https://github.com/921-Beltechi-Lois/Formal-Languges-and-Compiler-Design/tree/main

Documentation lab 4 – Finite Automation

The FA class models a finite automaton and provides methods for working with an automaton specified in a file. The file should include information about states, alphabet, transitions, initial state, and final states (output states). The class maintains separate lists for states, alphabet, transitions, and final states.

Operations:

initialize(): Reads the file and extracts information about states, alphabet, final states, initial state, and transitions. Throws an exception if the file is not in the correct format.

printGivenList(listname: String, list: String[]): Prints a list in a specific format.

printStates(), printAlphabet(), printOutputStates(): Wrapper methods for printing the corresponding lists of states, alphabet, and final states.

printInitialState(): Displays the initial state.

printTransitions(): Prints the transitions of the finite automaton.

checkMatchingWord(word: String): Boolean: Checks if the given string is accepted by the FA. It verifies if, starting from the initial state, the automaton reaches a final state.

returnedMatchingSubWord(word: String): String: Returns the substring of the input word that is accepted by the FA.

Transition Class: The Transition class represents a transition in the finite automaton. It contains three fields: from (source state), to (destination state), and label (the input symbol). A Transition is represented in the form (from, to, label).