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BP

Minimization / optimization of FA :=

The process of detection and elimination of the states whose presence or absence will not affect the language accepted by Finite automata is called as the minimization / optimization.

ENG IN 11:36 AM 2/15/2022

B072 SHASHIKANT DAN...

B129 K SACHIN NAIK SV...

B120 GUNDETI SAI RED...

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B123 SHISHIR SVNIT

B082YAPARTHI VENKAT...

27 others

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Minimization | optimization of FA :-

The process of detection and elimination of the states whose presence or absence will not affect the language accepted by Finite automata is called as the minimization | optimization.

↳ Dead state
↳ Unreachable state } Remove the
↳ Equal state

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B106 PARIL SVNIT

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29 others

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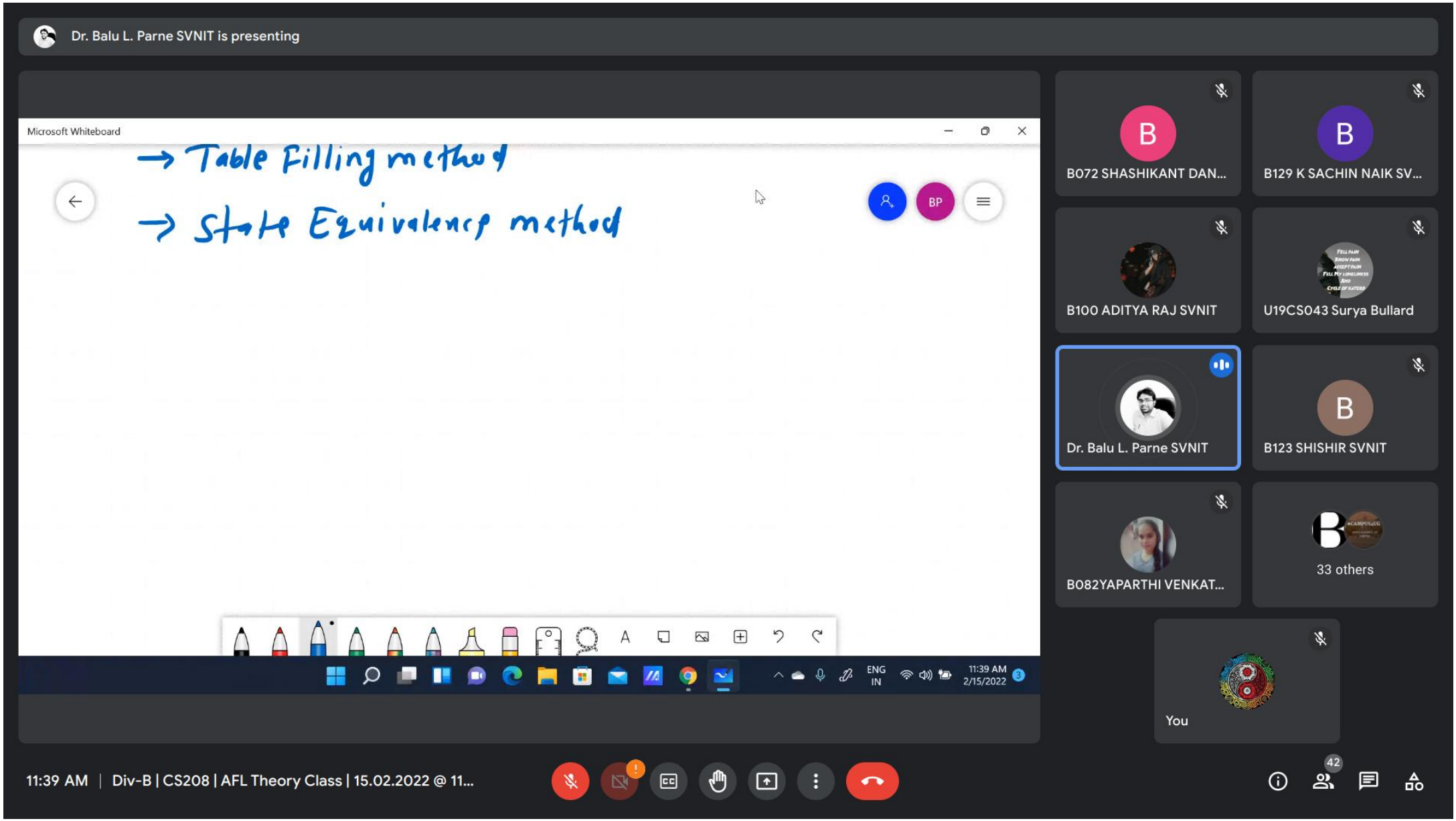
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→ Table Filling method
→ State Equivalence method
BP
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B129 K SACHIN NAIK SV...
B100 ADITYA RAJ SVNIT
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33 others
You
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42

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Input $D = \{Q, \Sigma, \delta, q_0, F\}$

↳ Construct a table of all $\{p, q\}$ pairs where $p, q \in Q$

↳ mark a pair $\{p, q\}$ if $p \in F$ and $q \in NF$ or vice versa.

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↳ Mark a pair {p,q} if $p \in F$ and $q \notin F$ or vice versa.

↳ Repeat the following until no more pairs can be marked.

↳ mark {p,q} if $\{\delta(p,a), \delta(q,a)\}$ is marked for some $a \in \Sigma$.

