**CSC3002F: Operating Systems Assignment 2**

**Social Distancing Shop Simulation**

Process Synchronization



**By:** Zukiswa Lobola (LBLZUK002)

**Lecturer:** Michelle Kuttel

**Date:**  22 June 2020

# Which threads run in the program?

# Which classes are shared amongst threads?

# Synchronization mechanisms added to designated classes

* Binary Semaphores – to protect critical sections of the code when a customer arrives to the store, enters the shop and leaves the shop. Allows mutual exclusive access to a resource. Only one thread should update the class counters at a time.
* Counting Semaphores - solves the producer/consumer problem. Allows up to N threads to continue. Allows threads to continue as long as more units are available. Considering that there is a restriction on the maximum amount of customers (threads) inside the shop at a given time, The producer-consumer problem exists because everytime there a customer arrives at the shop and the personEntered() method is invoked, more customers are inside the shop (representing the producers). As the customers leave, the personLeft() method is invoked

# How did you ensure liveness in the code?

# How did you protect against deadlock? Was this necessary?