String Matching with Finite Automation

A finite automata M is a collection of 5-tuples.

$M = (Q, q_0, A, \Sigma, \delta)$ where :

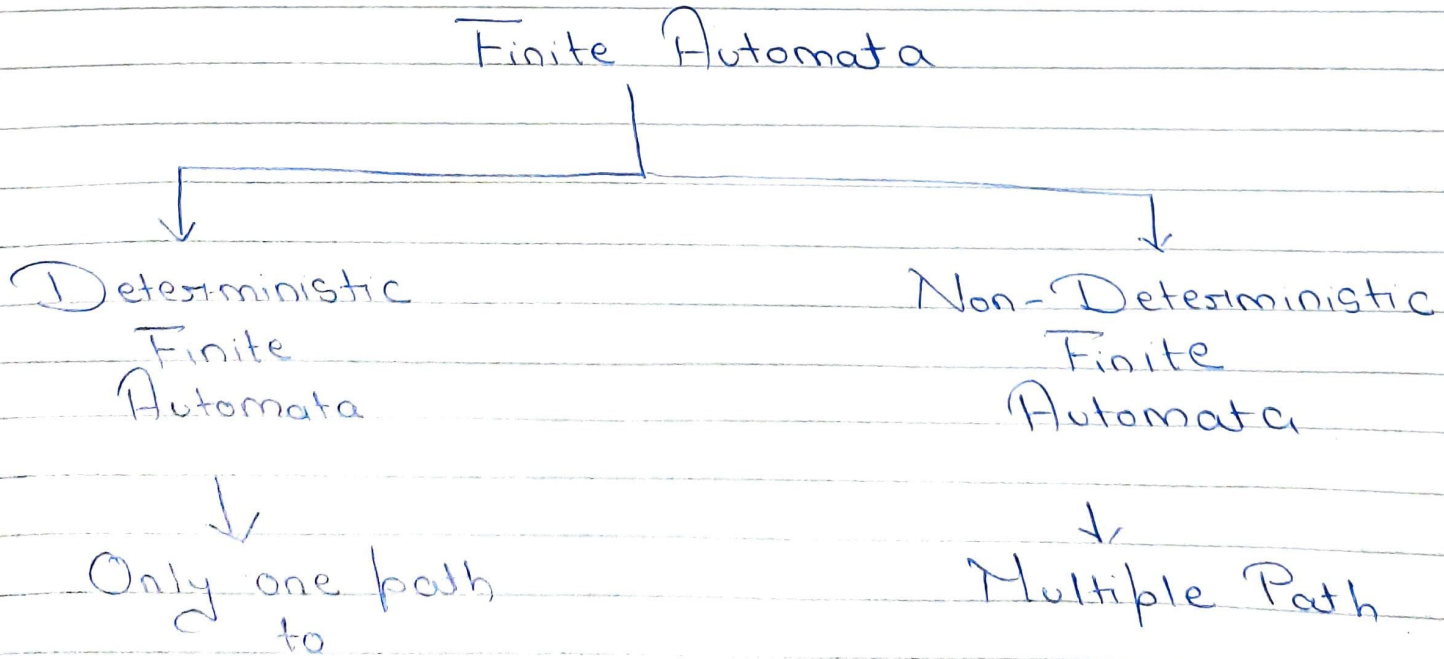
(i) Q = set of states (S_i)

(ii) q_0 = start state (S_0)

(iii) A = set of accepting states.

(iv) Σ = Input alphabets

(v) δ = Transition function $Q \times \Sigma \rightarrow Q$.

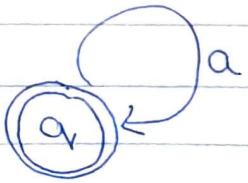


Examples :-

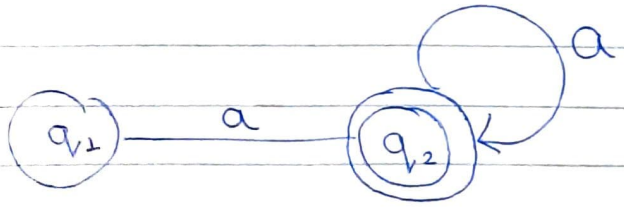
(1) Convert Regular Expression 'a' into FA.

