**Mariah Avalos Methodology and Design Assignment 2**

**Introduction**

***General Overview***

This assignment tackles the issues of concurrency and synchronization in a simulation similar to that of the Dining Philosopher's Problem (Dijkstra, 1971). There are several components to solving the problem; where one customer can be ringing up their order at a given time, another customer can be being served (fill or partial fill of an order), standing in line, or in the line to checkout. There are three servers, all of whom must be locked onto one customer at a time. After all, in a logical sense it would be impossible for a server to have access to the cash register and food preparation with equal attention.

***Language***

The solutions in this project and their implementations are completed in Java using the Semaphore class for control of concurrency.

***How To Run***

Navigate into the source folder provided via Blackboard. Inside will be the class and java files for the project, an output sample, and this documentation guide. Simply navigate to the source folder in the CLI and run javac Burrito.java and java Burrito to compile and run the program respectively.

***Expected Outcomes***

This program was designed with the expectation that the customers in line who had the smallest order would be filled first, regardless of their original position in line. It is also expected that the three servers are only able to do one task at a time, and are not switching tasks. The customers should be taking their proper places (in line, at the register, etc), depending on what stage of the burrito order they are in. Ultimately this program should be able to handle large numbers of customers without any failures.

**Methodology**

***Implementation Overview***

***Problems***

***Approaches***

**Design**

***Scope/Overview***

***Data Design***

***Architectural Design***

***Class and Object Design***

***Interface Design***

***Test Provisions***

**Citations**

Dijkstra, E.W.: Hierarchical ordering of sequential processes. Acta Inf. 1 (1971) 115–138