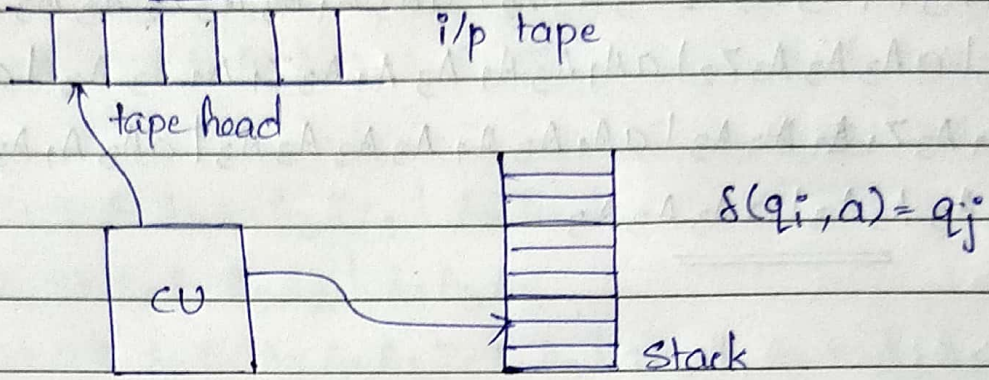
MODULE-4

Push Down Automata (PDA)



If it reaches final state ⇒ accepting string

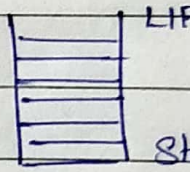
Tape head moves towards right

2-way PDA can move in both direct^{n}s, but during a particular transit^n it moves either towards left/right

Memory - Stack

Stack symbol → Γ

Initial stack symbol → Z_0



Notat^{n}s

(q_i, a) → pop a

(q_i, aa) → push a to TOS

↓ top of stack

Z_0 → default top of stack

(q_i, ε) → Neither push nor pop

$M = (Q, \Sigma, \Gamma, \delta, q_0, Z_0, F)$

$\delta : Q \times ((\Sigma \cup \{\varepsilon\}) \times \Gamma) \to Q \times \Gamma^*$

$L = \{a^n b^n \mid n \geq 0\}$

(a → i/p symbol)

$\delta(q_0, a, Z_0) = (q_0, @Z_0)$ (or X)

$\delta(q_0, a, @) = (q_0, @@)$ (or XX)

$\delta(q_0, b, @) = (q_0, \varepsilon)$ (or X) → pop

$\delta(q_1, \varepsilon, Z_0) = (q_2, \varepsilon)$

$M = (\{q_0, q_1, q_2\}, \{a, b\}, \{a\}, \delta, q_0, Z_0, \{q_2\})$

$M = (\{q_0, q_1, q_2\}, \{a, b\}, \{x\}, \delta, q_0, Z_0, \{q_2\})$

URBAN EDGE 1/11/19