

# C Coursework 2

David Chisnall

Due: 12/12/2008

This coursework will involve implementing a simple Java-like object model in C, with the following characteristics:

- Each object is a `struct` with the first element being a pointer to a `Class`.
- Single inheritance is supported by creating a `struct` whose first element is an instance of the superclass.
- A `method_lookup()` function takes an object and a string as an argument and returns a function pointer for the method.
- A `CALL_METHOD()` macro takes an object, a method name, and the method arguments and calls the correct method. You will need to read the documentation on variadic macros<sup>1</sup> for this.

The design of the `Class` structure is entirely up to you, but it must contain all of the information needed to perform method lookups and create instances. You must define interfaces for adding methods to classes and for creating instances. Clean interfaces for this may require use of the stringification macro operator (<http://gcc.gnu.org/onlinedocs/cpp/Stringification.html>), however this is not required for a passing grade.

Your solution should include a reimplementaion of your `String` opaque data type from coursework one as an object in this system and a simple program to demonstrate that it works.

The organisation of the code in this project is up to you. 5 marks will be awarded for good structure and separation of concerns.

An additional 10 marks will be awarded for code readability (indenting, commenting, etc).

---

<sup>1</sup><http://gcc.gnu.org/onlinedocs/gcc/Variadic-Macros.html>