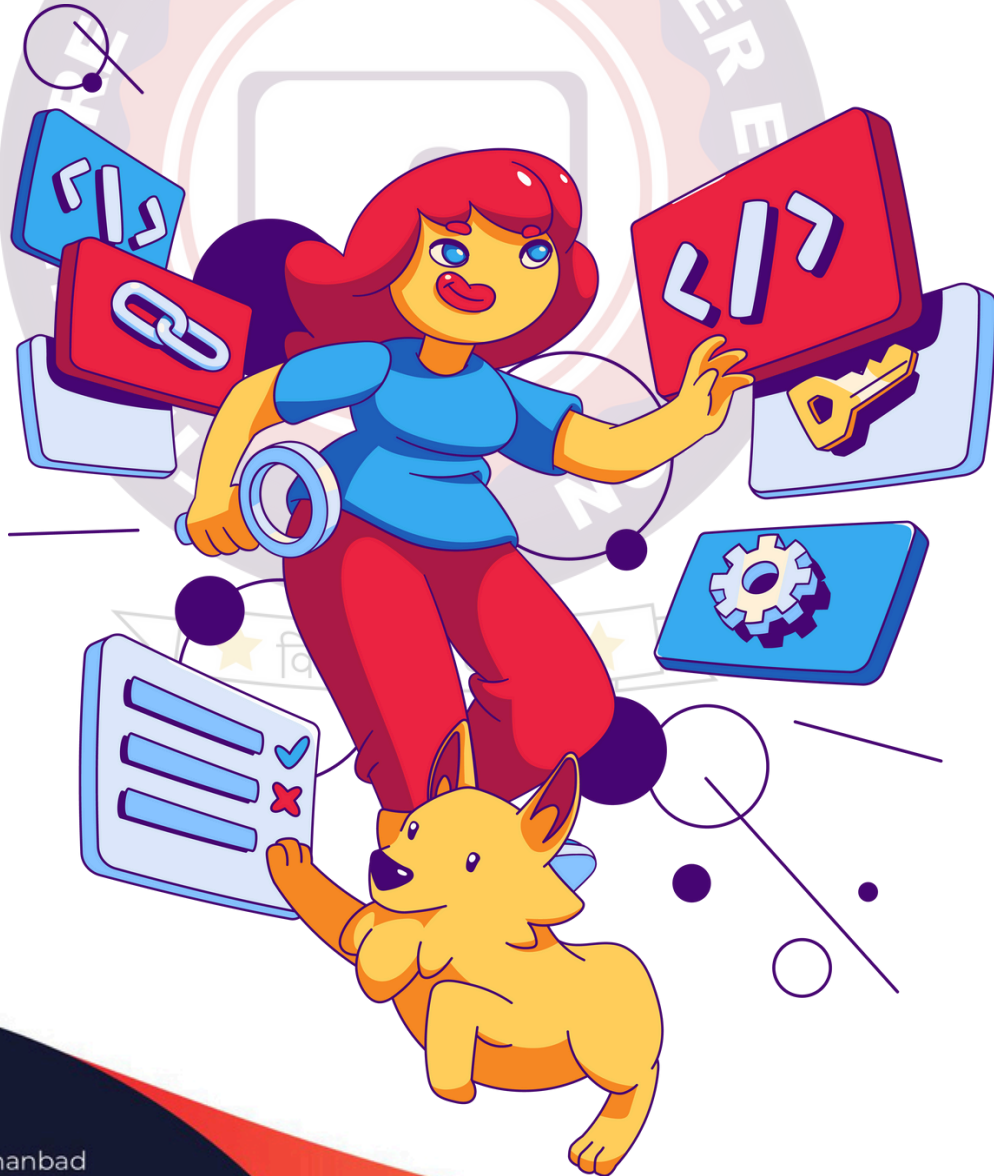


# THE FUTURE TRACK

COMPUTER EDUCATION



# Course



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# C++ PROGRAMMING

## C++ HOME

- Introduction to C++
- Evolution of C++
- Features of C++
- Setting up the environment (IDE installation and setup)
- First C++ program and explanation

## C++ BASIC SYNTAX

- Structure of a C++ program
- Compilation and execution process
- Tokens, keywords, and identifiers
- Comments in C++
- Input and Output (cin, cout)

## C++ DATATYPE

- Built-in datatypes (int, char, float, double)
- Derived datatypes (arrays, pointers)
- User-defined datatypes (struct, union, enum)
- Type conversions (implicit and explicit)

## C++ VARIABLE TYPE

- Variable declaration and initialization
- Scope of variables
- Storage classes (auto, static, extern, register)

## C++ CONSTANTS AND LITERALS

- Defining constants (const keyword)
- Types of literals (integer, float, character, string)
- Enumeration constants

## C++ OPERATORS

- Arithmetic operators

# C++ PROGRAMMING

- Relational operators
- Logical operators
- Bitwise operators
- Assignment and compound assignment operators
- Increment and decrement operators
- Conditional (ternary) operator
- Operator precedence and associativity

## C++ LOOPS

- Types of loops (for, while, do-while)
- Nested loops
- Break and continue statements

## C++ DECISION MAKING

- If-else statements
- Switch-case statement
- Nested if-else
- Conditional operator

## C++ FUNCTIONS

- Function declaration, definition, and calling
- Passing arguments (by value, by reference)
- Default arguments
- Function overloading
- Inline functions
- Recursion

## C++ ARRAY

- One-dimensional and multi-dimensional arrays
- Passing arrays to functions
- Array manipulation techniques
- Array vs Pointer

# C++ PROGRAMMING

## C++ STRING

- String manipulation using character arrays
- String class in C++
- Common string functions (length, concatenate, compare, copy, etc.)
- Passing strings to functions

## C++ POINTERS

- Pointer basics and syntax
- Pointer arithmetic
- Pointers and arrays
- Pointers and functions
- Dynamic memory allocation (new, delete)

## C++ DATA STRUCTURES

- Structures in C++
- Union
- Enumeration
- Linked lists (basic introduction)
- Stacks and queues (basic introduction)

## C++ CLASS AND OBJECTS

- Object-oriented programming concepts
- Defining a class and creating objects
- Constructors and destructors
- Member functions and access specifiers (private, public, protected)
- Static members
- Friend function and friend class
- Inheritance (types, function overriding)
- Polymorphism (compile-time and run-time)

# C++ PROGRAMMING

## C++ FILE HANDLING

- File streams in C++
- Opening and closing files
- Reading and writing to files
- File pointers and their operations
- Error handling during file operations



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