C++

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- Headers are included at the top, and are denoted by `#include`
  - We will almost always be defining a header for `cin` and `cout` (for input and output)
- After you write a C++ program, you compile it; that is, you run a program called a compiler that checks whether the program follows the C++ syntax
  - If it finds errors, it lists them
  - If there are no errors, it translates the C++ program into machine language which can be executed
- Single-line comments begin with //
- Indentation is for the convenience of the reader
  - The compiler ignores white space
- Input statements would begin with `cin >> a`, where `a` would be some kind of input, like a variable
- Output statements begin with `cout << a`, where `a` would be some kind of output, like a String of text
- Functions
  - C++ functions are specialized blocks
  - Each one begins with a return type, function name, and input parameters, in the following format:

    `<return type> <name>(<params>)` { }
  - All functions should be declared before main
  - Function names are generally camel-case (starts with lowercase, and every subsequent word is capitalized)
- Always put comments in the code
  - Start with a multi-line comment with author information
  - Multi-line comments are denoted with `/*` and `*/`
- Arrays and Pointers
  - A pointer is merely an address of where a datum or structure is stored
    - All pointers are typed based on the type of entity that they point to
    - To declare a pointer, use * preceding the variables name, ex: `int *x;`

- To set a pointer to a variable's address, use & before the variable, as in `x= &y;`
    - & means "return the memory address of"
    - In this example, `x` will now point to `y`; that is, `x` stores `y`'s address
- If you access `x`, you merely get the address
- To get the value that `x` points to, use *, as in `*x`
    - `*x = *x + 1;` will add one to `y`
- * is known as the indirection (or dereferencing) operator because it requires a second address