Software Development Report
CSC 221: Programming 2: Fall 2023
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First Lab: FSM

Problem Summary
The program simulates a finite state machine from the following provided files: Transition.java, FSMDriver.java, simple, FSM.java, Transitions.java.

Implementation Requirement
- Modify FSM and Transitions to make the program work.
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System Design
1. Declare variables

2. Single transitions are defined in Transition.java

3. FSMDriver.java is the main class with a driver. It instantiates a finite state machine from the file "simple" and then tests and outputs if the strings "aab" and "aa" are finite states or not.

4. Simple is a text file that shows in the first line the alphabet of the machine, in the second line the total number of states, in the third line the initial state, the following lines until "-1" are the transitions (old state, new state, character), and the last line is a list of states.

5. The core of the FSM is in FSM.java, this class has the main methods to make the machine work as in the creation, file load, a test, and a class that checks if the current state is a final state.

6. Transitions.java contains a list of transitions that are defined through the field variables and the methods including Transitions(), addTransition, and a lookup method,

Execution Instructions
- Compile Transition.java, FSMDriver.java, FSM.java, Transitions.java.
- Have simple.txt in the same folder as the classes.

Acceptance Testing Report

Name	Description	Input	Expected Output	Actual Output	Pass?
Test1	aab	Simple file	Is a final state	`0` `aab is a final state`	yes
Test2	aa	Simple file	Is not a final state	`-1` `aa is not a final state`	yes

Time Spent
4h total for code, testing, and SDR

Outside Resources used
Reviewed code from last year for the sequential search and to refresh programming skills.

Security Report
No known security issues

Ethical Report
Ethical use: This can be used to help understand better how a FSM works since it's easier to understand in a program than theoretically.
Unethical Use: Can't think of any

Future Improvements
More testing and a larger alphabet

Lessons Learned
- Refreshed programming skils

Improvements of Work
Not applicable