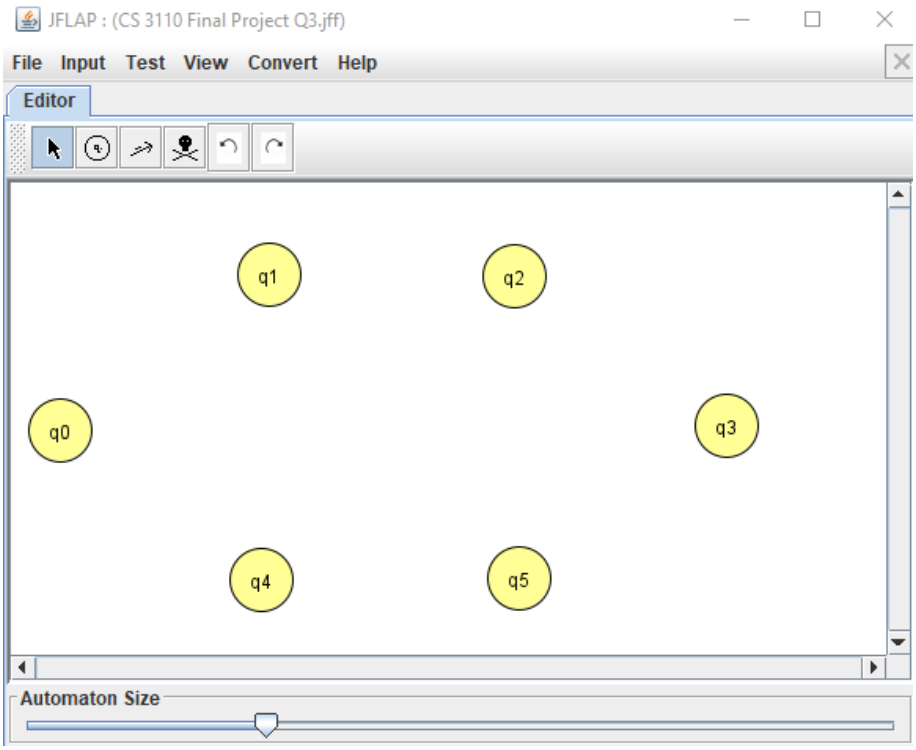
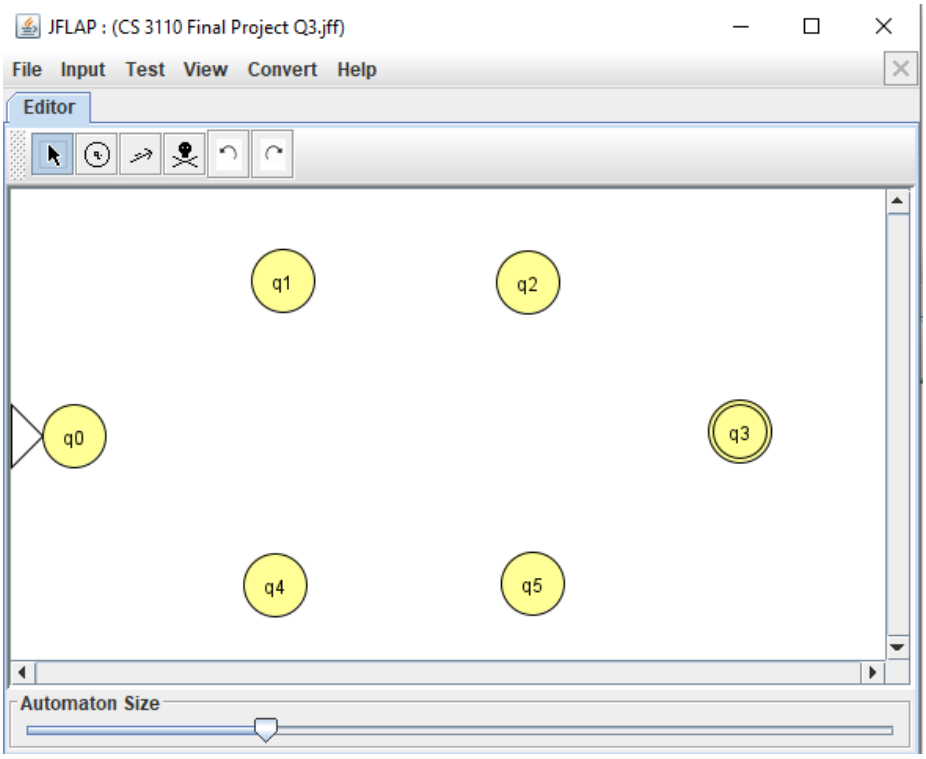
Screenshots of steps:

