CS 4375

Professor Ward

**Pre-Shell Exercise**

*Purpose: gain initial experience using the Unix Processes API, to be*

*even more ready for the Shell assignment.*

Write a python program that creates four processes, to execute the following four programs:

1. cat /proc/cpuinfo
2. echo Hello World
3. spinner.py 1000000
4. uname -a

then waits for these four processes to complete,

then creates a process for spinner.py 2000000,

then exits, not waiting for the last process to finish.

Do not use os.system(), os.execlp(), os.execlpe(), os.execvp(), or os.execvpe().

Submit a report with your code and evidence that it works. Work and submit in pairs if possible.

Due Thursday, September 12

Hints:

* Do this in cygwin, linux, or macOS. Use a version of python compiled for these purposes. Do not use windows-native python nor call python from powershell etc.
* If you’re not familiar with using Unix, learn the basics, for example from <http://www.ee.surrey.ac.uk/Teaching/Unix/> . The information in Part One may be enough for the current assignment, but soon you’ll need the information in Parts Three, Five, and Eight.
* From os you only need fork, execv, and waitpid. See <https://docs.python.org/3/library/os.html>
* You can use which to locate the executables for cat etc.
* Be concise: your solution should be less than 20 lines of code.
* Spinner can be any program which runs for some time. For example you can use

#!/usr/bin/env python3

# spinner.py ... burns some CPU cycles to kill time

# Nigel Ward, UTEP, January 2021

import sys

for i in range(int(sys.argv[1])):

i = i+1

print(i)