

# C++ Programming

## Recursive Functions

### Practice 2

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# Print a Triangle (v2)

15\_5.cpp

```
1 #include<iostream>
2 using namespace std;
3
4 void print_triangle(int levels) {
5     if (levels == 0)
6         return;
7
8     print_triangle(levels - 1);
9
10    for (int i = 0; i < levels; ++i)
11        cout << "*";
12    cout << "\n";
13 }
14
15 int main() {
16     print_triangle(5);
17     return 0;
18 }
19
```

```
*
**
***
****
*****
|
```

# Let's trace it

```
print_triangle(5)  
    print_triangle(4)
```

# Let's trace it

```
print_triangle(4)  
    print_triangle(3)
```

```
print_triangle(5)  
    print_triangle(4)
```

# Let's trace it

```
print_triangle(3)  
    print_triangle(2)
```

```
print_triangle(4)  
    print_triangle(3)
```

```
print_triangle(5)  
    print_triangle(4)
```

# Let's trace it

```
print_triangle(2)  
    print_triangle(1)
```

```
print_triangle(3)  
    print_triangle(2)
```

```
print_triangle(4)  
    print_triangle(3)
```

```
print_triangle(5)  
    print_triangle(4)
```

# Let's trace it

```
print_triangle(2)  
    print_triangle(1)
```

```
print_triangle(3)  
    print_triangle(2)
```

```
print_triangle(4)  
    print_triangle(3)
```

```
print_triangle(5)  
    print_triangle(4)
```

```
print_triangle(1)  
    print_triangle(0)
```

# Let's trace it

```
print_triangle(2)  
  print_triangle(1)
```

```
print_triangle(3)  
  print_triangle(2)
```

```
print_triangle(4)  
  print_triangle(3)
```

```
print_triangle(5)  
  print_triangle(4)
```

```
print_triangle(0)  
  Return
```

```
print_triangle(1)  
  print_triangle(0)
```



# Let's trace it

```
print_triangle(2)  
  print_triangle(1)
```

```
print_triangle(3)  
  print_triangle(2)
```

```
print_triangle(4)  
  print_triangle(3)
```

```
print_triangle(5)  
  print_triangle(4)
```

\*

```
print_triangle(1)  
  print_triangle(0)  
    print 1 star
```

# Let's trace it

```
print_triangle(2)
  print_triangle(1)
    print 2 stars
```

```
print_triangle(3)
  print_triangle(2)
```

```
print_triangle(4)
  print_triangle(3)
```

```
print_triangle(5)
  print_triangle(4)
```

```
*
**
```

# Let's trace it

```
*  
**  
***
```

```
print_triangle(3)  
    print_triangle(2)  
        print 3 stars
```

```
print_triangle(4)  
    print_triangle(3)
```

```
print_triangle(5)  
    print_triangle(4)
```

# Let's trace it

```
*  
**  
***  
****
```

```
print_triangle(4)  
    print_triangle(3)  
        print 4 stars
```

```
print_triangle(5)  
    print_triangle(4)
```

# Let's trace it

```
*  
**  
***  
****  
*****
```

```
print_triangle(5)  
    print_triangle(4)  
        print 5 stars
```

*“Acquire knowledge and impart it to the people.”*

*“Seek knowledge from the Cradle to the Grave.”*