**README** for Project 4 – **Event Driven Simulation** - CS-2303 A’17

By: Surya Vadivazhagu and Daniel McDonough at WPI

E-Mail Contact: [svadivazhagu@wpi.edu](mailto:svadivazhagu@wpi.edu) & [dmcdonough@wpi.edu](mailto:dmcdonough@wpi.edu)

**ABOUT the Program:**

This program creates an event-driven simulation of customers arriving at a bank, forming a queue with other customers in front of a user-inputted number of tellers. When a person is at the head of a line for a teller, the teller provides service to them for a random amount of time, and once they are done, the person leaves the bank (the customer is deleted).

**RUNNING the Program:**

In order to run this program, one must first run the *make* command in Terminal within the folder of the program. Note that *make-all* will also generate the Doxygen documentation for this program. Once running a make command, run

**HOW it Works:**

Customers and Tellers are represented as a child-class of the Event class- that way, the Event queue is comprised of either Customers or Tellers, which are just events. For the second simulation with the use of a per-teller queue system, each teller has their own teller’s queue of customers, and new customers are added to a teller’s queue as they join a teller’s queue.

**WHICH is Better?**

A common queue is more efficient than a per-teller system as one can guarantee that as long as there are customers in the bank, the common queue will manage appropriation of customers to tellers fastest, instead of leaving the job of deciding which line to join into the hands of the customers. A common queue removes the human element of deciding and thus allows the queue to proceed faster as a teller will always have a customer to service.

**EXTRA Credit Implementation:**

The eventQueue class has been implemented using the priority\_queue class from the Standard Template Library, where the priorities are the event times of the Event objects representing the customers and the tellers.

**ISSUES with writing the program:**

No major issues were encountered whilst writing the program

**SOURCES used**

No additional sources other than information on Linked Lists in C++, and the project assignment information were consulted.