Name, SID, Date .....

CSC 414 Final Exam Project

Benjamin Sanders, MS October 29, 2020

1 Instructions

You may work in groups of up to two or three students. Write all team names at the top of the assignment. Turn in your work to Blackboard before the deadline to receive credit.

If you would like to use an external library or external code for the purpose of completing this project, you will need to get it approved by Professor Sanders over email first. If an external library or external code is approved, you will need to list that in a references list in your turnin to Blackboard.

2 Assignment Description

Given a DFA in table form, you will write code to collapse the DFA into its minimized form, and output that collapsed DFA as a table. You will implement the algorithm presented in ICA5 to accomplish this.

Here, an S will denote a start state, and an F will denote an accept state. Further, X denotes the region of the DFA table that is in the corner. In reference to ICA5, the Example given in section 3 would be denoted in this fashion, in a text file called 'example_dfa.txt'. Your code will read this textfile in as input, and print out the following output to the user, either as a text file or as a command-line printout.

```
X a b
0S 1 0
1 1 2
2 3F 0
3F 3F 4F
4F 3F 5F
5F 3F 5F
```

		a	b
$\rightarrow$	0	1	0
	1	1	2
	2	$3F$	0
	$3F$	$3F$	$4F$
	$4F$	$3F$	$5F$
	$5F$	$3F$	$5F$

This would be an example of input to your code, above. Here is an example of correct output, below.

```
X a b
0S 1 0
1 1 2
2 3F 0
3F 3F 3F
```

		a	b
$\rightarrow$	0	1	0
	1	1	2
	2	$3F$	0
	$3F$	$3F$	$3F$

The original tables are provided on the right-hand side for reference, and are not input or output for your code. For ABET purposes, you are required to write this code in Java.

3 What to Turn In

Turn in one PDF or Word document on Blackboard, containing the following items.

1. A statement indicating whether your code functions as intended or not.
2. Screenshots of your application, demonstrating four working examples. You may use examples 4.1 to 4.4 in ICA5 if you would like.
3. All code, with references list if applicable, with all team member names pasted at the top.