Graph Theory Project Research and Documentation

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1 Project Overview

Our project involves writing a program in Python to execute regular expressions on strings using an algorithm known as Thompson's construction. You will be required to demonstrate your program to the lecturer towards the end of the semester. Please note that all students are bound by the Quality Assurance Framework at GMIT which includes the Code of Student Conduct and the Policy on Plagiarism. The onus is on the student to ensure they do not, even inadvertently, break the rules. A clean and comprehensive git history is the best way to demonstrate that your submission is your own work. It is, however, expected that you draw on works that are not your own and you should systematically reference those works to enhance your submission.
(Lecturer Ian McLoughlin - Graph Theory Project Overview)

1.1 GitHub Repository

· *https://github.com/Moran98/graph-theory*

2 Thompsons Construction

The first theory we have learned within our module of Graph Theory was Thompsons Construction. This is the method of converting a regular expression into a NFA - Non-deterministic Finitite Automata.

Within the conversion of a NFA to DFA we see a lot of Epsilon transitions. An Epsilon Transition allows an automaton to change its state when the process is taking place.

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2.1 DFA vs NFA

3 References

1. https://learnonline.gmit.ie/course/view.php?id=1599
2. Lecturer Ian McLoughlin - https://github.com/ianmcloughlin
3. Max Goodridge - https://www.youtube.com/channel/UCAx4nmhI7S1RcPiaG-Uw0tg