

Matthew Kennedy  
CS 5800  
Project Proposal  
Due by 3/10/2021

### **Project Specification**

For this project, I will focus on expanding the last assignment, which was converting a given NFA or NFA- $\lambda$  into a DFA. The project will convert an NFA into a DFA, followed by a minimum state DFA. To do this, I will use the algorithm provided from the HMU text/handout to convert this DFA into an equivalent minimum DFA.

To do this, I plan to use the Python programming language, which is what I used for the first part of this in programming assignment 1. The algorithms defined in that assignment were created by me, and the code I plan to use in this project will also be created by me. I will be using PyQt to create any user interfaces involved in this project. I will additionally use built-in library functionality of Python to perform testing operations.

### **Project Goals**

I have several goals I would like to achieve with this program

The program will have the functionality to read in some NFA or NFA- $\lambda$ , and then proceed to convert the NFA into a DFA. An additional component will be an added user interface, to make interacting with the program significantly easier for the user, and much more clear/specific what the user intends to do. I will also be adding more flexible ways to import an NFA, such as having a file chooser, or creating multiple formats for arguments to be read by. Lastly, the program will also convert this DFA into a minimized DFA, then attempt to display this minimized DFA as a graphviz file, or as a graph directly in the program, if time constraints of the program allow.

### **Team Members**

For this project, I plan on doing this project by myself.

### **References**

Python - <https://www.python.org/>

PyQT - <https://wiki.python.org/moin/PyQt>

Python testing - <https://docs.python.org/3/library/unittest.html>