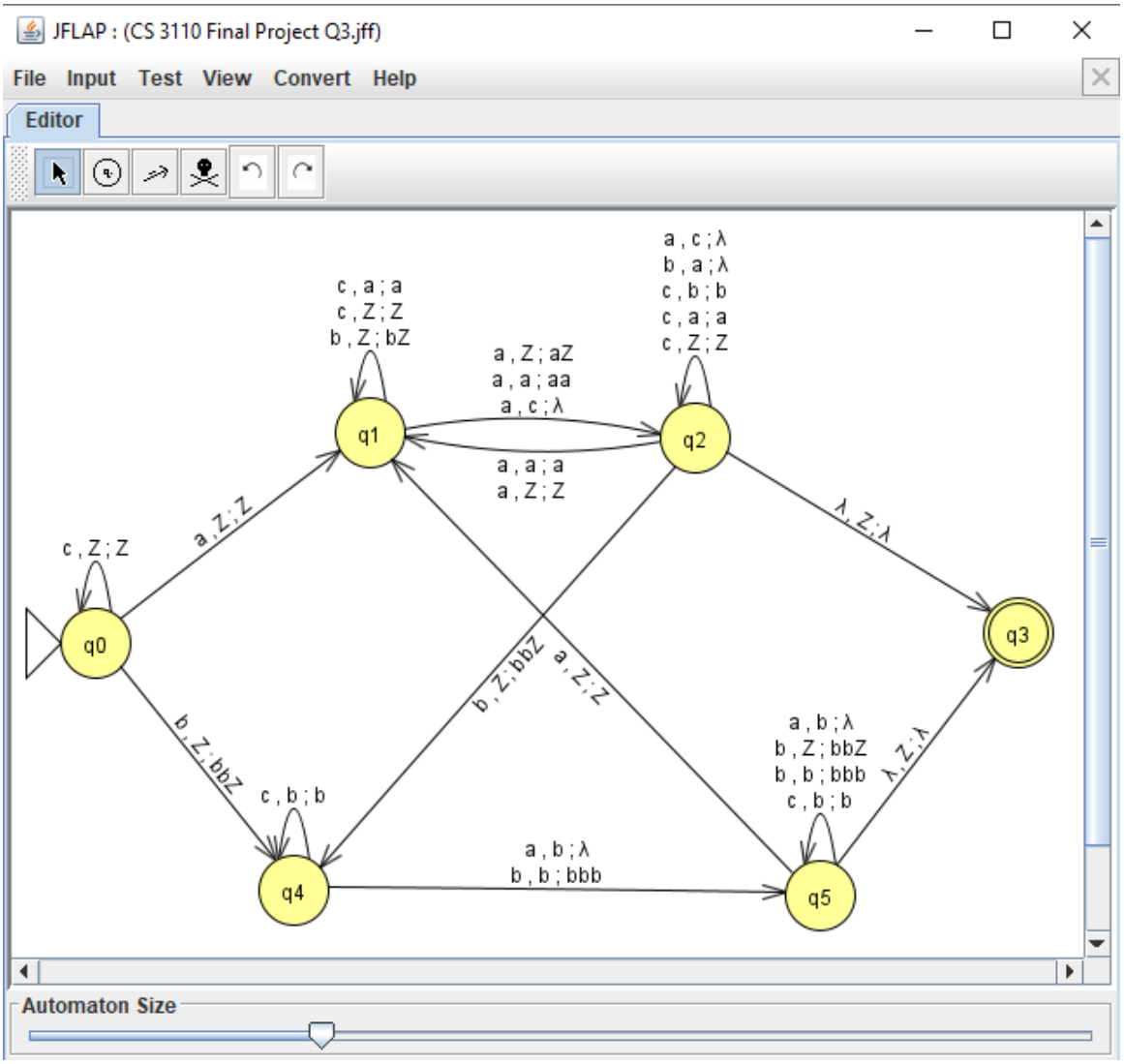
Step 1) Creating nodes



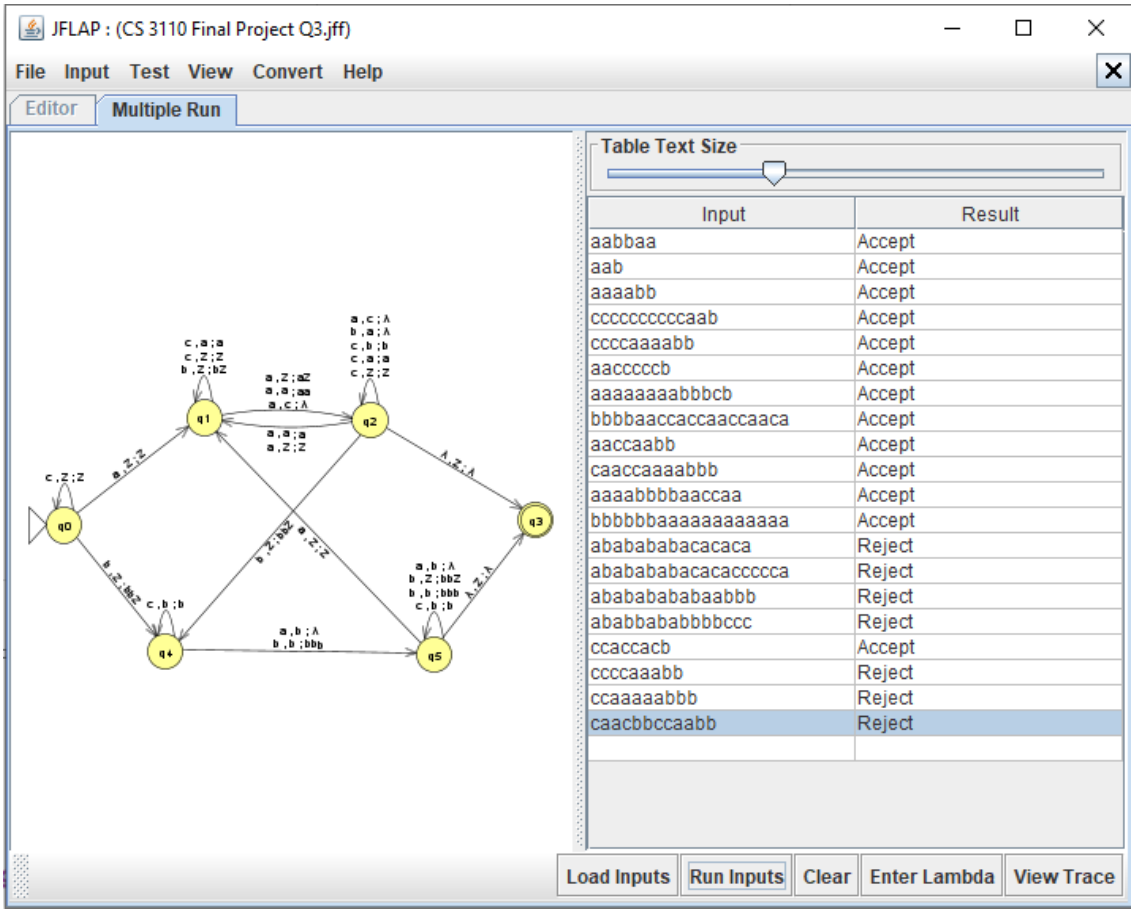
Step 2) Initializing initial and final states



Step 3) Inserting all transitions



Test Cases:



Note: Number of a's is twice the number of b's.

Explanation:

The pushdown automata can start with either 'a', 'b', or 'c'. Since we do not care about how many 'c's are in the string, we can just push and pop the end of the stack and loop back into the initial state. If it is an 'a', we push and pop the end of the stack as well and transition to q1. If it is a 'b', we pop the empty stack and push two 'b's and the empty stack, then transition to a separate side at q4. These two sides regulate their respective letters. The top regulates 'a' while the bottom regulates 'b'. With the tests that I took, it seems to be working for the most part. However, there is one case that I thought should have worked. It is the first rejection in the test cases. In this string there is 8 a's and 4 b's which should have been accepted.