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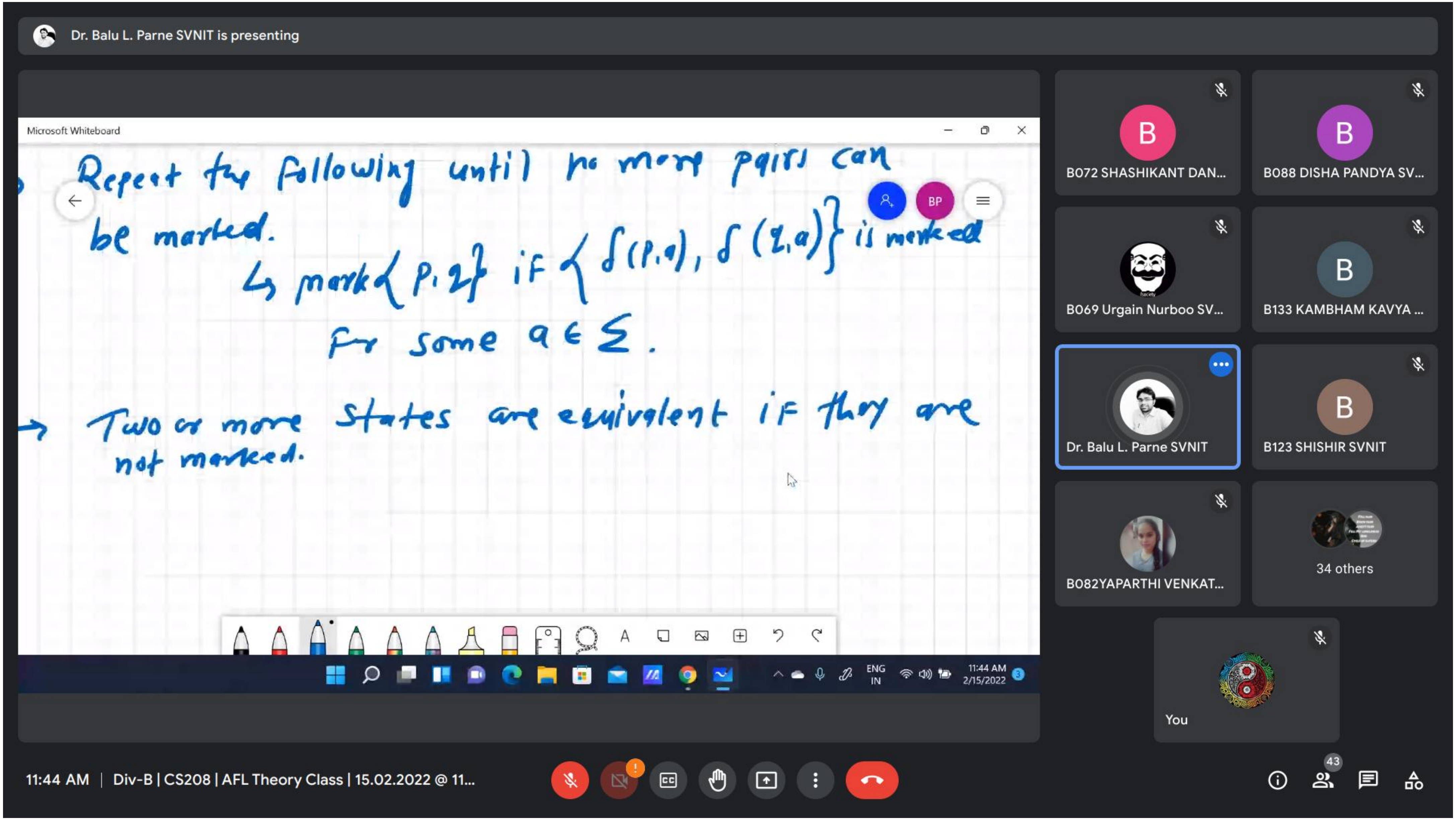
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Repeat the following until no more pairs can be marked.
↳ mark {p, q} if {δ(p,a), δ(q,a)} is marked
for some a ∈ Σ.
→ Two or more states are equivalent if they are not marked.
B072 SHASHIKANT DAN...
B088 DISHA PANDYA SV...
B069 Urgain Nurboo SV...
B133 KAMBHAM KAVYA ...
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B123 SHISHIR SVNIT
B082YAPARTHI VENKAT...
34 others
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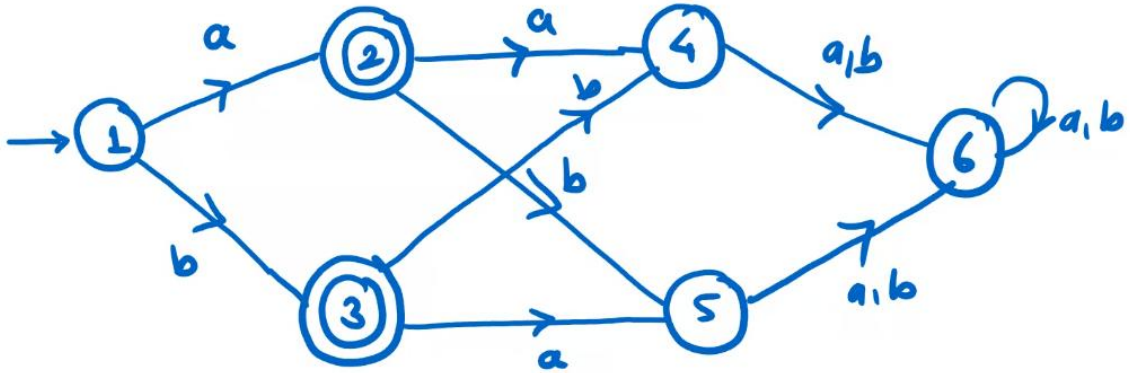
Two or more states are equivalent if they are not marked.



B072 SHASHIKANT DAN...

B088 DISHA PANDYA SV...

B069 Urgain Nurboo SV...

B132 ESWAR KALYAN RE...

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B082YAPARTHI VENKAT...

