

Girls Who Code 

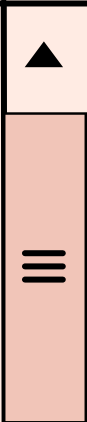
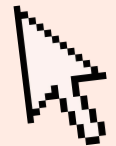
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# C++ Workshop



# INTRODUCTION TO C++

C++ is an object-oriented programming language used to develop operating systems, games, browsers, data structures, etc.

C++ is a useful language for software developers and preferred over Python because of its speed & many CS classes at Hunter College require prior C++ knowledge.



# OVERVIEW

## WHAT IS A COMPILER?

1. Understanding what a compiler is and why compiling is necessary for C++ programming.

## PROGRAMS & SOFTWARES

2. Download or open up your favorite text editor and terminal, I'll recommend some.



# OVERVIEW

## HELLO WORLD

3. Create your first C++ program to understand the fundamentals of C++.

## DEBUGGING

4. Understand proper syntax of a C++ file, & variable & function naming.



# OVERVIEW

## RESOURCES

5. My favorite C++ resources inside and outside of Hunter College. Books, sites, groups.

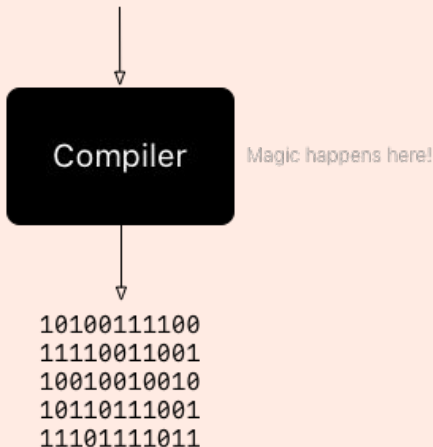
## QUESTIONS

6. Answering any of your C++ questions - How C++ is used at school, work, etc.



# WHAT IS A COMPILER?

```
func greet() = {  
    Console.println("Hello, World!")  
}
```



## WE USE A COMPILER TO TRANSLATE & TO DEBUG OUR CODE

We must compile our code after writing it because our computers only understand commands in their own language, not ours. A compiler is necessary because it translates a programming language's source code into machine code in order to execute a command.

# PROGRAMS & SOFTWARES

MAC OS & WINDOWS

- Text Editors
  - Xcode (MacOS only)
  - Visual Studio Code
  - Sublime Text
- Terminals
  - Terminal  
(pre-installed on  
Windows & MacOS)



# ONLINE COMPILER

NO TERMINAL? NO TEXT EDITOR?  
NO WORRIES.

- For less complex programs, you can test your code using an online compiler without a terminal. This is helpful for testing a quick program or for beginners.
- [https://www.onlinegdb.com/online\\_c++\\_compiler](https://www.onlinegdb.com/online_c++_compiler)





# STRINGS: HELLO WORLD

WE'RE GOING TO PRINT OUR FIRST STRING: HELLO WORLD

```
#include <iostream> ← line contains header files
using namespace std; ← line contains library

int main(){
print ← cout << "Hello World!" << endl;
    return 0;
}
```

Output: Hello World!

# DECLARING A VARIABLE

## DECLARING A STRING VARIABLE

```
int main(){  
    variable ← string phrase; ← variable name: phrase  
    type: string  
    cout << "Enter a phrase: ";  
    input ← cin >> phrase;  
    cout << phrase << endl;  
    return 0;  
}
```

Output: Enter a phrase:  
Input: Hello, World!  
Output: Hello, World!

# INTEGERS

## CALCULATING INTEGERS IN A C++ PROGRAM

```
int main(){  
    cout << 10 + 10 << endl;  
    return 0;  
}
```

Output: 20



# DEBUGGING & SYNTAX

## USING PROPER SYNTAX IN C++ TO AVOID ERRORS

```
#include <iostream> ← must include standard headers
using namespace std;
```

```
int main(){
    cout << "Hello World!" << endl; → "period"
    return 0;
} → if there's an opening bracket, there should
    always be a closing bracket
```

indent once (TAB) between brackets

# PRACTICE MAKES PERFECT

LET'S WRITE OUR FIRST C++  
PROGRAM TOGETHER

- Open up your favorite text editor or an online C++ compiler and let's practice together!
- [https://www.onlinegdb.com/  
online c++ compiler](https://www.onlinegdb.com/online_c++_compiler)



# MINI CHALLENGE (OPTIONAL)

TRY YOUR BEST TO COMPLETE  
THIS CHALLENGE

- Write a C++ program that asks the user for their name, stores it in a string variable called name, and prints the output.
- [https://www.onlinegdb.com/online\\_c++\\_compiler](https://www.onlinegdb.com/online_c++_compiler)



# MINI CHALLENGE ANSWER VARIATION

```
#include <iostream>
Using namespace std;

int main(){
    string name;
    cout << "Enter your name: " << endl;
    cin >> name;
    cout << name << endl;
    return 0;
}
```



# MY FAVORITE RESOURCES

**COURSERA (FREE)**

[www.coursera.org/specializations/hands-on-cpp](http://www.coursera.org/specializations/hands-on-cpp)

**CODECADEMY (PAID)**

[www.codecademy.com/learn/learn-c-plus-plus](http://www.codecademy.com/learn/learn-c-plus-plus)

**LINKEDIN LEARNING  
(PAID)**

<https://www.linkedin.com/learning>

**YOUTUBE (FREE)**

<https://www.youtube.com/playlist?list=PLlrATfBNZ98dudnM48yfgUldqGD0S4FFb>





Thank You  
For Attending!

Do you have any questions for me?