(2) Convert Regular Expression 'ab' into FA.

(3) RE = a^*

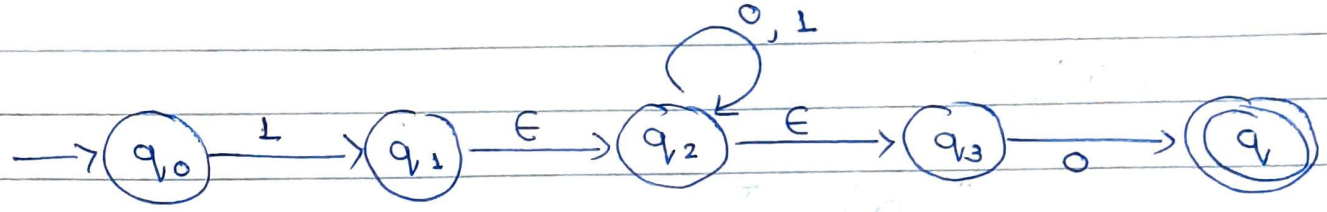


(4) RE = a^+

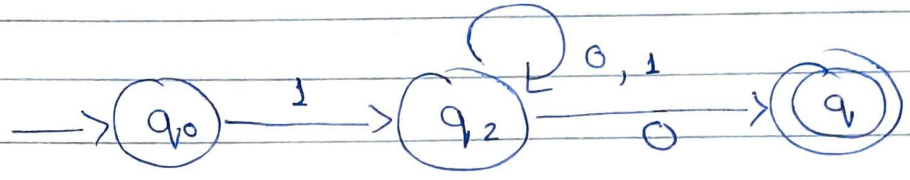


(5) RE = $(a+b)^*$

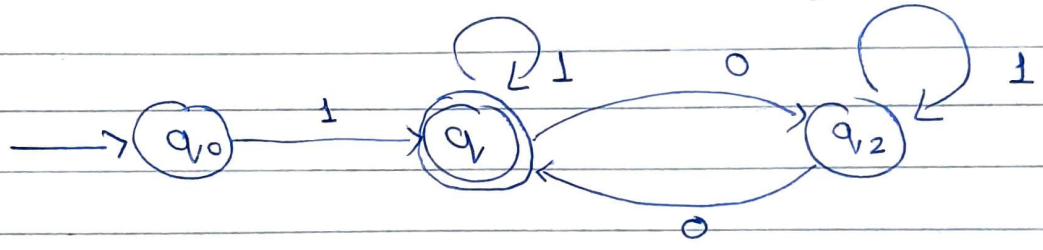
(6) RE = $1*(0+1)*0$



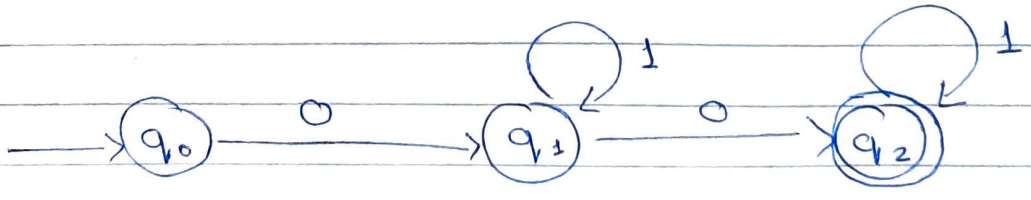
(7)



(7) RE → $1(1*01*01*)*$



(8) RE → $01*01*$



(9) RE → $0*110*$

(10) RE → 010

(11) RE → $010*$

(12) RE → $0*1$

(13) Even no. of a's

(14) Odd no. of a's

(15) $(ab)^*$

(16) aa^*b^+

(17) $a^+b^+(ab)^*$