CSD101: Introduction to computing and programming (ICP)

Operators and expressions

- **C** has many **operators** that operate on different types of values. For example: for numeric data types (int and float) the usual binary arithmetic operators $+$, $-$, $*$, $/$ for addition, subtraction, multiplication and division are are defined. For integers division gives the quotient. Similarly, % is the remainder operation for integers.
- An **expression** is a legal combination of variables, operators, values, and meta symbols (like brackets) that evaluate to a value.
  Examples: Assume a, b, c are integers then: $a + b$, $a\%b$, $a - 10$, $b * 2$, $5 - 2$, $(a - b) * c$ are valid expressions.

C operators

C operators can be divided into 6 categories.

- Arithmetic operators.
- Relational operators.
- Logical operators.
- Assignment operator.
- Bitwise operator (will be discussed later).
- Miscellaneous operators (e.g. `?:`).

Arithmetic operators

Operator	**Meaning**	**Example**
$+$(unary)	Unary plus	$+a$, $+$ can be omitted
$-$(unary)	Unary minus	$-a$, negates value of a
$+$	Add	$a + b$
$-$	Subtract	$a - b$
$*$	Multiply	$a * b$
/	Divide	a/b - quotient if a, b ints
%	Mod/remainder	$a\%b$ - remainder of a/b both ints
$++$	Increment	$a++$, $++a$ - post, pre increment by 1
$--$	Decrement	$a--$, $--a$ - post, pre decrement by 1