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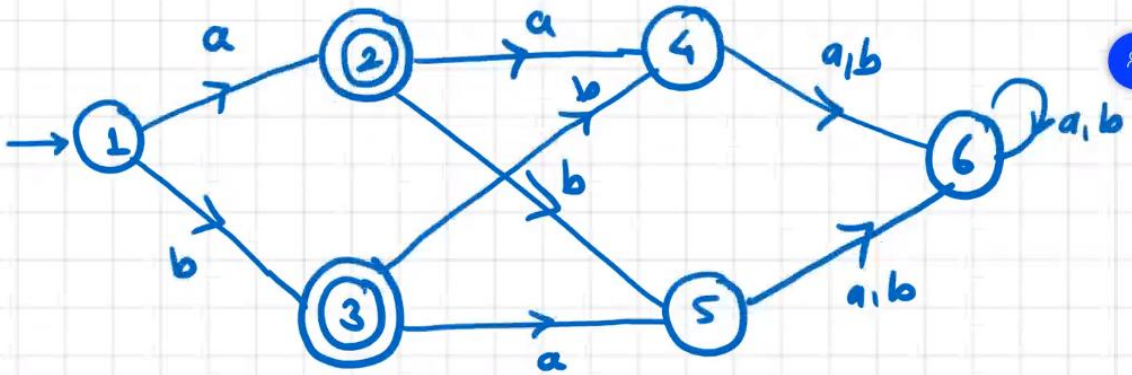

BP

B072 SHASHIKANT DAN...

B088 DISHA PANDYA SV...

B069 Urgain Nurboo SV...

B132 ESWAR KALYAN RE...

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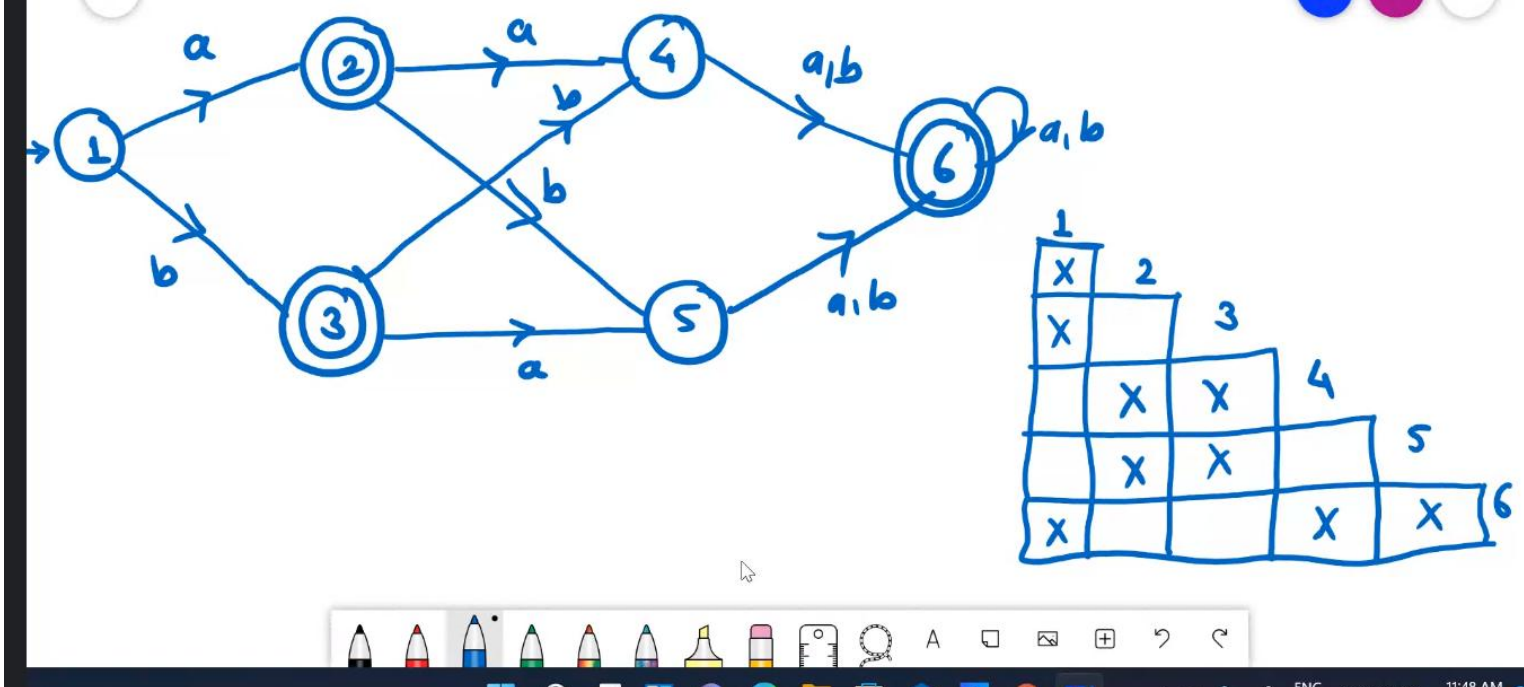

B072 SHASHIKANT DAN...

B088 DISHA PANDYA SV...

B069 Urgain Nurboo SV...

B132 ESWAR KALYAN RE...

