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$$= \underline{\underline{\{P_1, P_2, P_3\}}}$$



BP



⇒ Convert the following NFA to DFA :-



A lot of people are here. The people list shows them all.

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B092 Shivam Jani SVNIT



B113 SHIVAKSH KADGE ...



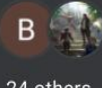
B096 SNEHARSH BELSA...



B108 OZA DHAIRYA MA...



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24 others



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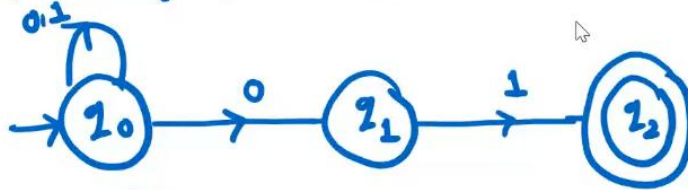


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$$\begin{aligned} \delta((2,2),1) &= \delta(2,1) \cup \delta(2,0) \\ &= [2,] \cup [2,2,] = [2,2,] \end{aligned}$$

→ Convert the following NFA to DFA :-



$$Q = 2^3 = 8 = \{ \emptyset, q_0, q_1, q_2, q_0q_1, q_0q_2, q_1q_2, q_0q_1q_2 \}$$



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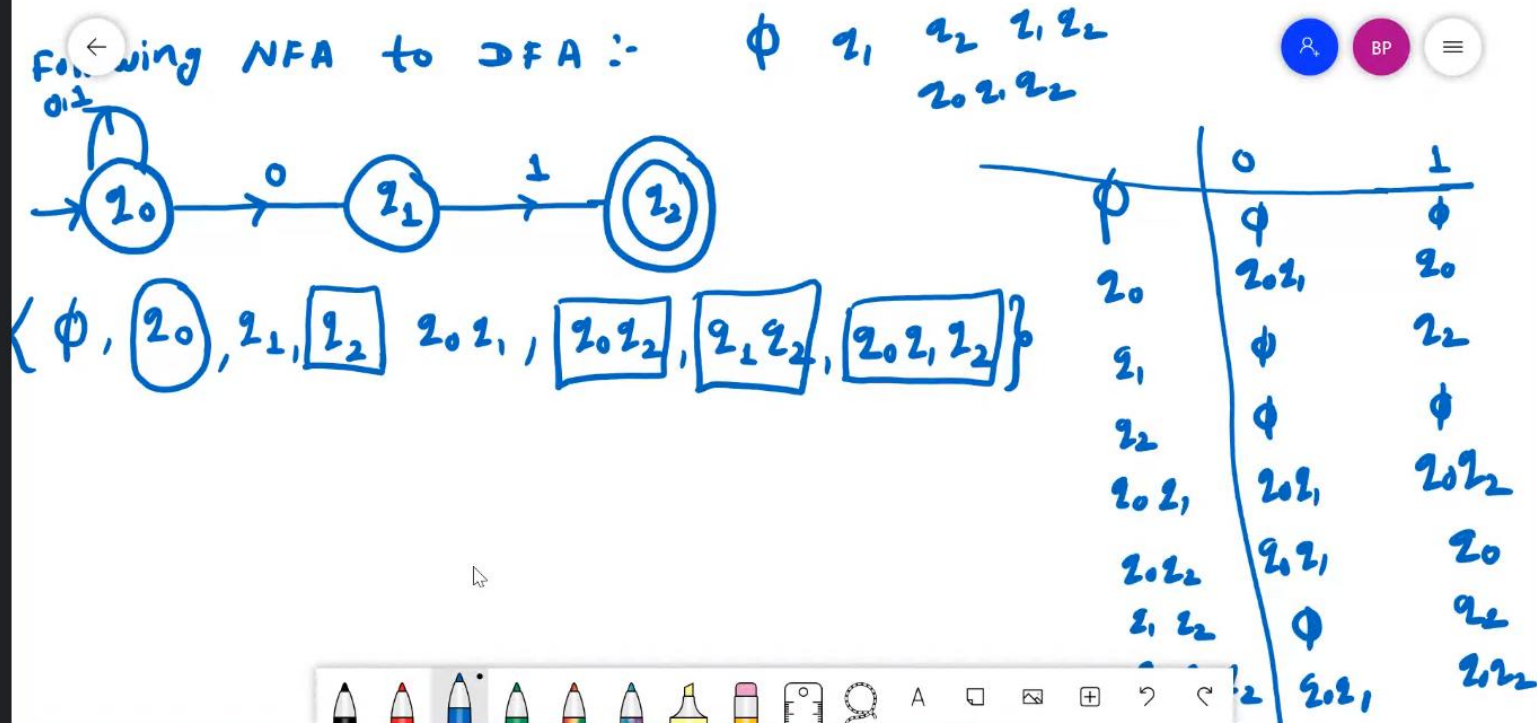
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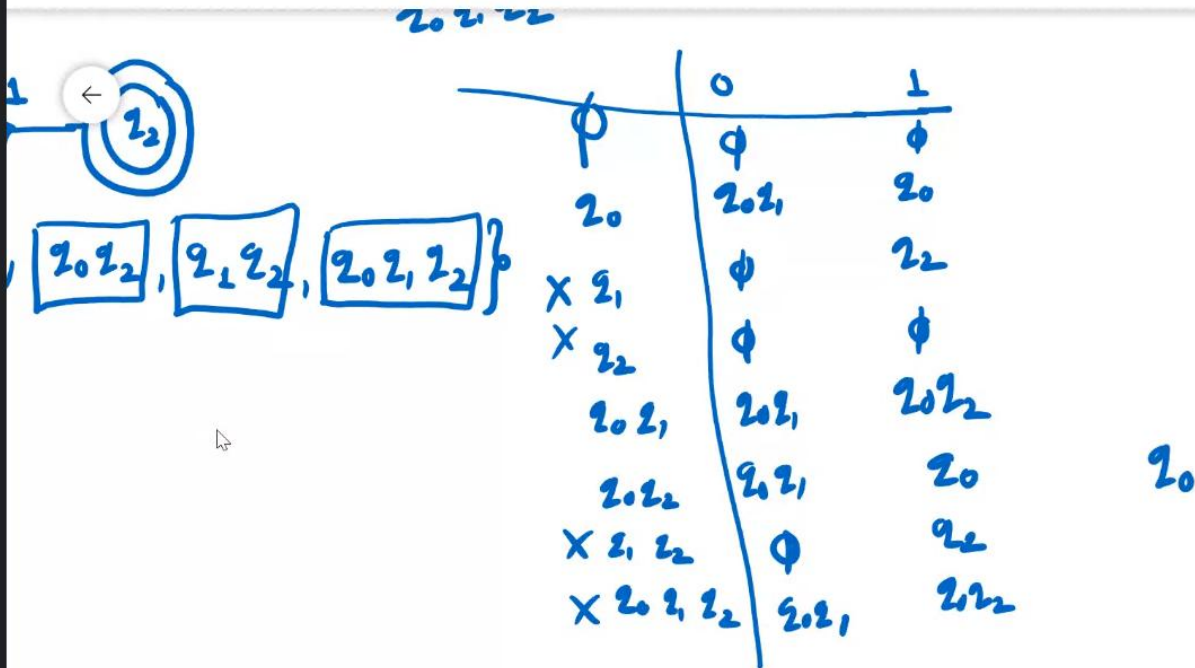


