**CS173: Intermediate Computer Science**

**Reading 6**

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Read the assigned pages below from our course textbook. Complete the responses to the questions in this document and then save as a docx or pdf file. Submit your work by the assigned deadline on the Canvas course page or in class. Responses may be neatly handwritten or typed. **Put your name at the top!**

Reading: From the course textbook please read Chapter 9. You can skim over the parts on GUI design.

You should come away with understanding:

* variable scope and lifetimes
* software engineering techniques like stub and driver

**1) Define the *scope* of a variable and list the three different kinds of variable scope.**

The scope of a variable is the region of program code where it is legal to reference the variable.

The three different kinds of variable scope are as follows:

1. Class scope

2. Local scope

3. Global scope

**2) List the five scope rules below.**

1. A function name has a global scope. Function definitions cannot be nested within function definitions.

2. The scope of a function parameter is identical to the scope of a local variable declared in the outermost block of the function body.

3. The scope of a global variable or constant extends from its declaration to the end of the file, except as noted in Rule 5.

4. The scope of a local variable or constant extends from its declaration to the end of the block in which it is declared. This scope includes any nested blocks, except as noted in Rule 5.

5. The scope of an identifier does not include any nested block that contains a locally declared identifier with the same name. (Local identifiers have name precedence.)

**3) Describe how a static variable in a function works.**

A static variable in a function has its storage allocated for the duration of the entire program, which means that its value can be persisted from function call to function call.

**4) Define *stub* and *driver* and explain their role in software testing.**

Stub is a dummy function for testing a single module that contains calls to other modules and its role in software testing is to allow us to determine whether the function is called at the right time by main or another function and to display the set of values that are passed to it.

Driver is a simple main function that is used to call a function being tested and its role in software testing is to permit direct control of the testing process.