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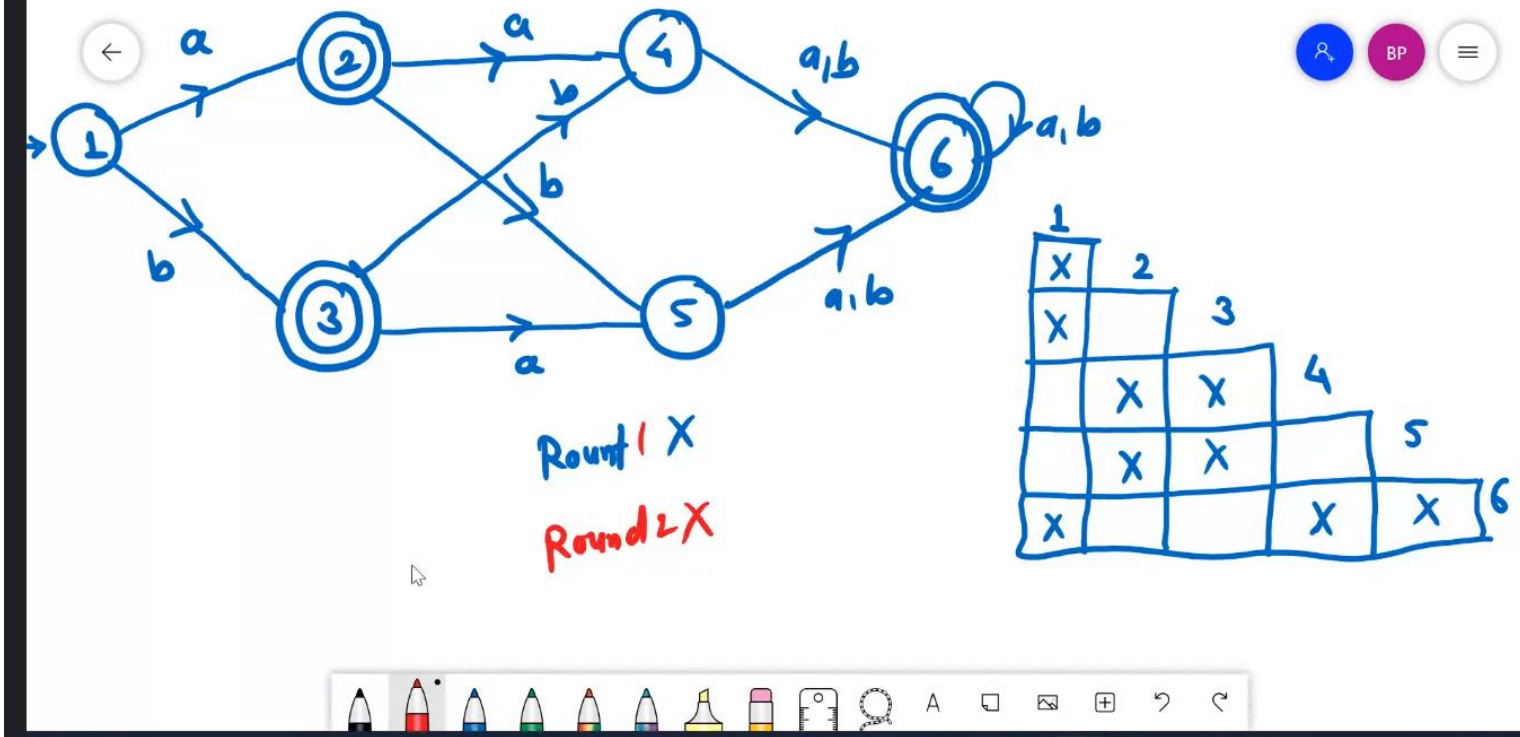

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B088 DISHA PANDYA SV...

B069 Urgain Nurboo SV...

B132 ESWAR KALYAN RE...

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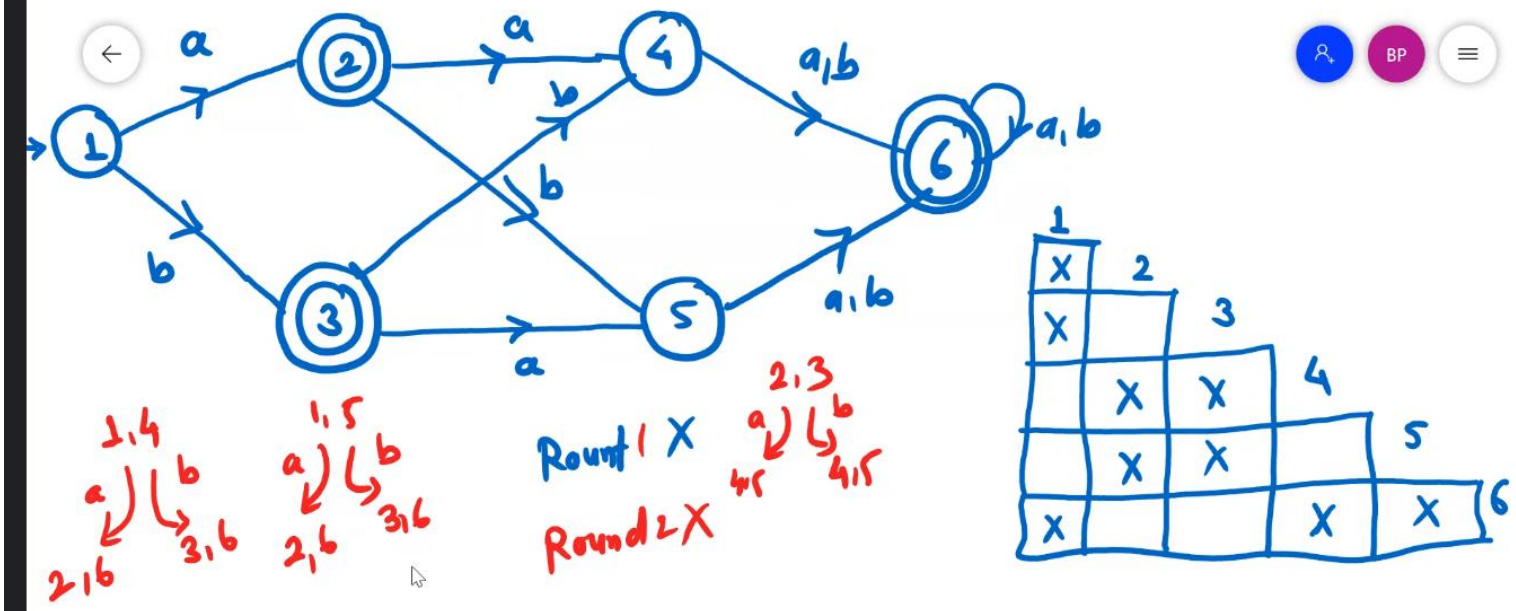

BO85 RIYA SVNIT

BO88 DISHA PANDYA SV...

