Project Automata

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Project: Design and Implementation of a Finite Automat (FA)

❖ Objective

The objective of this project is to design, implement, and test a Deterministic Finite Automat (DFA) using a programming language (Python, C, or C++), and to store relevant data in a database. The DFA should be able to recognize a specific pattern or language over a defined alphabet and determine whether input strings are accepted or rejected by the automat.

❖ Key Features:

1. **Design Finite Automata (FA):** create both NFA (Nondeterministic Finite Automaton) and DFA structures.
2. **Test Input Strings:** simulate input strings on the automaton to check acceptance or rejection.
3. **Check FA Type:** analyze a given FA to determine whether it is an NFA or DFA.
4. **Convert NFA to DFA:** Implement the conversion of a Nondeterministic FA to a Deterministic FA.
5. **Minimize DFA:** optimize the DFA by minimizing the number of states. (optional)

❖ Report and Slide Presenation

This porject requires both a written report and slide presentation. A detailed written report that explains the design, implementation, and evaluation of the finite automaton. The report should include: Project objectives and scope, Background on Finite Automata, System architecture and design approach, Implementation details, Testing and results, and Conclusion.