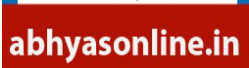


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Introduction to 'C' Language - Module 2

Elements of the C Programming Language

The elements of the C programming language refer to the fundamental building blocks that constitute the language's syntax, semantics, and features. Here are the key elements of the C programming language:

Keywords:

Keywords are reserved words that have predefined meanings in the C language. They cannot be used as identifiers (variable names or function names) and are essential for defining the language's syntax.

Examples include int, float, if, else, while, etc.

Identifiers:

Identifiers are names given to variables, functions, arrays, etc., by the programmer. They consist of letters, digits, and underscores but must begin with a letter or underscore. Identifiers are **case-sensitive**.

For example, sum, counter, myFunction, etc.

Character Set:

Communicating with a computer involves speaking the language the computer understands. In C, various characters have been given to communicate.

Character Set Type	Description	Examples
Lowercase Letters	Lowercase English alphabet characters (a-z)	a, b, c, ..., z
Uppercase Letters	Uppercase English alphabet characters (A-Z)	A, B, C, ..., Z
Digits	Numeric digits (0-9)	0, 1, 2, ..., 9
Special Characters	Various special characters used in programming	!, @, #, \$, %, ^, &, *
Whitespace Characters	Characters used for formatting and separation	Tab (\t), Newline (\n), Space (' ')

Constants:

Constants are fixed values that do not change during the execution of a program. There are two types of constants in C:

- **Numeric Constants:** Integer constants (e.g., 10, -5, 0xFF) and floating-point constants (e.g., 3.14, 2.0e-3).
- **Character Constants:** Enclosed in single quotes (e.g., 'A', 'b', '3').

Variables:

Variables are named storage locations in memory used to hold data during program execution. They must be declared before use and can store different types of data such as integers, floating-point numbers, characters, etc.

For example, int age;, float salary;, char grade;.



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Initialization of Variables

When a variable is declared, it contains undefined value commonly known as garbage value. If we want we can assign some initial value to the variables during the declaration itself. This is called **initialization of the variable**.

Eg- `int pageno=10;`
`char grade='A';`
`float salary= 20000.50;`

Declaring Variables:

There are two places where you can declare a variable:

- After the opening brace of a block of code (usually at the top of a function)
- Before a function name (such as before `main()` in the program)

Escape sequences

Escape sequences in C are special sequences of characters that begin with a backslash `\` and are used to represent non-printable characters or characters with special meanings.

These escape sequences are interpreted by the compiler and have specific effects when encountered in a string literal or character constant.

Here's an explanation of each escape sequence you've mentioned:

`\n` (Newline):

- When encountered in a string, this escape sequence represents a newline character.
- It moves the cursor to the beginning of the next line.
- Useful for formatting output or creating multi-line strings.

`\t` (Tab):

- Represents a horizontal tab character.
- Causes the cursor to advance to the next tab stop.
- Often used for indentation or aligning text in columns.

`\r` (Carriage return):

- Represents the carriage return character.
- Moves the cursor to the beginning of the current line.
- Used in combination with newline (`\n`) to represent the end of a line.



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Introduction to 'C' Language - Module 2

Method 1

```
main()
{
char first, middle, last;
// Rest of program follows
}
```

Method 2

```
main()
{
char first;
char middle;
char last;
// Rest of program follows
}
```



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