ENGG1003 - Tuesday Week 2

C Arithmetic
Datatypes
Standard Input-Output

Brenton Schulz

University of Newcastle

February 20, 2019

C Arithmetic

- Basic arithmetic was seen in the lab
  - You all did the lab, right?

Operation	C Symbol
Addition	+
Subtraction	-
Multiplication	*
Division	/

Table: Basic arithmetic operators in C

- Complex expressions can be built from these operators and parentheses

C Arithmetic

Examples:

$z = x^2 + 5(y + b)$	`z = x*x + 5*(y + b);`
$u = \frac{x+1}{x-1}$	`u = (x + 1)/(x - 1);`
$v = z^3 + \frac{5(y+b)}{2}$	`v = z*z*z+(5*(y + b))/2;`

- Multiplication is not assumed. If you write `5(y+b)` the compiler will generate a syntax error.
- To be valid C expressions the semicolon is required.

C Arithmetic

- C supports two time-saving *unary* operators:
  - Very useful in loops.

Operation	C Syntax	Replaces
Increment	`x++;` or `++x;`	`x = x + 1;`
Decrement	`x--;` or `--x;`	`x = x - 1;`

- It also supports the following shorthand syntax:

`x = x + y;`	`x += y;`
`x = x - y;`	`x -= y;`
`x = x * y;`	`x *= y;`
`x = x / y;`	`x /= y;`

C Arithmetic Example

TODO: The cos() series from last lecture