

UNIT - II: C Programming Basics

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Introduction to C Programming

C is a structured, procedural programming language developed by Dennis Ritchie in 1972. It is widely used for system and application programming.

Basic Structure of a C Program

A C program consists of:

- Preprocessor Directives: `#include` statements.
- Main Function: `int main() {...}`
- Variable Declarations: `int x, y;`
- Statements & Expressions: `x = y + 5;`
- Return Statement: `return 0;`

Compilation and Linking Process

Compilation translates source code into machine code. Linking connects compiled files into an executable.

Constants, Variables, and Data Types

- Constants: Fixed values (e.g., 3.14)
- Variables: Named storage locations (e.g., `int x;`)
- Data Types: `int`, `float`, `char`, `double`, `void`.

Expressions and Operators

Operators perform computations. Categories include:

- Arithmetic: `+`, `-`, `*`, `/`
- Relational: `>`, `<`, `==`
- Logical: `&&`, `||`, `!`
- Bitwise: `&`, `|`, `^`

Managing Input and Output Operations

Functions used for input and output include:

- `scanf()`: Reads user input.
- `printf()`: Displays output.

Decision Making and Branching

Control flow is managed using:

- if-else statements.
- switch-case for multiple conditions.

Looping Statements

Loops execute repeated tasks:

- for loop
- while loop
- do-while loop

