COMPSCI 3SH3 Winter, 2021
March 4, 2021
Lab report due date: Mar. 19th 2021, 11:59:59 pm

Lab 4: Practice and Assignment - Synchronization

The implementation has to be completed during lab time.
You can present your assignment to TA in any of four lab sessions.

a) Show your solution to TA and run it on Linux VM

b) Answer all questions related to the implementation details

Practice Time

1. Familiarize yourself with POSIX synchronization methods presented in section 7.3
   - POSIX Mutex Locks
   - POSIX Semaphores
   - POSIX Condition Variables
2. Read the section 7.1.3 The Dining-Philosophers Problem.

Assignment Question

1. The Dining-Philosophers Problem

Implement a solution to dining-philosopher problem using POSIX mutex locks. Create five philosophers, each identified by a number 0..4. Each philosopher will run as a separate thread. Philosophers alternate between thinking and eating. To simulate both activities, have each thread sleep

for a random period between one and three seconds. When a philosopher wishes to eat, she invokes the function

```
pickup_forks(int philosopher_number)
```

where philosopher number identifies the number of the philosopher wishing to eat. When a philosopher finishes eating, she invokes

```
return_forks(int philosopher_number)
```

Your implementation will require the use of POSIX condition variables.