Introduction to C++

Agenda:

1. Establish Context and History of C++

2. Introduce the Language

    a. Namespaces and the std Namespace

    b. Your First C++ Program

Why C++?

- C was created as a fast, more efficient language; however, it is low-level and procedural

- C++ was created as an extension of C by Bjarne Stroustrup with the idea being "C with Classes"

- Aimed to add abstraction, structure, and OOP while maintaining C's efficiency

- C is about how to do things, while C++ is about what things are

Side by Side

C:

- Procedural
- Functions and structs
- printf()/scanf()
- .c
- No namespace support

C++:

- OOP
- Classes and Objects
- cout/cin
- .cpp
- Namespace support

OOP and Abstraction

- As we know, a lot can be done "under the hood" with OOP
- Object → A grouping of variables and functions that can be performed on data
- Abstraction is supported by this as it allows users to interact at a high level
- ADT's in C++:
  - Classes

Classes

- More similar to Java
- These define a new type grouping data and functions
  - Public functions = what users can do
  - Private members = hidden data and helper functions

- See some examples