

int C++Portfolio[] {



//Created by
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September Learning Showcase

#include <C++ Background>

- Released in 1985 by **Bjarne Stroustrup**, a Danish computer scientist.
- Inspired by the OOP concepts of Simula and speed of C. **Built OOP functionality on top of C.**
- Originally Stroustrup created C with Classes, which evolved in the full C++ we know today.
- The name C++ comes from the +1 incrementer ++ used in many programming languages/
- Ranked as the **3rd most popular programming language** in the world by the TIOBE index.



//Bjarne Stroustrup, the
creator of C++

string C++ Uses in Computer Science[]

Game Production

C++'s efficiency with memory allocation makes it a popular choice to use for graphics and game design. The game engine Unreal Engine uses C++ as it's scripting language.

Web & OS

Browsers like Firefox, Chrome, and Safari are written in C++.

Combinations of C and C++ are also used to create operating systems like MacOS and Linux.

& More!

C++ offers enough low level hardware control to make it used often in embedded devices like cars, Iot devices, and medical devices.

#include <Learning Resources>

Codecademy

I used their Learn C++ Course and C++ For Programmers for the bulk of my learning and for their practice challenges.

Unreal Engine

I used Unreal Engine's docs and GGameDevs's series on using C++ in Unreal to learn a bit about C++ in game development.

FreeCodeCamp

I used FreeCodeCamp's video classes on Data Structures to learn about linked lists.

Tetris

I used javidx9's Code-It-Yourself tetris tutorial to test my understanding of the C++ I learned and make a tetris game in the command line.

Class LearnC++ {

public:

Variables

- ints, bools, and doubles return.
- Std::string!
- Intro to chars- just one character!

The Foundations

- Conditionals & loops
- <return_type> <name>() {}
- std::cout << "printing!";
- std::cin >> userInput;

Header Files

- Declare functions in .h files
- Include those files in main.cpp

Classes

```
Class MyClass() {  
    Void DefaultPrivateMethod()  
    Public:  
        Void myPublicMethod() {}  
};
```

Pointers

- Store memory addresses
- Int* myPointer = &myInteger;
- &intAlias = *myPointer;

Compilation

- g++ mine.cpp
- g++ m.cpp -o execname
- g++ m.cpp funcs.cpp

private:

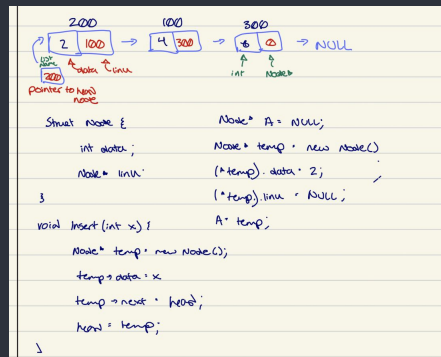
Unreal Engine

- Blueprints + C++ together
- Does not like my computer
- Would like to work with more later.

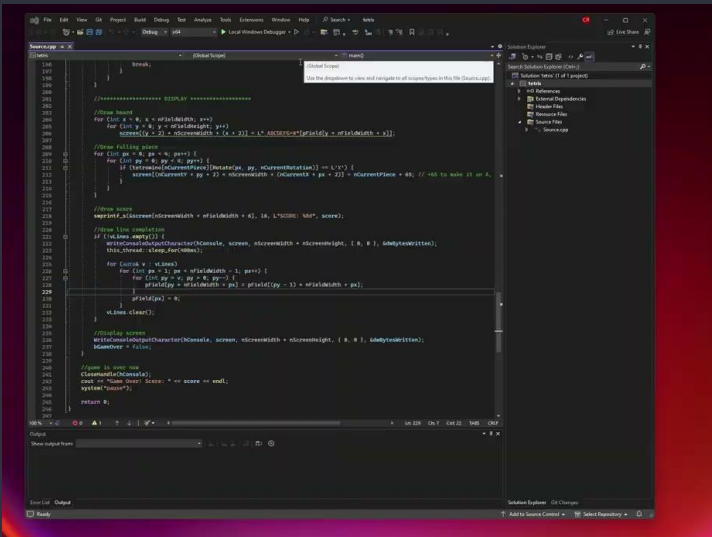


Data Structures

- I focused on Linked Lists
- Learn conceptually first, then C++ implementation



std::cout << C++ In the Wild



Tetris.cpp

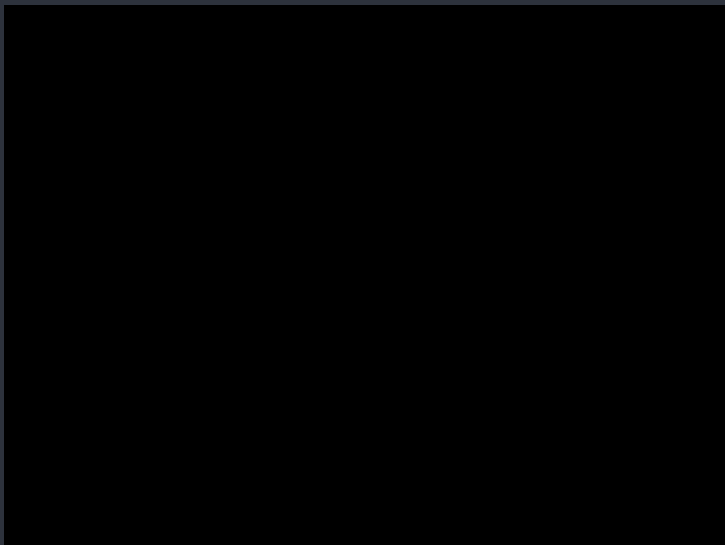
Following this [Code-It-Yourself tutorial](#), I created tetris in the Windows command line.

C++ Concepts Used:

- Variables + Conditionals
- While + For loops
- Functions
- Switch statements
- Vectors and Arrays
- Pointers
- Interfacing with the command line

$$1 \ 0 \ 1 \ 1 \quad 0 \ 1 \ 1 \quad 0 \ 1 \quad 1 \ 0 \ 1 \ 1 \ 0 \ 0 \ 1 \quad 1 \ 0 \quad 1 \ 1 \ 0 \ 1 \ 1 \quad 0 \ 1 \ 1 \quad 0 \ 1 \quad 1 \ 1 \ 0 \ 1 \ 1 \ 0 \quad 1 \ 1 \ 0 \ 1 \ 1 \ 1 \quad 1 \ 1 \ 0 \ 1$$

std::cout << C++ In the Wild << 2!



stonks.c

Using my new knowledge of c++, I was able to reverse engineer this program and solve a CTF problem.

C++ Concepts Used:

- Insecure functions
- String format poisoning


```
}  
return 99; //Bye
```