# Programming Languages and Tools: Programming with C++ CS:3210:0003

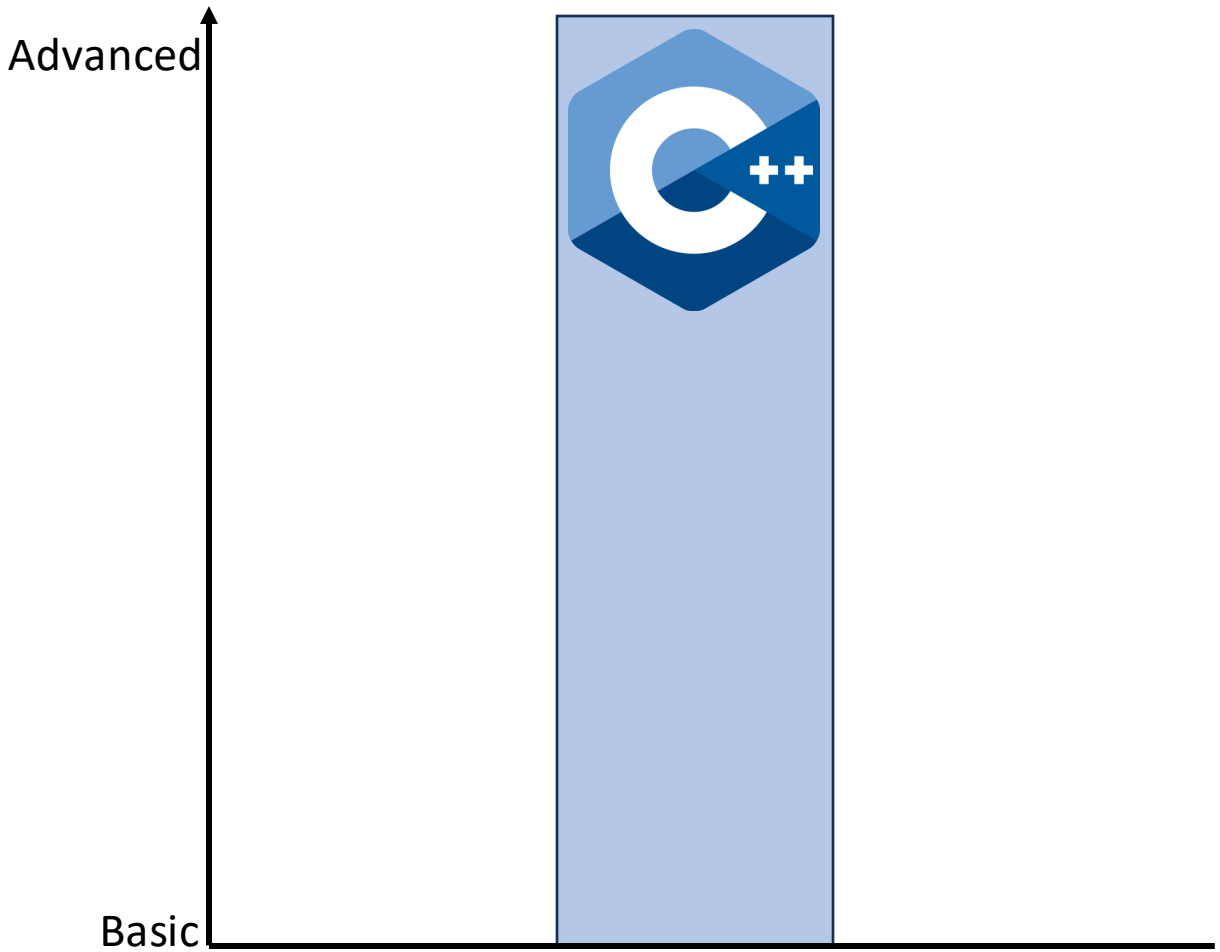
Lecture/Lab #1

# Introduction - Me

- Arjun Viswanathan
- Hyderabad, South India
- PhD student at UIowa
- Contributions to open-source projects – C++, OCaml, Haskell, etc.
- Multiple internships

# Introduction - Class

- C++ in a Linux environment
- Version control using Git
- Foundations of C++; few advanced features



