CS2S563 Operating Systems

Semester Two, Week 7 Tutorial

Access the code for this tutorial on github if needed:
https://github.com/alunkingusw/OSCTutorial6

Please note

The following tasks require Python 2 to demonstrate the poor thread protection. If you are unable to run Python 2, then complete the Computer Games tutorial which uses Python 3.

Tasks

1. copy the simplesync.py from the github repo and run it

2. copy the simplemutex.py from the github repo and run it
    a. why does the output become scrambled?

3. in the simplemutex.py program change all print statements into printf statements using appropriate parameters

4. use the following implementation of printf in Python

```
def printf (format, *args):
      print str(format) % args,
```

5. now add another mutex semaphore to protect the print statement inside printf
    a. does the output from the program become easier to read?

6. Finally if you have time consider how you might solve the readers and writers problem using semaphores
    a. the readers and writers problem is defined as follows
        - only one writer can enter a section of code at a time
        - if no writer is in the section of code then any number of readers can enter at a time
        - a writer cannot enter until all readers have exited the section of code