

CS 1428
Lab 9 Sections L19 and L06

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Functions

Functions are a tool that we use to name and isolate blocks of code that we wish to use in other places. Unlike the way we tend to think of the main function, functions are not executed based on where it is within the file. We “call” the function by name whenever we want the code to be executed.

We have two ways to get information to and from the functions. We can send information to the function by passing “arguments” to the function when we call it. The function can pass a result back to the point it was called from by “returning” the value.

Some trivial examples:

```
// The basic format is:
// 'return_type' name(type1 arg1, type2 arg2) { ... }
int times_two(int first, int second)
{
    return first * second;
}

// returns nothing, performs a service
void print_array(int array[], int size)
{
    for (int i = 0; i < size; i++)
    {
        cout << array[i] << " ";
    }
    return;
}
```

Here is an example of prototypes for each of the two examples:

```
int times_two(int, int);    // Not naming your variables here could be problematic
void print_array(int array[], int size);
```

Here is an example of calling the functions:

```
int main()
{
    int array[10] = {0},
        someInt = 56;
    someInt = times_two(someInt, 7);
    print_array(array, 10);
    return 0;
}
```

Some points to note: although we can pass many arguments of varying types, only **one** value of a **single** type can be returned. Later we will discuss some tricks for returning more values back to the caller. Also, functions can also call other functions, creating a chain of calls.

Questions

1. State if the following is a function prototype or a call:

(a) `calculateArea();`

(b) `void displayArea();`

2. What will be the outcome of the following program if the user enters '5'? For 2 bonus points, correctly name the movie this quote comes from.

```
#include <iostream>
using namespace std;

void firstFunction()
{
    cout << "There is no try\n";
}

void secondFunction()
{
    cout << "Do or do not\n";
}

int main()
{
    int input;

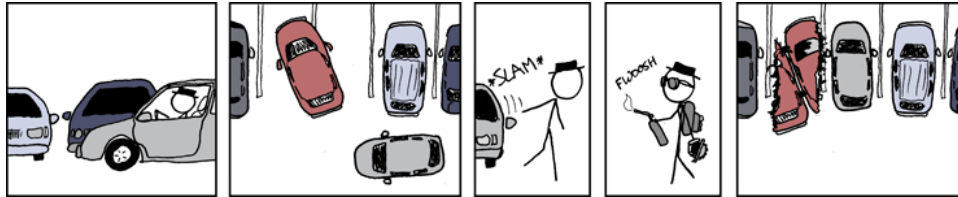
    cout << "Enter a number: ";
    cin >> input;

    if (input <= 5)
    {
        firstFunction();
        secondFunction();
    }
    else
    {
        secondFunction();
        firstFunction ();
    }

    return 0;
}
```

3. Create a new project and copy in the file `lab9.cpp`. Read through the source code, the comments explain the code that is provided and explain what is expected of you.

Print out your sourcecode and attach to this page. Don't forget to upload as well.



Police reported three dozen cheerful bystanders, yet no one claims to have seen who did it.