C++ Syntax Basics

The `hello` program, which you saw earlier, doesn't include many features you'd expect in a "real" program. To illustrate more of C++, let's consider the program named ***`f2c`*** which converts Fahrenheit temperatures to Celsius.

This is an **IPO** or **Input Processing Output** program, typical of those that we'll be building in these first few weeks. A computer is an **information processor**; a **Cuisinart** for words, numbers and ideas. Instead of vegetables, you feed it **input**; raw numbers, facts, figures and symbols (**data**). Your computer program **processes** that data, and turns it into **information**: organized, meaningful and useful **output**.

Every program is based on this fundamental concept: input data, process it and then produce (or output) some information.

The IPO Pattern

The programs we'll be writing are console-mode, IPO programs. These are plain-text programs, which run inside your terminal, and follow this pattern:

1. **prompt** the user to enter some input
2. **read** the user's input, storing it in variables
3. **process** the input
4. **output** the results

Here's an example:

```
~/ $ ./f2c
Enter a temperature in Fahrenheit: 212
Converted: 212F ->100C
```

- The ***`f2c`*** program asks the user for a temperature in Fahrenheit. This is the **prompt**. Note that the prompt appears on the same line as the input and ends in a space, so that the input is nicely separated.
- The program stops and waits for the user to enter in some input and press **`ENTER`**. In this case, the user entered **`212`** for the temperature in Fahrenheit. The program reads the user input and stores it in a variable.
- Next, the program uses an **algorithm** to convert the Fahrenheit temperature into Celcius.
- Finally, it diplays the result on the console.

The screenshot above is called a **sample run**. It shows the input and output in the terminal or shell. Now, let's take a closer look at the ***`f2c program itself.`***