Test Report
CSC-260: Large-Scale Software Development
David Annex, Blair Hagen, Jacob Karaul, Matthew Silfin

View Tests

Self Loop: Testing that a self loop is created, shows properly, and loads and saves as intended.
Result: Saves proper location coordinates of vertex and knows that there is a self loop edge connected to it. Display is correctly a self loop.

Empty FSM: Save an empty machine as the correct file and the file will load into an empty FSM as well.
Result: Saves the file with no information and is able to load a new FSM with the empty FSM file.

Single Vertex: Tests if a single vertex can be made and displayed correctly and saved and loaded as well.
Result: Vertex is saved and loaded properly with information with no ghost edges or weights.

Vertex to Vertex Loop: Test if the vertices can display edges going back and forth between the two vertices while being readable by the user and save properly.
Result: Each side of the edge is for weights in opposite directions and displays as such. Saves as with the proper edges connected to each vertex.

One Vertex to Many: Test connecting one vertex to multiple other vertices.
Result: Saves and loads in the proper format and when loaded will display the correct format for the vertices and edges in the GUI.

Special Characters in Names: Test the save and load and subsequent display of when vertices and edges have names and weights with special characters.
Result: The file will save with all the proper information in the format it should but loading with some special characters causes issues with displaying all the saved vertices and edges.

One Vertex to One Vertex with Many Edges: Test functionality with multiple weights on the same edge.
Result: The file is saved and loaded properly but the GUI overlays the arrows showing the weight of edges which could be changed for a workaround.

One Vertex to One Vertex with Many Edges Workaround: Attempt at solving the issue of edges being over layed on top of eachother in the display.
Result: Saving the secondary edges with spaces behind it means that the edges are displayed correctly on the GUI but the saving method is changed.

Document Tests

Add Vertex and Has Vertex: Add a vertex and check that the document now has that specific vertex in it.
Result: Added vertex with name "A" and the FSM could tell that the specific vertex was added and know that it has that vertex.

Add and Remove Vertex: Add a vertex and remove the same vertex.
Result: Vertex "A" is added then removed. Knowing that add works, checking after that the FSM does not have any vertices in it after removing the vertex comes out to be true.

Remove and Has Vertex: Add multiple vertices and remove one then check for both of the original vertices added.
Result: Adding vertex "A" and "B" then removing "B" produces the expected has vertex output of having A still in the FSM but not B.

Add Duplicate Vertex: Add two vertices with the same name and make sure it does not make a duplicate vertex.
Result: Adding vertex "A" twice only adds one vertex with name A to the FSM, the number of vertices stays as one vertex, and the FSM is considered equivalent to an FSM that only had vertex "A" added to it once.

Add Edge: Add an edge with given weight between two vertices.
Result: Adding an edge produces the desired edge from one vertex to the other.

Remove Edge: Adds an edge between two vertices then removes that same edge.
Result: Added an edge, checked that it was added correctly, then removed the same edge correctly leaving no edges connecting the two vertices.

Number of Edges: Checks that the FSM properly tracks the amount of edges connected to a specific vertex.
Result: Created two vertices, checked that the number of edges was zero, added an edge and the number of edges properly went to one, the removed the edge and the number went back to zero.

Notes on Design

- The Document class allows for access to the list of vertices through a method since the observers/views need to be able to retrieve the list to display all the information. This is not good practice of information hiding but we decided since the views needed to access the list no matter what that this would not be a significant issue.