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$$Q = 2^3 = 8 = \{ \emptyset, (20), 21, [22], 2021, [2022], [2122], [2021, 22] \}$$

→ To get this simplified DFA constructs the states of DFA as follow:-

- i> start with initial state. Do not add all subsets of states as there may be unnecessary states.
- ii> After finding the transition on this initial



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Follow :-

- i> start with initial state. Do not add all subsets of states as there may be unnecessary states.
- ii> After Finding the transition on this initial state, include only the resultant states in to the list. For Ex:- If $\delta(q_0, a) = \{q_0, q_1\}$ then add this q_0 , as a new state and find transition from this state on input symbol.

iii>



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Subsets of states as there may be unnecessary states.

ii> After Finding the transition on this initial state, include only the resultant states in to the list. For Ex:- If $\delta(q_0, a) = \{q_2\}$ then add this q_2 as a new state and find transition from this state on input symbol.

iii> Declare the state as final state if it has at least one final state state of NFA.



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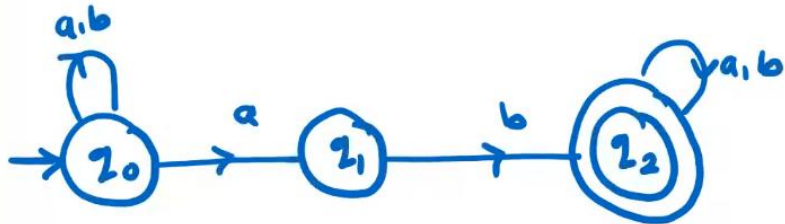
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iii) Declare the state as final state if it has at least one final state state of NFA.

