

C++ Data Types C++ Input/Output C++ Arrays C++ Pointers C++ OOPs C++ STL C++ Inte

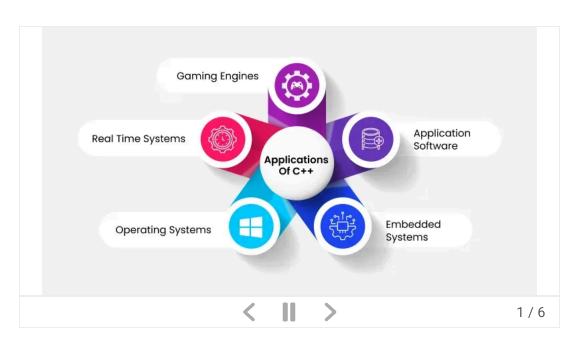
C++ Programming Language

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C++ is a computer programming language developed by Bjarne Stroustrup as an extension of the C language. It is known for is fast speed, low level memory management and is often taught as first programming language. It provides:

- Hands-on application of different programming concepts.
- Similar syntax to C and other popular languages making it easier to switch.



Example Program

The below code shows the simplest C++ program that you can run to print some text on the console screen.

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Got It!

```
cout << "Hello World";
return 0;
}</pre>
```

Output

Hello World

This C++ tutorial is designed to provide a guide for easy and efficient learning of both core and advanced concepts of C++. Each concept is explained with simple illustrations and practical code examples that can be executed easily. This tutorial also provides quizzes in each section to test your understanding. **Let's start!**

C++ Fundamentals

This section guides you through the basic concepts of C++ programming. It covers topics that teaches you to write your first program, manage data, perform different operations and control the flow of the program.

- Introduction
- Identifiers
- Keywords
- Variables
- <u>Data Types</u>
- Quiz: <u>Basics</u> | <u>Variables and Data Types</u>
- Operators
- Basic Input / Output
- Quiz: Operator | Input Output
- Conditional Statements
- Loops
- Quiz: Control Statements | Loops

functions to write a modular and reusable code.

- Functions
- Parameter Passing Techniques
- Default Arguments
- Recursion
- Inline Functions
- Lambda Expression
- Quiz: Functions

Compound Data Types

Compound data types are created from the built-in data types. This section guides you through important compound data types such as array, strings, pointer and structures that helps in managing complex real-world data.

- Arrays
- Pointers
- References
- Quiz: <u>Array | Pointer | Reference</u>
- Strings
- Structures
- Unions
- Enumeration
- Quiz: <u>Strings</u> | <u>Structure and Union</u>

Dynamic Memory Management

C++ allows the low-level memory manipulation using pointers and dynamic memory allocation/deallocation operators. This section guides you through the basis of dynamic memory management.

• Quiz: Dynamic Memory Management

Object Oriented Programming (OOPs) in C++

This section covers key concepts of Object-Oriented Programming (OOPs) in C++ such as classes, objects, encapsulation, inheritance, polymorphism, and abstraction.

- Object Oriented Programming (OOPs)
- Classes and Objects
- **Encapsulation**
- Polymorphism
- Inheritance
- Abstraction
- Quiz: OOPs Quiz

C++ Standard Template Library (STL)

This section covers Standard Template Library (STL) which is an in-built library that provides a set of commonly used data structures such as vectors, lists, stacks, queues, maps, etc. and algorithms that enhance productivity and performance.

- <u>Templates</u>
- Standard Template Library (STL)
- Algorithms
- Containers
- Iterators
- Vector
- Stack
- Queue
- Map

Cat

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Exception handling are the techniques to handle runtime errors efficiently. This section covers how to handle exceptions to prevent crashes and improve the reliability of applications.

- Exception Handling
- Exception Handling using Classes
- Stack Unwinding
- <u>User-Defined Exceptions</u>
- Quiz: Exception Handling Quiz

File Handling in C++

File handling allows programs to store and retrieve data from files. This section introduces file handling in C++ using streams. It covers reading from and writing to files using streams.

- Files and Streams
- I/O Redirection
- Quiz: File Handling Quiz

Advanced C++

This section covers advanced concepts in C++ such as move preprocessor, multithreading, etc. Mastering these topics allows developers to write efficient, high-performance C++ applications.

- Preprocessor
- Namespaces
- Smart Pointers
- Callbacks
- Multithreading
- Signal Handling

- Beginner Skill Assessment Practice Test
- Intermediate Skill Assessment Practice Test
- Advanced Skill Assessment Practice Test

C++ Interview Questions

Quickly prepare yourself for C++ interviews with the help of our carefully curated list of commonly asked interview questions.

- Top 50 C++ Interview Questions and Answers
- Top C++ STL Interview Questions and Answers
- 30 OOPs Interview Questions and Answers
- <u>Top C++ Exception Handling Interview Questions and Answers</u>

C++ vs Other Programming Languages

Let's see where C++ stands as compared to other programming language:

Feature	C++	С	Java	I
Туре	Compiled	Compiled	Compiled and Interpreted	In
Paradigm	Multi- paradigm (procedural, object- oriented, generic)	Procedural, structured	Object- oriented, structured	p c pr fu
Memory Management	Manual	Manual	Automatic	А

Feature	C++	C++ C		I
Use Cases	System programming, game development, high- performance applications	System programming, embedded systems, game development	Large-scale applications, enterprise software	dev e r
Notable Frameworks/Libraries	Standard Library, Boost	Standard Library	Spring, Hibernate	Dja
Community Support	Strong	Strong	Strong	
Job Market	Abundant	Abundant	Abundant	А

The below program compares the basic program structure of C++ with other languages:



Introduction to C++ Programming Language

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