BO98 Neelagiri Vijay

B132 ESWAR KALYAN RE...

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B123 SHISHIR SVNIT

BO82YAPARTHI VENKAT...

38 others

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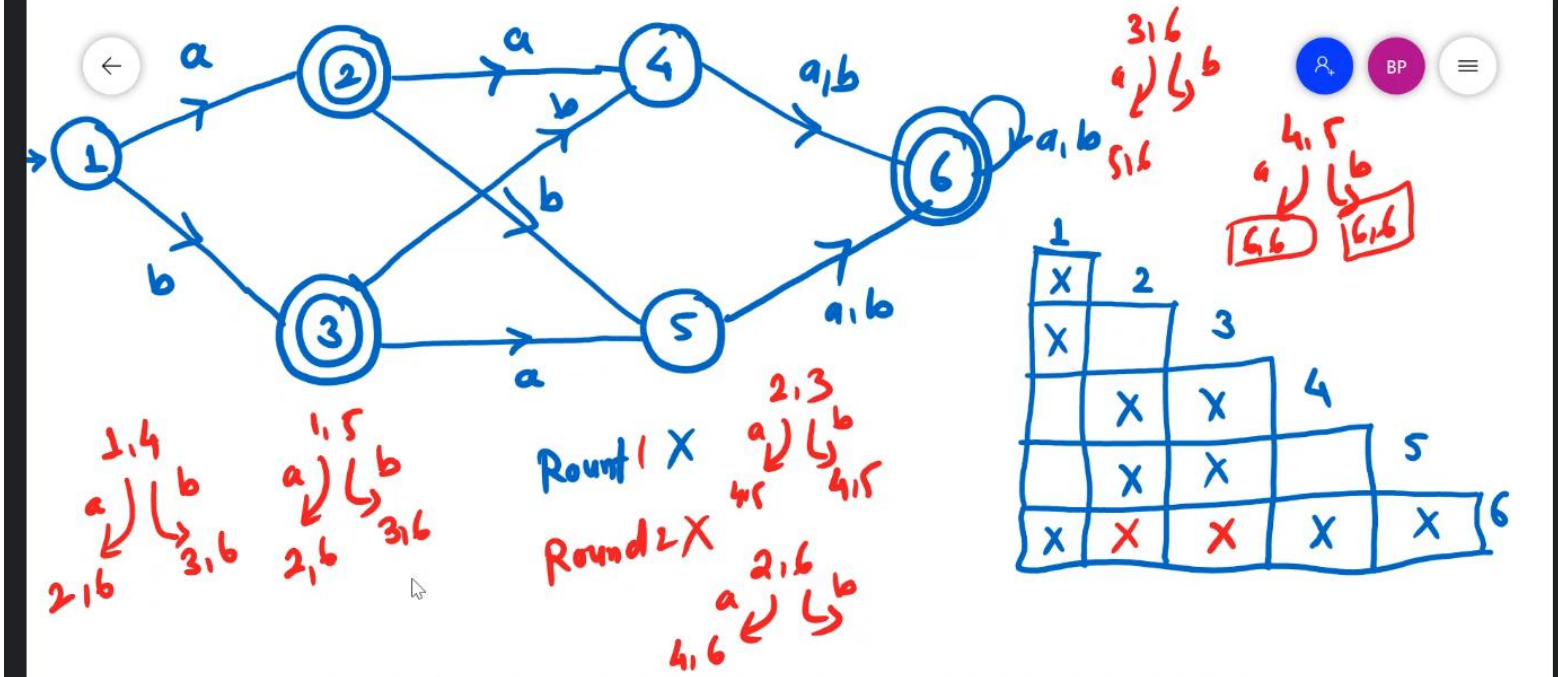

B119 YASH SHAH SVNIT

B088 DISHA PANDYA SV...

B098 Neelagiri Vijay

B132 ESWAR KALYAN RE...

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B123 SHISHIR SVNIT

B082YAPARTHI VENKAT...