Convert following NFA to DFA :



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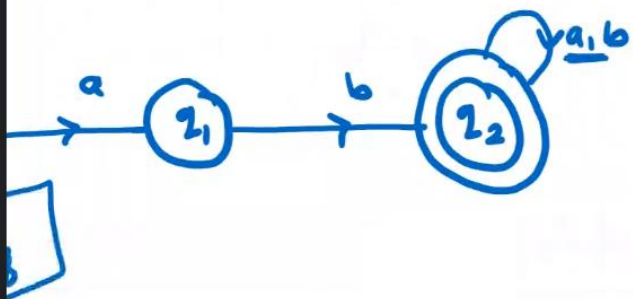


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Declare the state as Final state if it has
← least one Final state state of NFA.

Convert following NFA to DFA :



δ	a	b
q_0	$q_0 q_1$	q_0
q_1	\emptyset	q_2
q_2	q_2	q_2

δ	a	b
q_0, q_1	q_0, q_1	q_0, q_2
q_0, q_2	q_0, q_1, q_2	q_0, q_2
q_1, q_2	q_2	q_2



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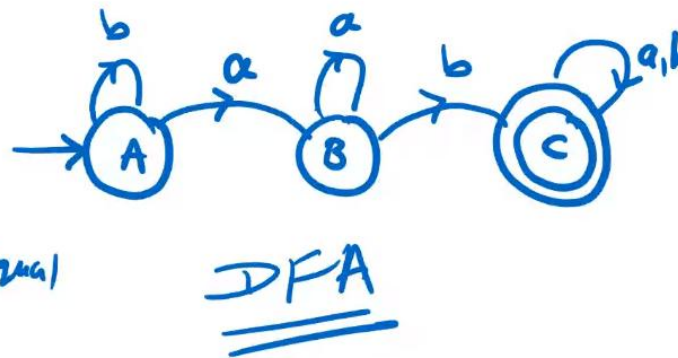
state of NFA.

DFA :

δ	a	b
q_0	q_0, q_1	q_0
q_1	\emptyset	q_2
q_2	q_2	q_2

Handwritten notes on the table:

- q_0 is the start state (indicated by an arrow).
- q_2 is the final state (indicated by a double circle).
- Transitions from q_0 on 'a' and 'b' are labeled q_0, q_1 and q_0 respectively.
- Transitions from q_1 on 'a' and 'b' are labeled \emptyset and q_2 respectively.
- Transitions from q_2 on 'a' and 'b' are labeled q_2 and q_2 respectively.
- Handwritten notes indicate that q_0, q_1, q_2 are the states of the DFA.



