

Lecture 4: Functions

Curtin FIRST Robotics Club (FRC) Pre-season Training

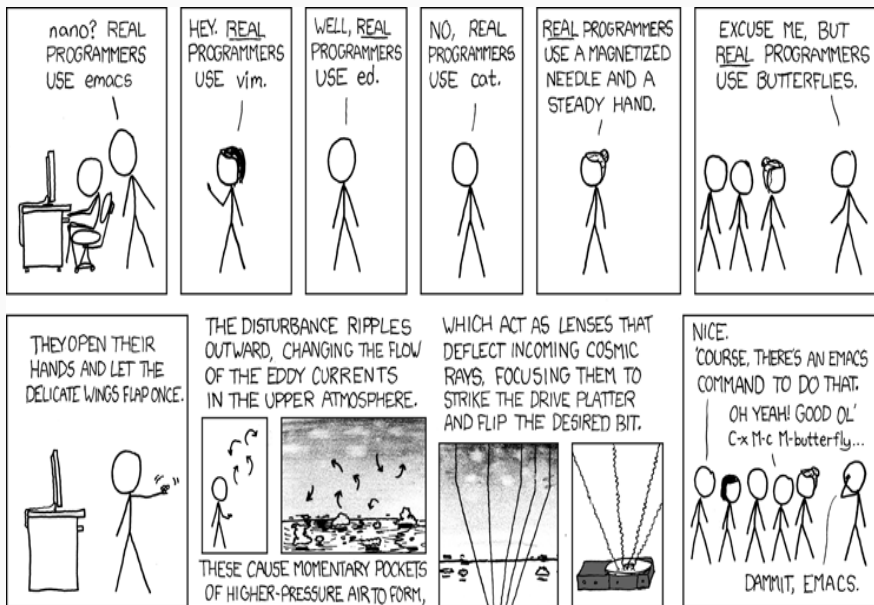
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Curtin University

Insert Mandatory Programming Joke



In C++ we can subdivide the functional features of a program into blocks of code known as functions. In effect these are subprograms that can be used to avoid the repetition of similar code and allow complicated tasks to be broken down into parts, making the program modular.

Until now you have encountered programs where all the code (statements) has been written inside a single function called `main()`. Every executable C++ program has at least this function. In the next sections we will learn how to write additional functions.

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Function Justification

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Function Definition

In C++, a function is a group of statements that is given a name, and which can be called from some point of the program. The most common syntax to define a function is:

```
1 returnType functionName(type parameter1, type parameter2, ...)  
2 {  
3     statements;  
4 }
```

Where:

| | |
|--------------------------|--|
| return-value-type | Is the type of the value returned by the function. |
| function-name | Is the identifier by which the function can be called. |
| parameters | Each parameter consists of a type followed by an identifier, with each parameter being separated from the next by a comma. |
| statements | Is the function's body. It is a block of statements surrounded by braces { } that specify what the function actually does. |

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Example of Function Definition, Declaration and Call

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Function Header and Body

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Function Declaration

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Function Call and Execution

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Function Arguments

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Passing by Value or Reference

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Recursion - just to f*** with you

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