

C Programming Notes (Based on W3Schools)

1. Introduction to C

C is a general-purpose programming language created by Dennis Ritchie in the 1970s.

It is fast, procedural, and widely used for system/software development.

Key features include simplicity, efficiency, low-level memory access, modularity, and portability.

```
#include <stdio.h>

int main() {
    printf("Hello, World!\n");
    return 0;
}
```

2. C Syntax

Every C program starts from the main() function. Statements end with a semicolon.

C is case-sensitive. Curly braces are used for code blocks.

```
#include <stdio.h>

int main() {
    printf("Welcome to C Programming!");
    return 0;
}
```

3. C Variables

Variables are containers for storing data values. Must be declared with a type.

Example declarations:

```
int age = 20;

float salary = 15000.50;

char grade = 'A';
```

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4. Data Types

Common data types in C:

- int: Integers (e.g., int x = 10;)
- float: Decimal numbers (e.g., float pi = 3.14;)
- char: Single characters (e.g., char ch = 'A';)
- double: Large floating point numbers

5. Constants

Constants are fixed values that do not change.

Use 'const' or '#define' to declare them.

```
const int MAX = 100;

#define PI 3.14
```

6. Operators

C supports various operators:

- Arithmetic: +, -, *, /, %
- Assignment: =, +=, -=
- Comparison: ==, !=, >, <
- Logical: &&, ||, !

```
int a = 10, b = 20;

int sum = a + b;

printf("Sum = %d", sum);
```