Program Assignment 1

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COSC 461 - Compilers

I was given text input of an NFA to stdin and my goal was to make that NFA convert to a DFA and output it to stdout. My first goal was to accomplish was to read in the stdin and get rid of any tabs and spaces and collect the variables I need, such as the initial state, final state, the transitions, and such. Next, I had to map out the nodes and what nodes they went to with which transition. I went with a dictionary with the values as another dictionary, I thought this would be the easiest to iterate through and keep everything organized. After that, I went to the book section that talked about converting an NFA to a DFA and saw I needed to make three functions, so what I did was create each one starting with E-closure when given a single state, then E-closure given a set of states, then move given a set of states and a transition. I knew if I didn't test each one before moving on to the next I would have trouble debugging later on, so I made sure with each input I was sure it was doing what the book described for each function. Then after making the functions, I used the book again to use the while loop pseudo-code to create the main algorithm. After that, it was pretty basic printing everything out in a readable format close to what was used in the output files that were given to us. I did run into one major problem when using my functions and that was what I was returning in each one, I would return a list of lists which definitely screwed me up. I was able to get the first 2 inputs working so I was hopeful that the third would work but sadly it didn't :(. The problem was that I was missing states when making states because it wouldn't add states to the list of states. So I had to go back through all my functions to make it only return one list with all the lists and that took me the longest time. After that, I was successful with the first 2 inputs like normal but I wasn’t completely sure yet till I got to the beast of input3, but I ran it and that was successful so after that, I knew I was done.