

A Pushdown automata (PDA) works similar as DFA.

A DFA can remember a finite amount of information, but a PDA can remember an infinite amount of information.

A PDA can be formally described as a 7-tuple $(Q, \Sigma, S, \delta, q_0, I, F)$ –

1. Q : Finite number of states
2. Σ : Input alphabet
3. S : Stack
4. δ : Transition function: $Q \times (\Sigma \cup \{\epsilon\}) \times S \times Q \times S^*$
5. q_0 : Initial state ($q_0 \in Q$)
6. I : Initial stack top symbol ($I \in S$)
7. F : Final state

PDA = FSM + Stack

Where, FSM for finite state machine.

Components of PDA are,

1. Input tape
2. Control unit
3. Stack

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