**Requirements and Use Cases for All Aspects of out Implementation**

In order to complete the module, and GUI successfully, we created requirements that if met, would ensure the project following the spec of the course. After creating the requirements and molding our project to them, we ran some use cases to ensure the consistency between our requirements and implementation. All use cases used test that the requirements have been made, therefore the requirements demonstrate what our project has achieved.

**Requirements and Use Cases for the MSM Module**

Requirements:

1. Invoke the module, as a standalone executable, with the input trades file in csv format, parameters file within the same directory, outputting a correct output trades file in csv format and a log file containing information about the input window size, threshold size, time taken for module to run and the number of trades made.

Use Cases:

1. In the directory of the executable module, include a valid small csv trades file, and a parameters file. Run the module by clicking on it. Check that a log file has been created, check that the parameters mentioned in the log file are the same as the parameters provided in the parameters file, check the time taken to run the module, and check the number of trades made. Next open the created csv new trades file, check that the number of trades in this file is the same as the number of trades conducted in the log file. Finally manually calculate the momentum strategy using the specified parameters on the input trades csv file, compare the manual results with the executable module results to ensure correctness.
2. In the directory of the executable module, include only a valid parameters file; leave the required input csv trades file missing. Execute the module and ensure that a new trades csv file has not been created. Check that a log file has been created, and within it an appropriate message detailing the missing input trades exists.
3. In the directory of the executable module, include only an input trades csv file, leaving out the parameters file. Execture the module and ensure that a new trades csv file has not been created. Check that a log file has been created, and within it an appropriate message detailing the missing parameters exists.

**Requirements and Use Cases for the GUI running the MSM Module**

Requirements:

1. The GUI should load a selected msm module from a directory
2. The GUI should load a selected input csv trades file from a directory
3. The GUI will allow users to enter the window size
4. The GUI will allow users to enter threshold value
5. The GUI will allow users to enter output file name
6. The GUI will invoke the msm module, using user entered parameters, to output a trades file having the user specificed name, a graph visually demonstrating the new trades file and a log file containing information about the input window size, threshold size, time taken for module to run and the number of trades made.
7. The GUI should be aesthetically pleasing, and easy to use for the average user.
8. The GUI should be able to load and run another group’s msm module.

Use Cases:

1. Modify the GUI to print out the module name, and directory of the loaded module. Run the GUI, selecting the desired module. Check that the name and directory output by the GUI is the correct name and directory location of the input module.
2. Modify the GUI to print out the input file name, and directory of the loaded file. Run the GUI, selecting the desired module. Check that the name and directory output by the GUI is the correct name and directory location of the input csv file.
3. Modify the GUI to print out the user entered; window size, threshold value and output file name. Run the GUI, entering an integer value in the window size text box, a float value into the threshold text box, and a string value into the output file name text box. Ensure that the values printed by the GUI, correspond to the values entered.
4. Start the GUI, select our group’s GUI module, select a csv input trades file, and then input values for the window size, threshold and output file name. Run the GUI. Check that a log file has been created, check that the parameters mentioned in the log file are the same as the parameters entered into the GUI, check the time taken to run the module, and check the number of trades made. Next ensure that a new csv file has been created having the name of the GUI user entered output file name and check that the number of trades in this file is the same as the number of trades conducted in the log file. Manually calculate the momentum strategy using the specified parameters on the input trades csv file, compare the manual results with the executable module results to ensure correctness. Check that a graph corresponding to the data in the newly created file is generated as a result of running the application.
5. Start the module, and load the input trades csv file, and enter the window size, threshold value, output file name and run the application. Ensure that the GUI generates an error message about missing module.
6. Start the module, and load the msm module, and enter the window size, threshold value, and output file name and run the application. Ensure that the GUI generates an error message about missing input trades csv file and no new csv file has been created.
7. Start the module, and load the msm module, and enter the window size, threshold value, and output file name and run the application. Ensure that the GUI generates an error message about missing input trades csv file and no new csv file has been created.
8. Start the module, and load the msm module, load the input trade csv file and enter the window size, threshold value, and output file name and run the application. Ensure that the GUI generates an error message about missing parameters and no new csv file has been created.
9. Use a random person, giving them the location and name of msm file, location and name of input trades csv file, and information about what a window size, and threshold value is. Start the GUI, and allow them to follow through it, without any more help except those on the GUI. Ensure that the GUI includes information that allows the person to run the application correctly.
10. Start the GUI, load the msm module of another group, load the input trades csv file, and enter the window size, threshold value and output filename. Run the application and check the log file such that the execution of the module ran without error.