

Workshop on Python and C++

1. Introduction (15 minutes)

- **Objective:** Set the stage and introduce the languages.
 - Brief on Python, C++: strengths, use cases, and industries.
 - Workshop goals and agenda.
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2. Python Basics (2 hour)

- **Objective:** Cover Python's simplicity and use for rapid development.

2.1. Key Features of Python (30 minutes)

- Syntax overview and dynamic typing.
- Use cases: Data Science, Web Development, Scripting.

2.2. Hands-on: Python Fundamentals (60 minutes)

- Variables, data types, and operators.
- Control flow: if, else, for, and while loops.
- Functions: Defining and calling.

2.3. Activity (30 minutes)

- Write a Python program to calculate factorial using recursion.
 - Solve basic list and dictionary manipulation problems.
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3. C++ Essentials (2 hour)

- **Objective:** Introduce C++'s speed and system-level programming power.

3.1. Key Features of C++ (30 minutes)

- Static typing and memory management.
- Use cases: Game Development, Embedded Systems, High-Performance Apps.

3.2. Hands-on: C++ Fundamentals (60 minutes)

- Variables, data types, and operators.
- Control structures: if, switch, loops (for, while).
- Functions and pointers.

3.3. Activity (30 minutes)

- Write a program to sort an array using selection sort.

- Implement a simple class with a constructor and methods.