<https://github.com/917wiszniewskibianca/lftc>

The FA class represents a Finite Automaton. Finite Automata are mathematical models used to describe computation processes. This class specifically implements a Finite Automaton with the following characteristics:

class FA

def \_\_init\_\_(self, filename):

"""

Initializes a Finite Automaton by reading its configuration from a file.

Parameters:

- filename (str): The name of the file containing the FA configuration.

"""

# ... (Attributes are initialized)

def read\_file(self, filename):

"""

Reads the configuration of the Finite Automaton from a file and sets its attributes accordingly.

Parameters:

- filename (str): The name of the file containing the FA configuration.

"""

# ... (File reading and attribute setting logic)

def deterministic(self):

"""

Checks if the Finite Automaton is deterministic.

Returns:

- bool: True if deterministic, False otherwise.

"""

# ... (Deterministic check logic)

def check\_sequence(self, sequence):

"""

Checks if a given sequence is accepted by the Finite Automaton.

Parameters:

- sequence (list): The sequence of symbols to be checked.

Returns:

- bool: True if the sequence is accepted, False otherwise.

"""

# ... (Sequence acceptance check logic)

def \_\_repr\_\_(self):

"""

Returns a string representation of the Finite Automaton.

Returns:

- str: String representation of the FA, including its states, alphabet, transition functions, initial state, and final states.

"""

# ... (String representation logic)

Attributes

* states (list): The list of states in the Finite Automaton.
* alphabet (list): The list of symbols in the alphabet of the Finite Automaton.
* transition (dict): The transition function mapping pairs of current state and input symbol to the next state(s).
* initial\_state (str): The initial state of the Finite Automaton.
* final\_states (list): The list of final/accepting states in the Finite Automaton.

Methods

* read\_file(filename): Reads the FA configuration from the specified file and initializes the FA attributes.
* deterministic(): Checks if the Finite Automaton is deterministic (i.e., has a unique transition for each state-symbol pair).
* check\_sequence(sequence): Checks if a given sequence is accepted by the Finite Automaton.
* \_\_repr\_\_(): Returns a string representation of the Finite Automaton, including its states, alphabet, transition functions, initial state, and final states.