

# Belajaritma

Algoritma dan Pemrograman

Sesi II: Variabel, Tipe Data, dan Operator  
(PDF Example)

## Variables

Variable is a type of component or a container that a program uses to store and manipulate data. Creating a variable in C, you need to declare it with a

The syntax for declaring a variable is: `data_type variable_name;`

## Data Types

As stated above, to declare a variable, you also need to define the data type.

These are the basic data types that you will use in C :

- **int** : Stores whole numbers, without decimals
- **float** : Stores fractional numbers, containing one or more decimals.
- **double** : Similar to float, but larger (Sufficient for storing 15 decimal digits vs 8 digits with float)
- **char** : Stores a single character/letter/number, or ASCII values

## Operators

Similar to Mathematics, we can also use operators to manipulate the variables in our programs. These are some operators commonly used in a program :

- `+` → Addition (unary +)
- `-` → Subtraction (unary -)
- `*` → Multiplication
- `/` → Division
- `%` → Division Remainder (Modulo)
- `=` → Assignment (if A = B, then the value of A will follow B)
- `&&` → AND (IF both requirements are met)
- `||` → OR (IF either requirements are met)
- `!` → NOT (if A is not B)
- `==` → EQUAL TO (A == B)
- `++` → Increment
- `--` → Decrement

## Variable Printing

To display our variable, we need to print that variable in our application. Here are some examples of variable printing :

```
"%d";    // integer
"%3d";   // integer with minimum of length 3 digits (right justifies text)
"%s";    // string
"%f";    // float
"%ld";   // long
"%3.2f"; // minimum 3 digits left and 2 digits right decimal float
```

## Examples:

These are some examples for a variable declaration, along with its data types and operators.

```
item_count = 50;
float item_cost = 9.99;
float total_cost = item_count * item_cost;
char currency = '€';

// Print variables
printf("Number of items: %d\n", item_count);
printf("Cost per item: %.2f %c\n", item_cost, currency);
printf("Total cost = %.2f %c\n", total_cost, currency);
```