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CMPT 440
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Project Proposal

For my semester project, I would like to implement a DFA approach to a standard parking meter. The states of the DFA would be defined as monetary values, starting from \$0.00 and going to \$2.00 in 25 cent increments, as the price of parking will be priced within that range, and each 25 cents entered into the machine will buy the user 15 minutes of parking. The alphabet for the DFA will be defined as {\$0.25, \$0.50, \$1.00, *Enter*}, as the machine will accept quarters, half dollar coins, and dollar bills as input, along with the *Enter* button that the user can press to signify they are done paying. The minimum amount of money that needs to be inputted will be \$0.50, so if \$0.25 is entered the user is unable to select *Enter* and confirm the parking. The start state will be \$0.00, as no money has been entered into the automaton yet. The set of accept states will be defined as {\$0.50, \$0.75, \$1.00, ... \$2.00}, as anything greater or equal to \$0.50 qualifies as an accepted input.

While this idea is not the most exciting of project proposals, I think this would be a good project for me to do because it will help with my understanding of DFA's and how they work. Part of being a theoretical machine, I find it difficult to understand how we can practically apply DFA's to the real world. Through this example, however, I hope to have a deeper understanding, and hopefully be able to recognize more situations where DFA's could be applied.