;
3
4 int factorial(int n);
5
6 int main() {
7     int n;
8
9     cout << "Enter a number: ";
10    cin >> n;
11
12    cout << "Factorial of " << n << " = " << factorial(n);
13
14    return 0;
15 }
16
17
18 int factorial(int n) {
19     if(n > 1)
20         return n * factorial(n - 1);
21     else
22         return 1;
23 }
```

Output



```
Enter a number: 7
Factorial of 7 = 5040

...Program finished with exit code 0
Press ENTER to exit console.
```

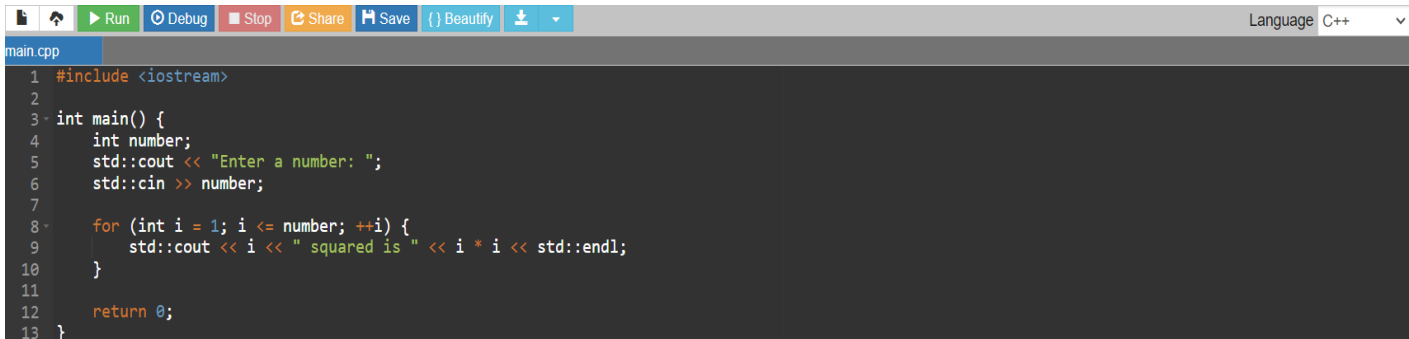


```
Enter a number: 0
Factorial of 0 = 1

...Program finished with exit code 0
Press ENTER to exit console.
```

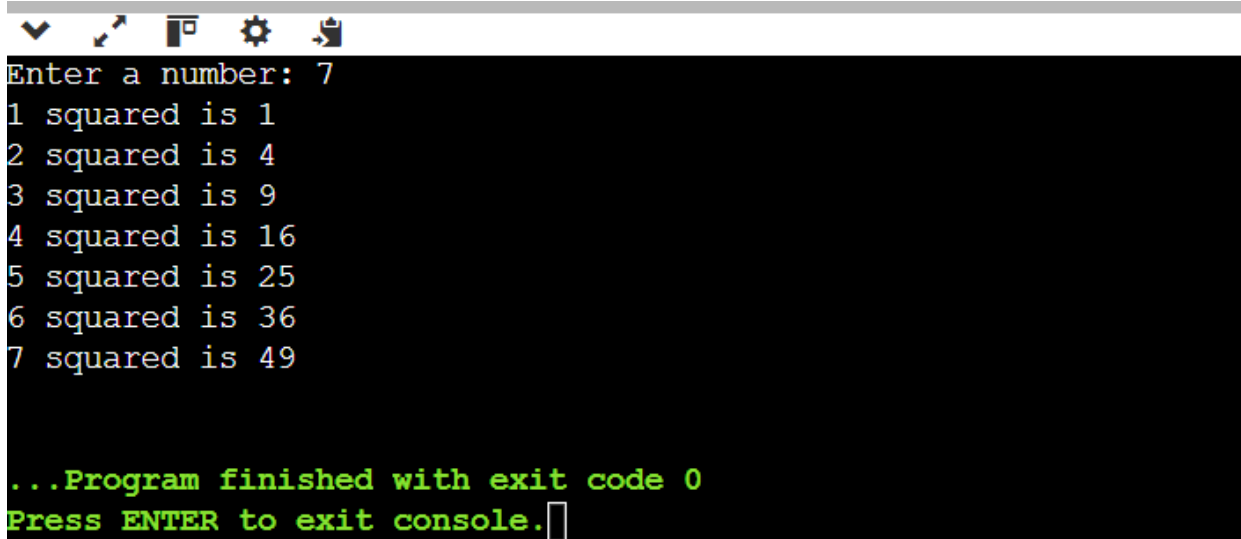
2. Square Numbers

Input



