Q-1

Conversion from NFA to DFA.

Suppose there is an NFA $N < Q, \Sigma, q_0, \delta, F >$ which recognizes a language L.

Step-1: Initially $Q' = \phi$.

Step-2: Add q_0 to Q'

Step-3: For each state in Q', find the possible set of states for each input symbol using transition function of NFA.

if this set of states is not in Q', add it to Q'.

Step-4: Final state of DFA will be all states which contain F (final state of NFA)

DFA:

1. A finite automata is said to be deterministic if we have only one transition on the same input symbol from some state.

2. A DFA is a set of five tuples and represented as:

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

Q = A set of non-empty finite states.

Σ = A set of non-empty finite input symbols

q_0 = intial state of DFA

F = A non-empty finite set of final state.

NFA

i) A finite automata is said to be non-deterministic, if we have more than one possible transition on the same input symbol form some state.

Q. A non-deterministic finite automata is set of five tuples and represent as; $M = (Q, \Sigma, \delta, q_0, F)$