

Today: Undecidability. § 4.2.

Next class: Reducibility. §§ 5.0–5.1.

Reminders: Homework. Reading. Newsgroup.

1. List the members of your group below. Underline your name.

2. Write a Python program `e.py` that reads files `prog.py` and `in.txt` from its working directory and outputs `yes` to standard output if `prog.py` is a Python program that will terminate when given the contents of `in.txt` as standard input. (You may replace Python with Java, C, Lisp, Scheme, or any another suitable language, but check first.) Briefly explain the significance of `e.py` in the context of decidability.

3. Prove or disprove: There exists a Python program `s.py` that reads a file `prog.py` from its working directory and writes to standard output a program (Python source code), say X , that behaves identically to the program in `prog.py` *except that* X writes to its standard output a single line of text that presents, in English words, the total number of characters in the program X (e.g., “seven thousand four hundred and forty-two” if X has 7442 characters), before writing anything else to standard output (as needed to behave as `prog.py` does).

The program X is not allowed to read or write any files (except for the pseudo-files standard input and standard output) or to perform any other input, output, or network operations in general; it should be a simple, stand-alone program.