https://github.com/EduardLupu/flcd/tree/main/lab4-finite-automata

For FA.txt

This file represents a finite automaton with states A, B, C, and D, an alphabet {a, b, c, d}, initial state A, final state D, and transitions based on the input symbols.

The FiniteAutomata class represents a finite automaton. It can be used to define, initialize, and manipulate a finite automaton with a given set of states, alphabet, transitions, and other properties. The automaton can be deterministic or non-deterministic.

Class Members

Constants

private final String ELEM_SEPARATOR = ";": Separator used in the input file to separate elements.

Member Variables

private boolean isDeterministic: Indicates whether the finite automaton is deterministic.

private String initialState: The initial state of the finite automaton.

private List<String> states: List of states in the finite automaton.

private List<String> alphabet: List of symbols in the alphabet of the finite automaton.

private List<String> finalStates: List of final states in the finite automaton.

private final Map<Pair<String, String>, Set<String>> transitions: Map representing transitions between states based on input symbols.

Constructors

public FiniteAutomata(String filePath): Constructor that initializes the finite automaton by reading the information from the specified file path.

Methods

private void readFromFile(String filePath): Reads the finite automaton information from a file and initializes its properties.

public boolean checkIfDeterministic(): Checks if the finite automaton is deterministic.

public List<String> getStates(): Returns the list of states.

public String getInitialState(): Returns the initial state.

public List<String> getAlphabet(): Returns the alphabet.

public List<String> getFinalStates(): Returns the list of final states.

public Map<Pair<String, String>, Set<String>> getTransitions(): Returns the transitions between states.

public String writeTransitions(): Generates a string representation of the transitions.

public boolean checkSequence(String sequence): Checks if a given sequence is accepted by the finite automaton.