

Pushdown Automata

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Chomsky Models

Grammar Type	Grammar Accepted	Language Accepted	Automaton
TYPE-0	Unrestricted Grammar	Recursively Enumerable Language	Turing Machine
TYPE-1	Context Sensitive Grammar	Context Sensitive Language	Linear Bounded Automaton
TYPE-2	Context Free Grammar	Context Free Language	Pushdown Automata
TYPE-3	Regular Grammar	Regular Language	Finite State Automaton

Definition:

A Pushdown Automata (PDA) can be defined as :

Q : is the set of states

Σ : is the set of input symbols

Γ : is the set of pushdown symbols (which can be pushed and popped from stack)

q_0 : is the initial state

Z : is the initial pushdown symbol (which is initially present in stack)

F : is the set of final states

δ : is a transition function which maps $Q \times \{\Sigma \cup \epsilon\} \times \Gamma$ into $Q \times \Gamma^*$.

In a given state, PDA will read input symbol and stack symbol (top of the stack) and move to a new state and change the symbol of stack.

Components:

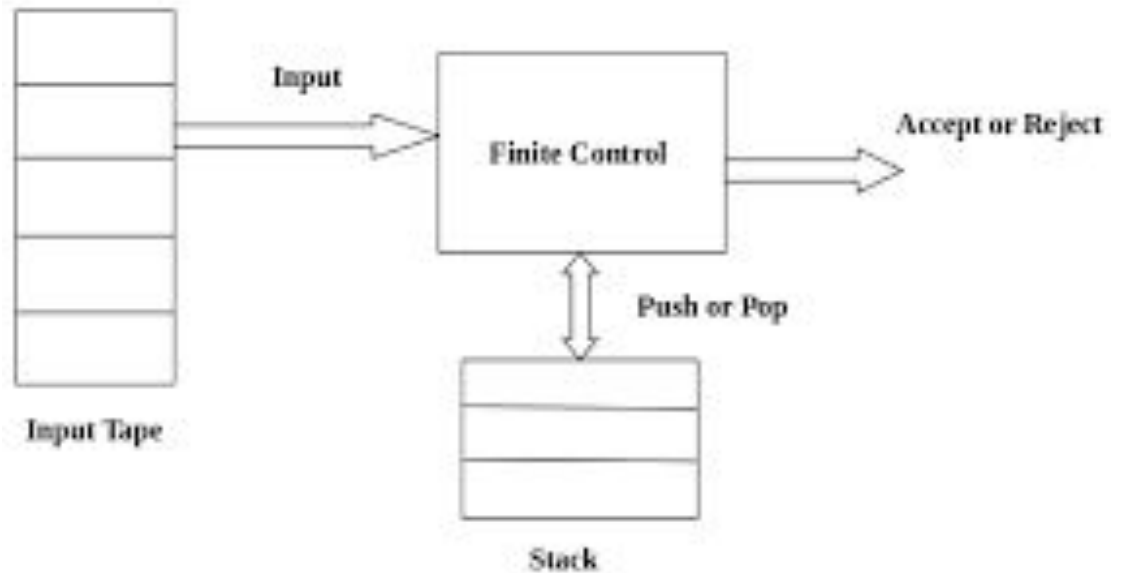


Fig: Pushdown Automata