DFA/NFA to Regex Project

Idea

- Create a website that allows users to either input a transition table or draw a state diagram that will convert it into a regular expression

Tech Stack

- Front end → react.js → maybe typescript
  CSS → tailwind

- Back end → rust

Front-end

- While front end is not main priority still want it to look presentable
- will have barebones structure using chakra UI / mui to maintain clean look

- Starts of with just inserting transition system in textarea

- will call backend on submit of diagram, potentially on change of every text area.

→ Create figma of actual design but here is rough sketch

Back-end

- main purpose will be a library to convert transition table to regular expression using the Gnfa Algorithm

- Act as route that front-end will call when submit is clicked

- Transition table schema
  From-State (String), Symbol (String), to_State Vec<String>

- Process the drawing that is created and parse into transition table → long term goal

- will also have to input
  - States (Vec<String>)
  - Initial (String)
  - Accepting (Vec <String>)
  - Alphabet (Vec <char>)
  - transitions (transition-table)

Timeline

- Finish backend by Dec 1st
- Finish Front-end by Winter break
- This will only be the transition table

* Parsing this data is technically building a new language → that's cool! just a very simple language.

DFA 2 Regex   About US ???

(How to use)

(Input state Diagram)

ex. fromS, Symbol, [toS...] *****
$q_0, 0, [q, q_2]$
$q_0, !, [q_1]$
where ! = epsilon transition

(Transition table)

Generate Regex

ex. $0^* \cup 1^* ...$

Footer with info