```
1 #include <iostream>
2
3 int main() {
4     int number;
5     std::cout << "Enter a number: ";
6     std::cin >> number;
7
8     for (int i = 1; i <= number; ++i) {
9         std::cout << i << " squared is " << i * i << std::endl;
10    }
11
12    return 0;
13 }
```

Output

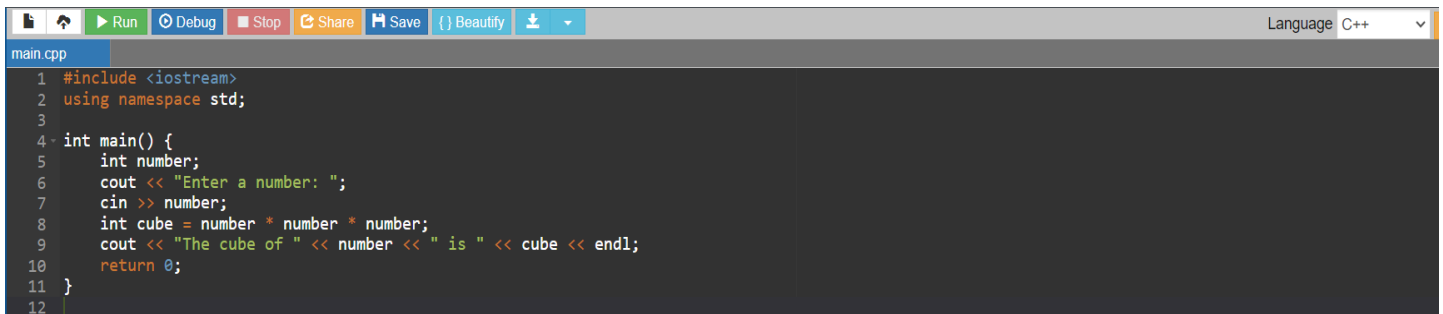


```
Enter a number: 7
1 squared is 1
2 squared is 4
3 squared is 9
4 squared is 16
5 squared is 25
6 squared is 36
7 squared is 49

...Program finished with exit code 0
Press ENTER to exit console.
```

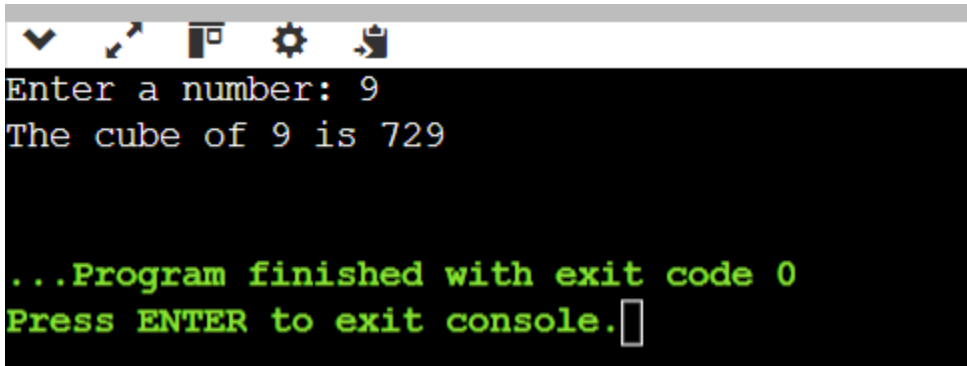
3. Cube Numbers

Input



