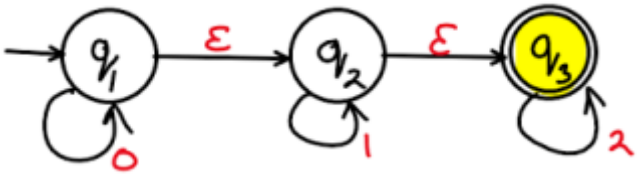
Construct NFA without ∈ transitions



NFA with ∈

Sol.

Step 01: Find ∈-closure of (q1), (q2) and (q3).

∈-closure of (q1) = {q1, q2, q3}

∈-closure of (q2) = {q2, q3}

∈-closure of (q3) = {q3}

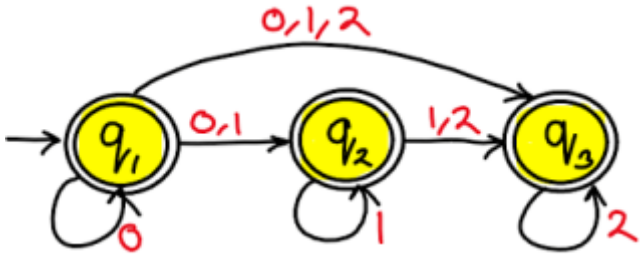
For each state find the next state for each input. See the table below,

State	0	1	2
->q1	{q1,q2,q3}	{q2,q3}	{q3}
q2	φ	{q2,q3}	{q3}
q3	φ	φ	{q3}

From the question diagram, it is clear that only with ∈ input q1 and q2 state can reach to the final state.

So, now without ∈ input, q1 and q2 is also treated as final states.

As shown in diagram below.



NFA without ∈

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