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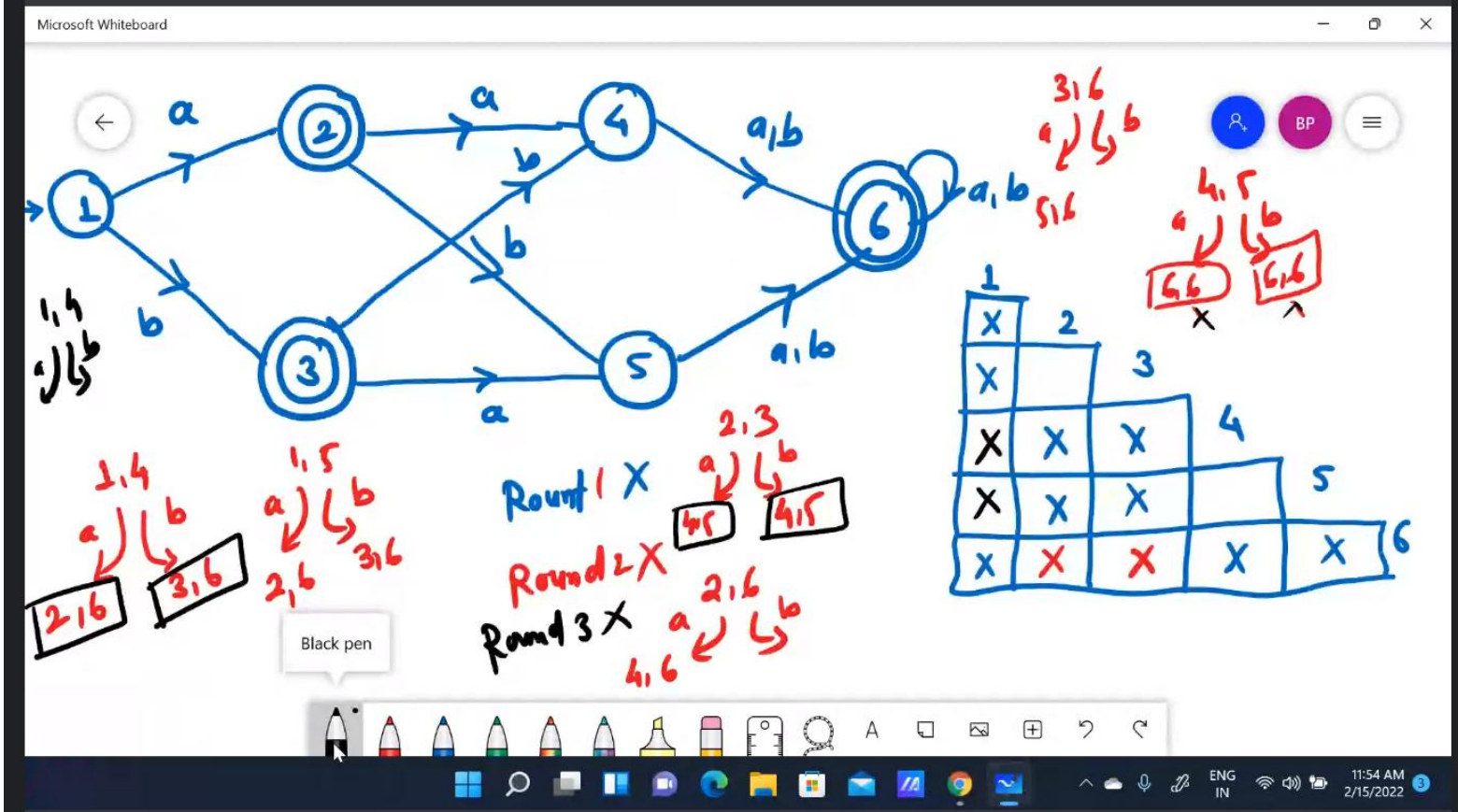

B119 YASH SHAH SVNIT

B088 DISHA PANDYA SV...

B098 Neelagiri Vijay

B132 ESWAR KALYAN RE...

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B123 SHISHIR SVNIT

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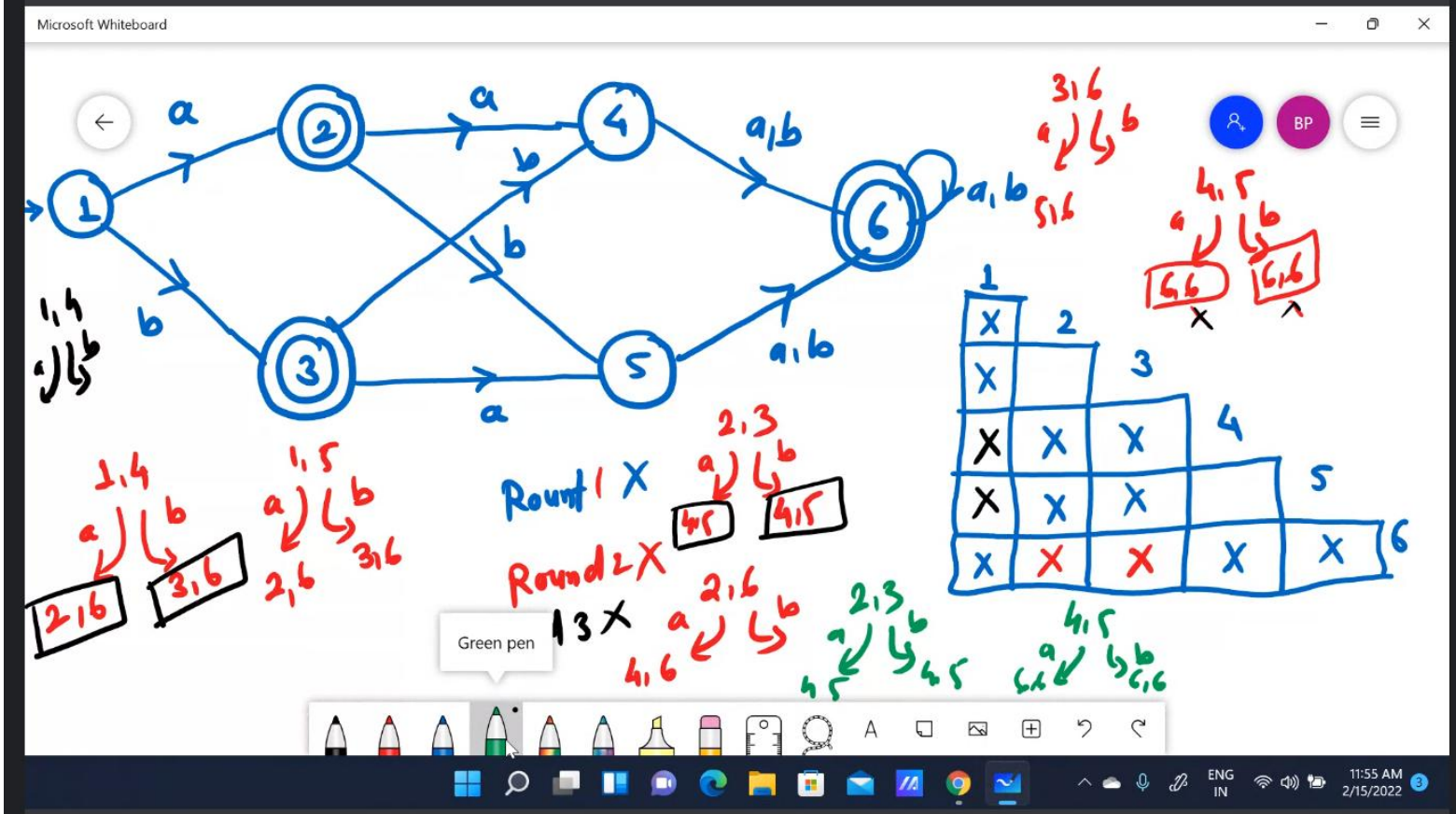

B119 YASH SHAH SVNIT

B088 DISHA PANDYA SV...