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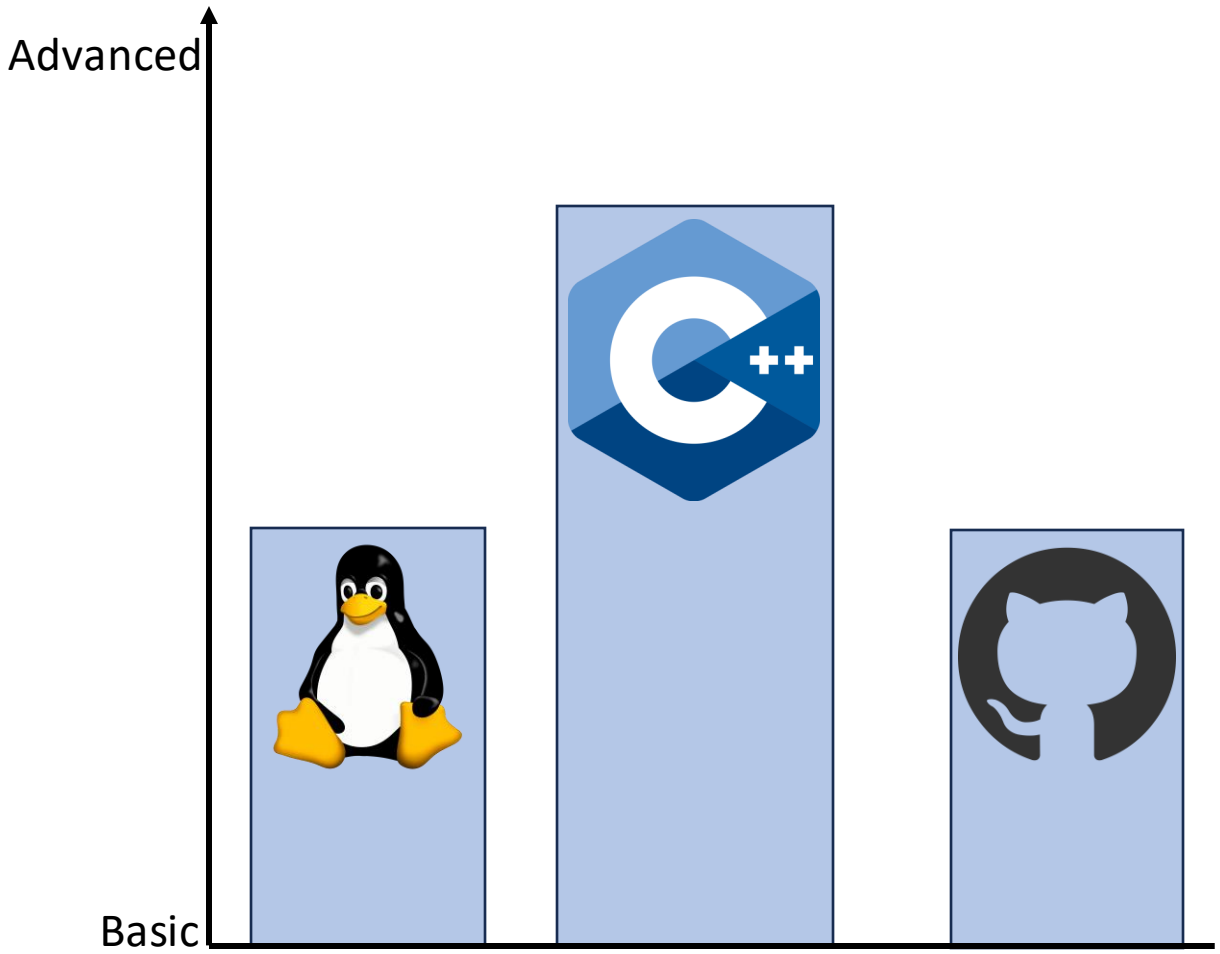

# Syllabus

https://github.com/uiowa-cs-3210-spr24/class/blob/main/Syllabus.md

# Slack

https://join.slack.com/t/cs3210spr24/shared_invite/zt-2a2cc1yt3-s0krpGADqILPZPgIkAksVw

# Introduction - You

## Survey Link: On ICON

# Linux


- Operating system
- Free, open source
- Interfaces
    1. Graphical User Interface (GUI) easier for the user
    2. Command Line Interface (CLI) preferred by developers
- FastX 3 Desktop Client: https://linux.clas.uiowa.edu/help/fastx/desktop
- FastX Virtual Machine: https://fastx.divms.uiowa.edu/

# FastX Virtual Machine

https://fastx.divms.uiowa.edu/

# Git

- Distributed Version Control System
- Maintain code, track changes, collaborate
- Github is an interface for Git
- We will use
    1. Github via web interface
    2. Git via the command line

# Class Git Repo

https://github.com/uiowa-cs-3210-spr24/class.git

# C++

- Created in 1979 by Bjarne Stroustrup
- Started as an extension of C, but is not a strict superset of C anymore
- Available on virtually every type of computer hardware/architecture
- A **general purpose**, **statically typed, compiled** programming language

# Compiled Language

- Program execution:


- In a compiled language:

# Hello World

First C++ Program

# Statically Typed Language

- Each program entity has *type* which determines
  1. what value it can take
  2. what operation can be performed on it

- Entity's type can be deduced **before** the program is run