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Assignment 1 Part 1: Turing Complete Sandbox

Use of sandbox:

This sandbox file handle .py files/programs. It will enable Python 3.3 and later versions to run. Open the terminal in an Ubuntu 12.X or later machine. To run a program or the examples, do the following:

```
python3 <path to sandbox.py> <path to program>

python3 sandbox.py power.py

python3 sandbox.py fib.py

python3 sandbox.py combinatorics.py
```

Why is this sandbox Turing Complete:

This sandbox only limits the user's use of outside modules, languages, and built-ins to perform computations. The user is forced to rely on the basic operations that Python 3.3 or above has to offer such as integers, floating point numbers, mathematical operators and strings for outputting to console purposes. There is also a lock on the sandbox.py file itself when it is run. With this being stated, a user can then build a program with a computable function from the very basic steps without the help of modules. This sandbox will still achieve the same results on all Turing Complete computers and sandboxes with that are capable of running the entire script since the mathematical logic is the same without the sandbox. The sandbox will (hopefully) not allow for the program to interfere

with the sandbox itself. The sandbox script allows a program to achieve an answer that a computational program/function will yield – definition of Turing Complete.