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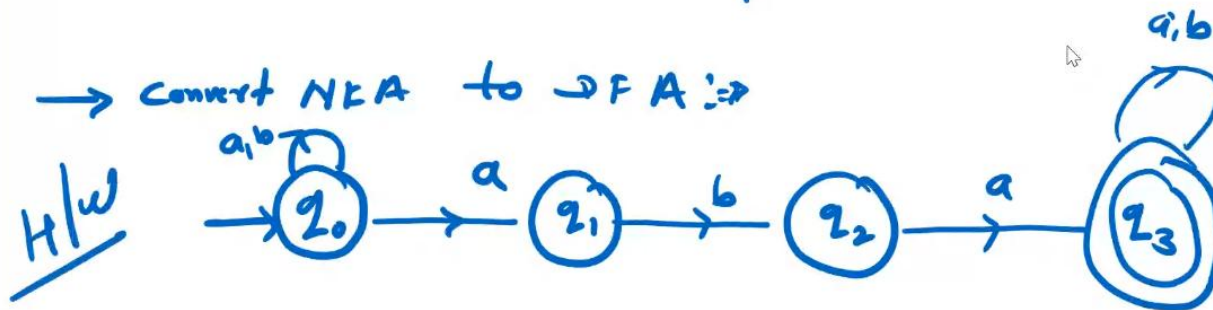
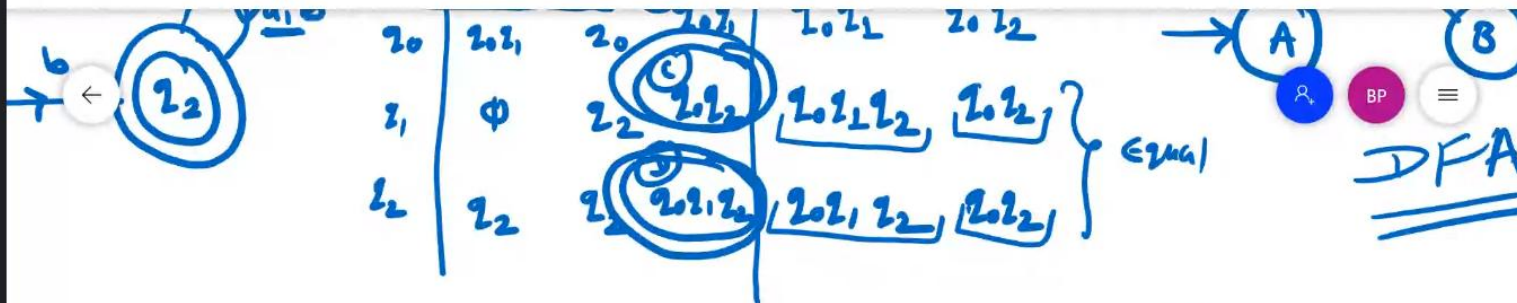
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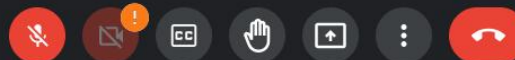
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\Rightarrow NFA with Epsilon (ϵ) Transitions
 $M = (Q, \Sigma, \delta, q_0, F)$ $\delta = Q \times \Sigma \cup \{\epsilon\} \rightarrow 2^Q$



System tray area showing Windows taskbar icons, system status (ENG IN), and time (9:11 AM 2/4/2022).

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Zoom meeting controls: Mute, Video, Chat, Hand, Share, More, End Call.

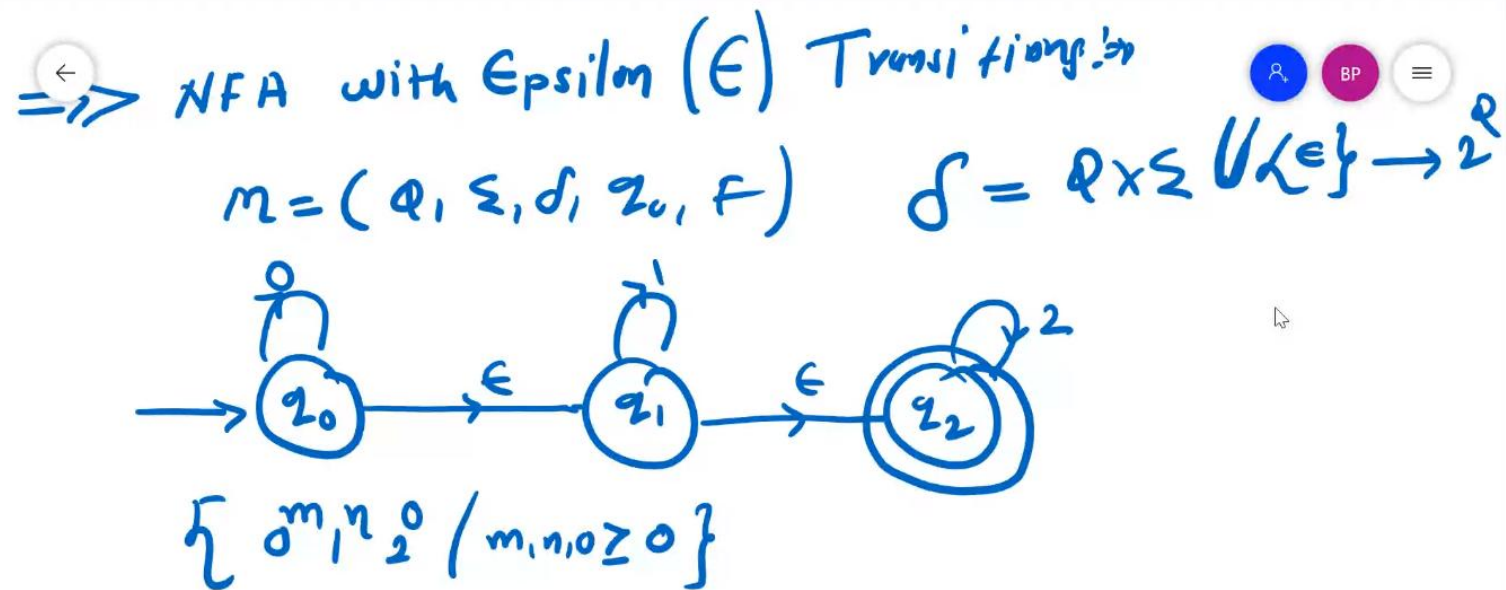
Participant list showing avatars and names of attendees in the Zoom session.

