

Extra Credit Programming Assignment – Due on the last day of classes in a drop box on Angel

30 extra credit homework points

You have to do it on your own. Please review the Collaboration and Honesty Policy and also the submission requirements below before working on this assignment.

Give one program, M , such that, when started on any input, M prints the code of another program N . In the same manner, N prints the code of M . Your program should be in the spirit of the recursion theorem, as discussed in class. It is NOT Ok to make your programs (M and N) almost identical with some trivial modification. Your programs should not get any input (e.g. STDIN), should not write to disk and should not read from disk. The output of your program should appear in STDOUT.

Submission Requirements

- You can use C, C++, or Java. If you absolutely do not know any of the programming languages listed above, you can negotiate the language with Mahdy as long as the compiler/interpreter is already installed on CSE machines.
- The makefile and scripts that will be used to test your submissions are posted on Angel.
- Submit your code via the drop box in Angel.
- Your submission should consist of exactly one source file, with an optional readme, no other files are necessary. The file is to be named $M.\langle lang \rangle$, where $\langle lang \rangle$ is one of `c`, `cpp`, or `java`.
- If you can't use the makefile provided, talk to Mahdy about it.
- Do not use any kind of input (command line, STDIN, file, etc). Please, no writing to disk. Programs should output to STDOUT only.
- We will be testing submissions on a linux box running gcc, g++, javac installed on CSE linux machines. If your submission requires non-linux/posix system calls, we will count it as not compiling/running. If you don't have access to an updated linux box, use the linux lab computers.

General Hints

- Trivial differences include, but are not necessarily limited to, any difference that could be easily eliminated and still have the two programs work as expected, i.e., output each other's source code. This includes simply modifying a few characters between the programs or adding filler code to one of the programs that doesn't contribute to its essential function.
- If you can't think of a way to write these programs without doing one of the above things, we highly suggest you read pages 246–248 of the book several times over.
- Make sure you thoroughly test your program before submitting. Ideally, you should be able to start with M , compile and run it and name its output N , compile and run N and name its output $M2$, and run 'diff $M M2$ ' and get no output. If you do this with no file input and non-trivial differences between M and N , you will get full credit.