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CS 461
Homework 1
nfa2dfa

The problem that I set out to solve was to convert a NFA to a DFA using a formatted input file and language of my choice. I was given three input files and three example output files. I needed to take the input files and make my program output the exact same thing that was in the output files.

To start, I had to choose a language to code my program. After thinking about the problem at hand, I realized that I would be dealing with a lot of arrays. So, I thought about which languages allow for easy array manipulation. Since I programed in JavaScript all summer and knew that it dealt with arrays well, I decided to go ahead use JavaScript.

To convert the NFA to DFA, I needed to store the data from the input file. I decided store everything in a JSON object. Once, I had everything stored, I looped through all the NFA states and formed the DFA states in a different JSON object. Finally, when I had everything stored in an orderly fashion, I looped through my DFA and printed out all the states in an organized way.

While the previous paragraph makes this project sound like a piece of cake, it wasn't. My biggest challenge and issue with this project was that I had forgotten how to convert a NFA to a DFA. So, I had to teach myself how everything converted step by step. Once I figured out how to do it, I struggled with implementing the recursive function to find all of the E-transitions. In order to find my error, I used print statements to figure out what was being passed around in my functions.

To make sure that my program was correct, I compared my output to the output files that were given to me. I also made my own NFA input file and converted it by hand. Then I ran it through my program and compared the two.