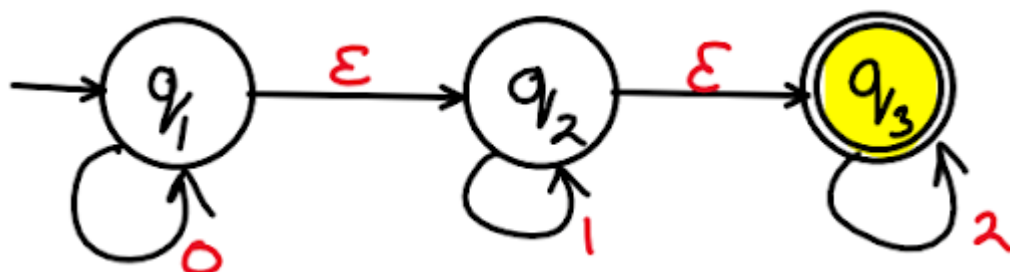


RGPV PYQs

NFA with ϵ

Solution.

Step 01: Find ϵ -closure of (q_1) , (q_2) and (q_3) .

- ϵ -closure of $(q_1) = \{q_1, q_2, q_3\}$
- ϵ -closure of $(q_2) = \{q_2, q_3\}$
- ϵ -closure of $(q_3) = \{q_3\}$

For each state find the next state for each input.

See the table below,

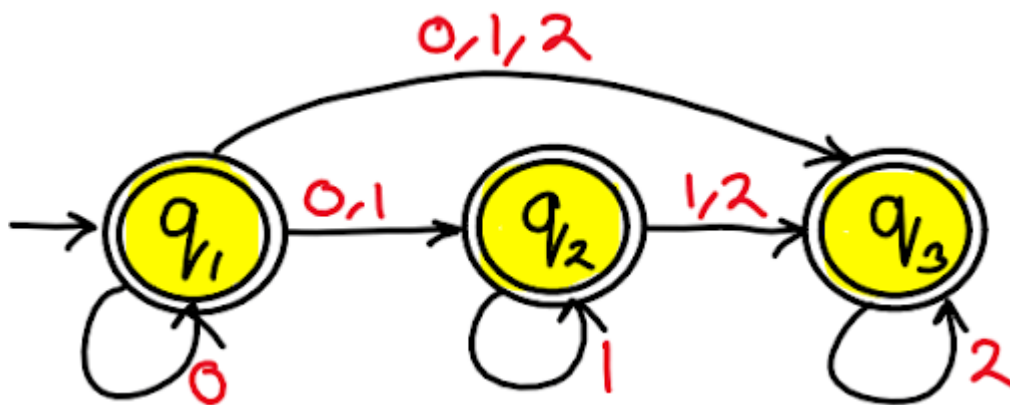
State	0	1	2
$\rightarrow q_1$	$\{q_1, q_2, q_3\}$	$\{q_2, q_3\}$	$\{q_3\}$
q_2	\varnothing	$\{q_2, q_3\}$	$\{q_3\}$
q_3	\varnothing	\varnothing	$\{q_3\}$

From the question diagram, it is clear that only with ϵ input q_1 and q_2 state can reach to the

final state.

So, now without ϵ input, q_1 and q_2 is also treated as final states.

As shown in diagram below.



NFA without ϵ

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43. Minimization of DFA
44. Construct NFA without ϵ
45. CNF from $S \rightarrow aAD; A \rightarrow aB/bAB; B \rightarrow b, D \rightarrow d$.
46. NDFA accepting two consecutive a's or two consecutive b's.
47. Regular expression to CFG
48. Regular expression to Regular grammar
49. Grammar is ambiguous. $S \rightarrow aSbS|bSaS|\epsilon$
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