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- B123 SHISHIR SVNIT
- B096 SNEHARSH BELSA...
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Zoom status bar: Information icon, 42 participants, Chat icon, and Screen Share icon.

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$\{0^m 1^n 2^0 / m, n, 0 \geq 0\}$

Construct NFA For language $L = \{0^k / k \text{ multiple of } 2 \text{ or } 3\}$



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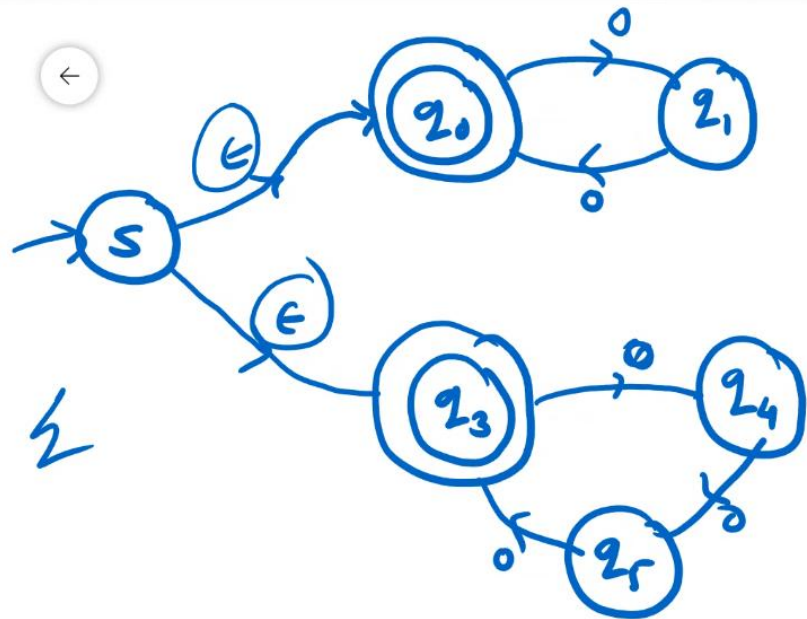
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ε-NFA to NFA
ε-NFA to DFA



Windows taskbar showing various application icons and system status icons (network, volume, battery).

Zoom meeting controls: mute/unmute, video on/off, chat, hand raise, screen share, and end call.

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Epsilon closure (ϵ -closure) :

The set of all the states which are at zero distance from the state Q is called as the ϵ -closure of Q .

or

The set of all the state which can be reach from the state Q along the ϵ -label transition path is called ϵ -closure of state Q .



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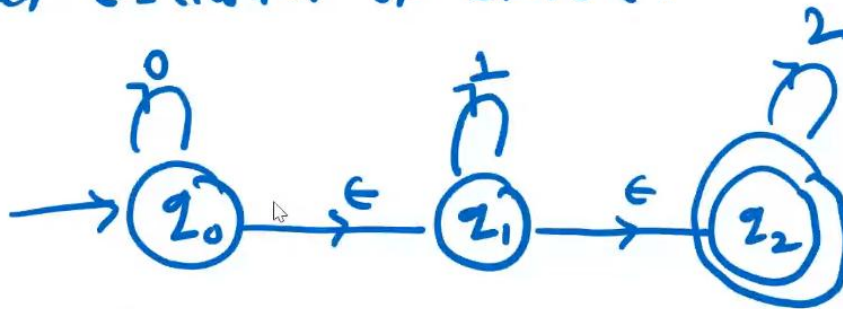
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Press **F11** to exit full screen

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the state q along the ϵ -label transition path is called ϵ -closure of state q .



$$\epsilon\text{-closure}(q_0) = \{q_0, q_1, q_2\}$$
$$\epsilon\text{-closure}(q_1) = \{q_1, q_2\}$$
$$\epsilon\text{-closure}(q_2) = \{q_2\}$$



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