```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int number;
6     cout << "Enter a number: ";
7     cin >> number;
8     int cube = number * number * number;
9     cout << "The cube of " << number << " is " << cube << endl;
10    return 0;
11 }
12
```

Output

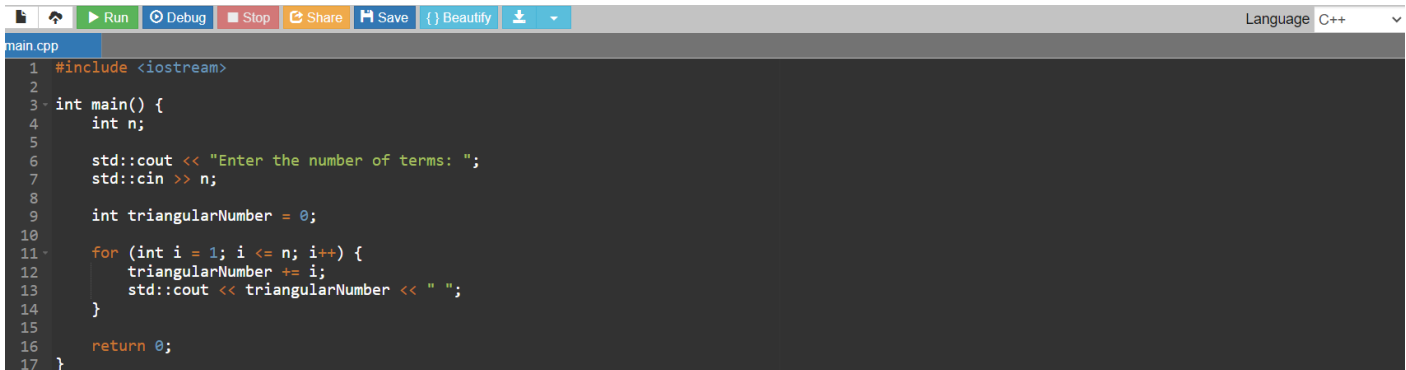


```
Enter a number: 9
The cube of 9 is 729

...Program finished with exit code 0
Press ENTER to exit console.
```

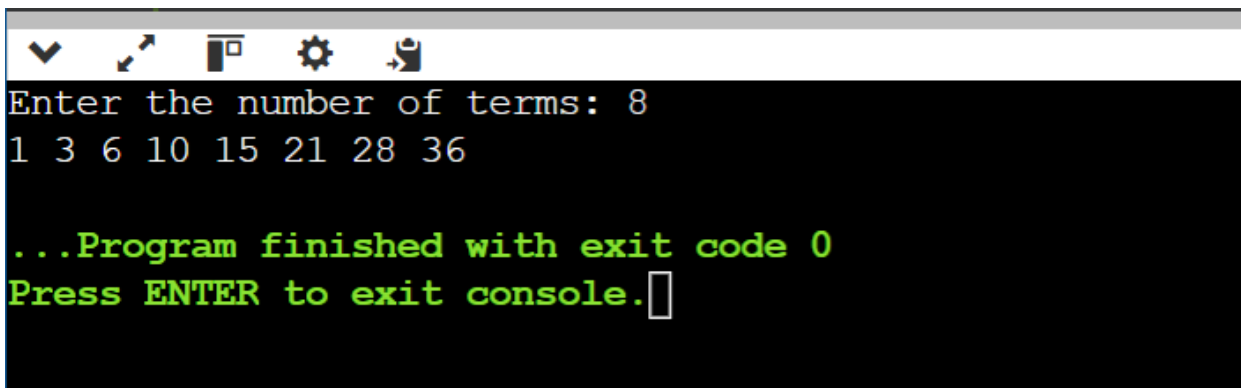
4. Triangular Numbers

Input



```
1 #include <iostream>
2
3 int main() {
4     int n;
5
6     std::cout << "Enter the number of terms: ";
7     std::cin >> n;
8
9     int triangularNumber = 0;
10
11     for (int i = 1; i <= n; i++) {
12         triangularNumber += i;
13         std::cout << triangularNumber << " ";
14     }
15
16     return 0;
17 }
```

Output



```
Enter the number of terms: 8
1 3 6 10 15 21 28 36

...Program finished with exit code 0
Press ENTER to exit console.
```