B098 Neelagiri Vijay

B132 ESWAR KALYAN RE...

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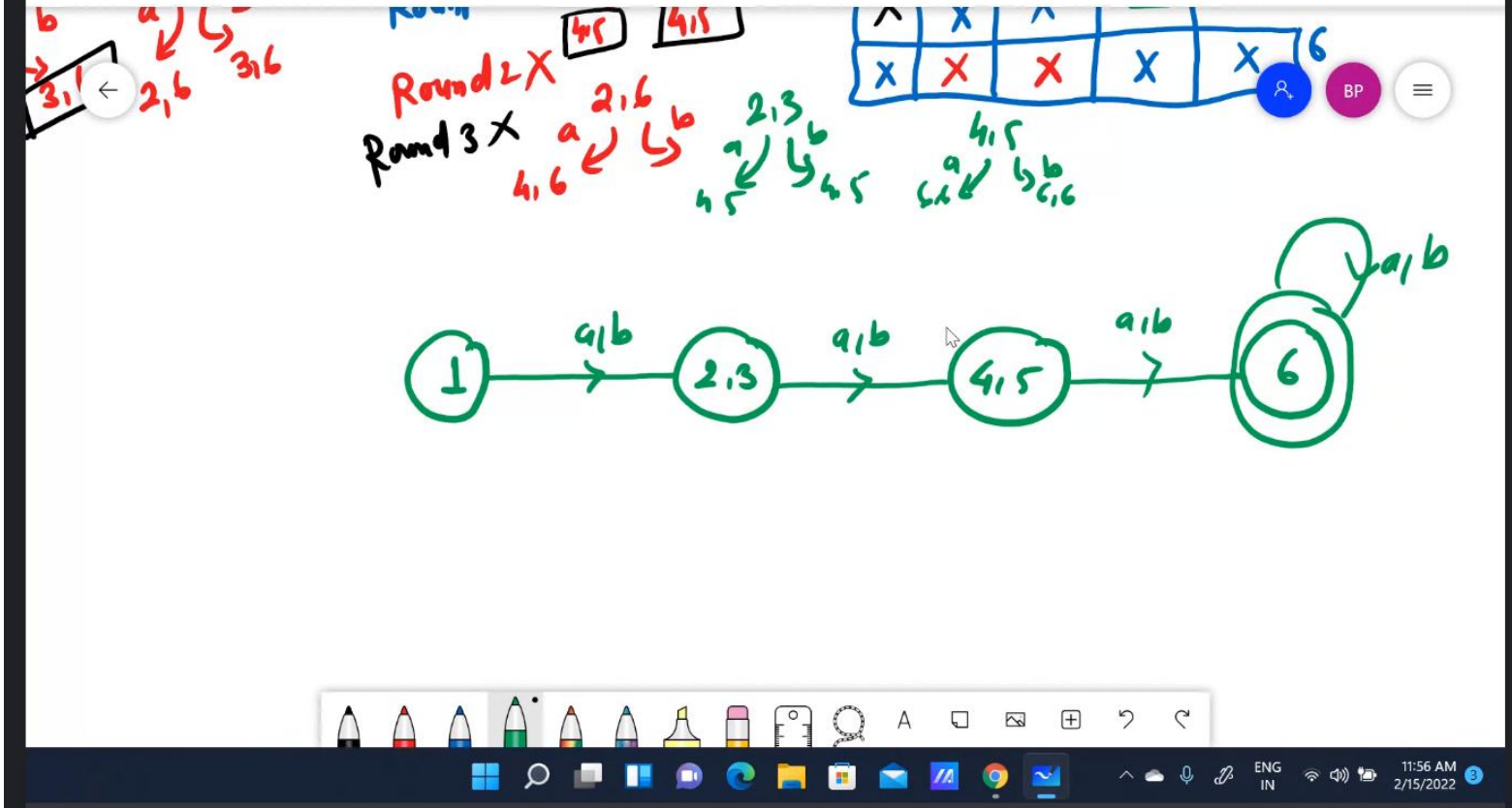

B119 YASH SHAH SVNIT

B088 DISHA PANDYA SV...

B098 Neelagiri Vijay

B132 ESWAR KALYAN RE...

