**CIS 640**

**Homework 4**

**White Box Testing**

For this homework, you will be testing a simple vending machine application. A state diagram of the machine can be found below. Main is the controller for this program, StockItem is a class to represent an item in the vending machine, and VendingMachine contains the majority of the functionality of the machine itself. The vending machine can be loaded using a text file. The file is formed with 1 item per line. Each line is formatted as **item\_name, cost, quantity**. A sample file is included, but you should not limit your testing to using only this file! You are not required to draw the control flow graph for this project; however, you should utilize the strategies you learned doing control flow and data flow testing.

For the assignment, you are to write both unit tests and integration tests with Junit5 or NUnit3.9+ to achieve as close to 100% branch and statement coverage as possible. Coverage can be measured using built in features of your IDE of choice or you may download external tools (please let us know what tools you use). You should have a **minimum of 15 unit tests** and **8 integration tests**. This won’t necessarily obtain the desired coverage, this is just a lower bound. Your unit test cases and integration test cases should be in separate files and be named clearly to indicate what type of tests the files contain (individual tests should also be named to reflect this). You should have a minimum of 5 test cases that utilize test decorators in your unit test framework that go beyond a normal unit test, for example, using parametrized tests. You should also have tests that test for proper program failure. Points will be awarded based on the coverage you achieve and the quality of your tests.

You should be turning in a zip file that contains all Java files you created that contain your tests, a document (this may be some screen shots) that indicates your coverage, and a document that lists your tests with a short summary, if that test passed, and if it failed (there are some bugs in the program), explain the bug.

