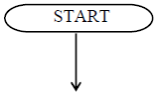
Pushdown Automata (PDA)

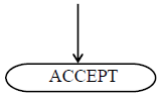
Input Tape:
Σ = {a,b,cd}, String: aacdbab, Length: 6

a	a	cd	b	a	b	Δ	Δ	Δ

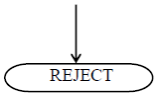
The START State:



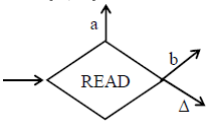
The ACCEPT State:



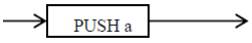
The REJECT State:



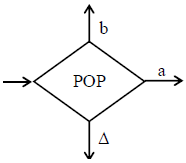
The READ State (Outgoing: Total alphabets+1):
Σ = {a,b}



The PUSH State:



The POP State (Outgoing: Total alphabets+1):
Σ = {a,b}



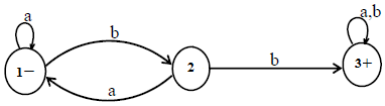
Note:

- START is connected to the initial state
- Final States are connected to ACCEPT through Δ
- Non-Final States are connected to REJECT through Δ

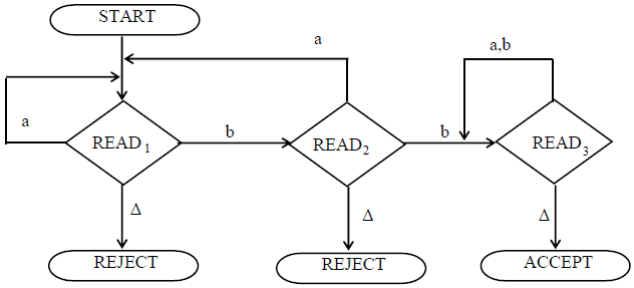
FA:

Σ = {a,b}

L = Containing bb



Using the new format:



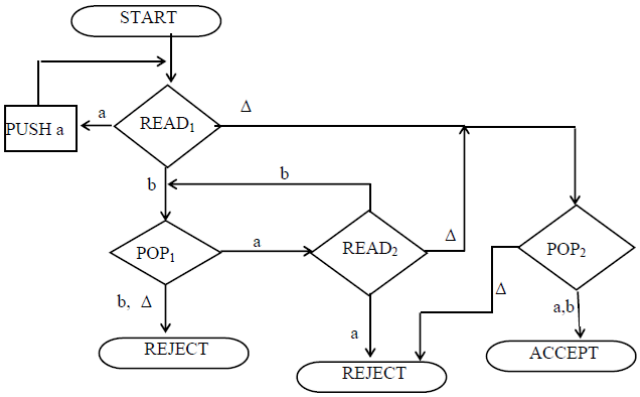
Tape: aaabbΔ

State	Tape	New State
START	aaabbΔ	READ1
READ1	**a**aabbΔ	READ1
READ1	**aa**abbΔ	READ1
READ1	**aaa**bbΔ	READ1
READ1	**aaab**bΔ	READ2
READ2	**aaabb**Δ	READ3
READ3	**aaabbΔ**	ACCEPT

Tape: aabΔ

State	Tape	New State
START	aabΔ	READ1
READ1	**a**abΔ	READ1
READ1	**aa**bΔ	READ1
READ1	**aab**Δ	READ2
READ2	**aabΔ**	REJECT

PDA:

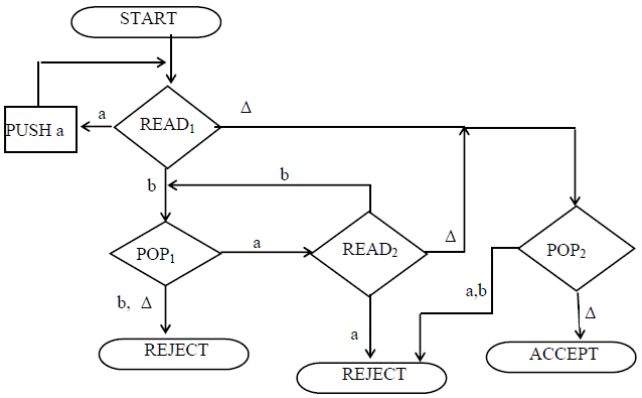


Tape: aaabbbΔ

State	Tape	Stack	New State
START	aaabbbΔ	Δ	READ1
READ1	**a**aabbbΔ	Push a into the stack: aΔ	READ1
READ1	**aa**abbbΔ	Push a into the stack: aaΔ	READ1
READ1	**aaa**bbbΔ	Push a into the stack: aaaΔ	READ1
READ1	**aaab**bbΔ	POP1 a: aaΔ	READ2
READ2	**aaabb**bΔ	POP1 a: aΔ	READ2

READ2	**aaabbb**Δ	POP1 a: Δ	READ2
READ2	**aaabbbΔ**	POP2 Δ: Empty Stack	REJECT

PDA:



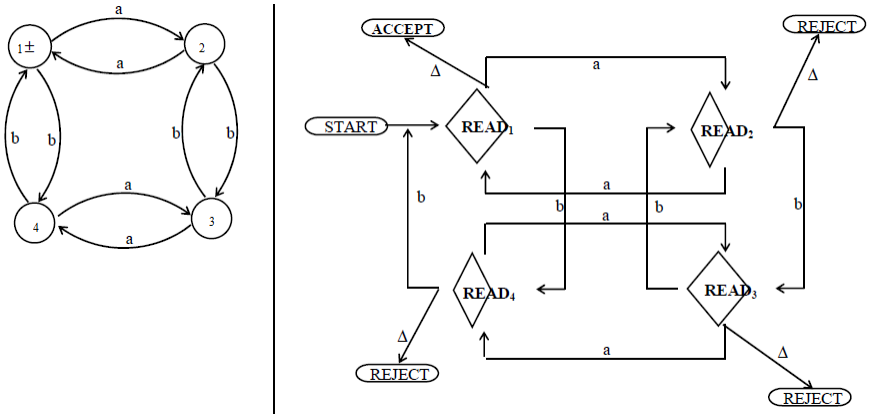
Tape: aaabbbΔ

State	Tape	Stack	New State
START	aaabbbΔ	Δ	READ1
READ1	**a**aabbbΔ	Push a into the stack: aΔ	READ1
READ1	**aa**abbbΔ	Push a into the stack: aaΔ	READ1
READ1	**aaa**bbbΔ	Push a into the stack: aaaΔ	READ1
READ1	**aaab**bbΔ	POP1 a: aaΔ	READ2
READ2	**aaabb**bΔ	POP1 a: aΔ	READ2
READ2	**aaabbb**Δ	POP1 a: Δ	READ2
READ2	**aaabbbΔ**	POP2 Δ: Empty Stack	ACCEPT

Tape: aabΔ

State	Tape	Stack	New State
START	aabΔ	Δ	READ1
READ1	**a**abΔ	Push a into the stack: aΔ	READ1
READ1	**aa**bΔ	Push a into the stack: aaΔ	READ1
READ1	**aab**Δ	POP1 a: aΔ	READ2
READ2	**aabΔ**	POP2 a: Δ	REJECT

FA:



Tape: aabbb Δ

State	Tape	New State
START	aabbbΔ	READ1
READ1	**a**abbbΔ	READ2
READ2	**aa**bbbΔ	READ1
READ1	**aab**bbΔ	READ4
READ4	**aabb**bΔ	READ1
READ1	**aabbb**Δ	READ4
READ4	**aabbbΔ**	REJECT