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B123 SHISHIR SVNIT

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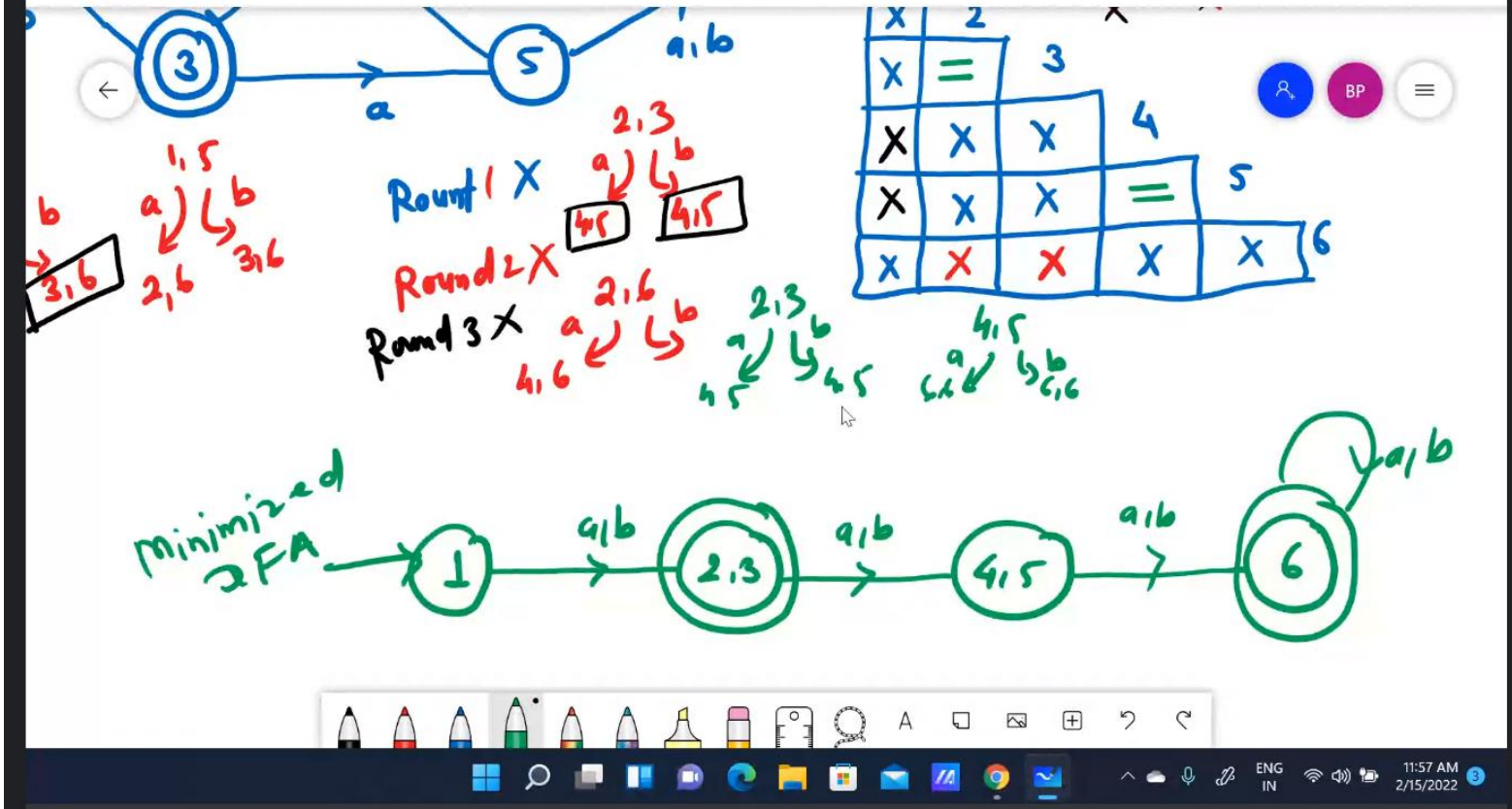

B119 YASH SHAH SVNIT

B088 DISHA PANDYA SV...

B098 Neelagiri Vijay

B132 ESWAR KALYAN RE...

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STATE EQUIVALENCE METHOD :-

Step 1 :- All the states Q are divided in two partition Final states and Non Final states and are denoted as P_0.

All the states in partiting are 0th equivalent.

Take a counter k and initialize it with zero.

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Take a counter k and initialize it with

Step 2:- Increment k by 1. For each partition in P_k divide the states in P_k into two partitions if they are k-distinguishable. Two states within this partition x and y are k-distinguishable if there is an input s such that

$\delta($

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k-distinguishable. Two states within this partition X and Y are k-distinguishable IF there is an input s such that $\delta(X, s)$ and $\delta(Y, s)$ are $(k-1)$ distinguishable.

step 3:- IF $(P_k \neq P_{k-1})$, repeat step 2. otherwise go to step 4.

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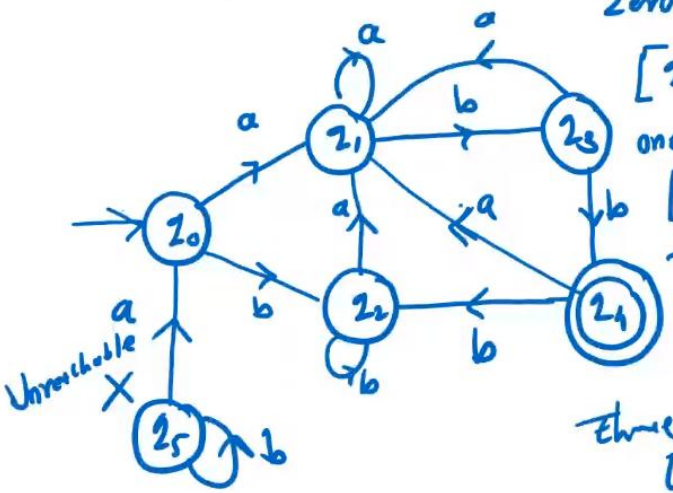
Step: Combine both equivalent sets and make them the new states of the reduced DFA

δ	a	b
q_0	q_1	q_2
q_1	q_1	q_3
q_2	q_1	q_2
q_3	q_1	q_4
q_4	q_1	q_2



Zero Equivalent:-
$[q_0, q_1, q_2, q_3]$ $[q_4]$

One Equivalent:-
$[q_0, q_1, q_2]$ $[q_3]$ $[q_4]$

Two Equivalent:-
$[q_0 q_2]$, $[q_1]$, $[q_3]$, $[q_4]$

Three Equivalent
$[q_0 q_2]$ $[q_1]$, $[q_3]$ $[q_4]$

B130 VISHVESH SVNIT has left the meeting

B119 YASH SHAH SVNIT

B088 DISHA PANDYA SV...

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