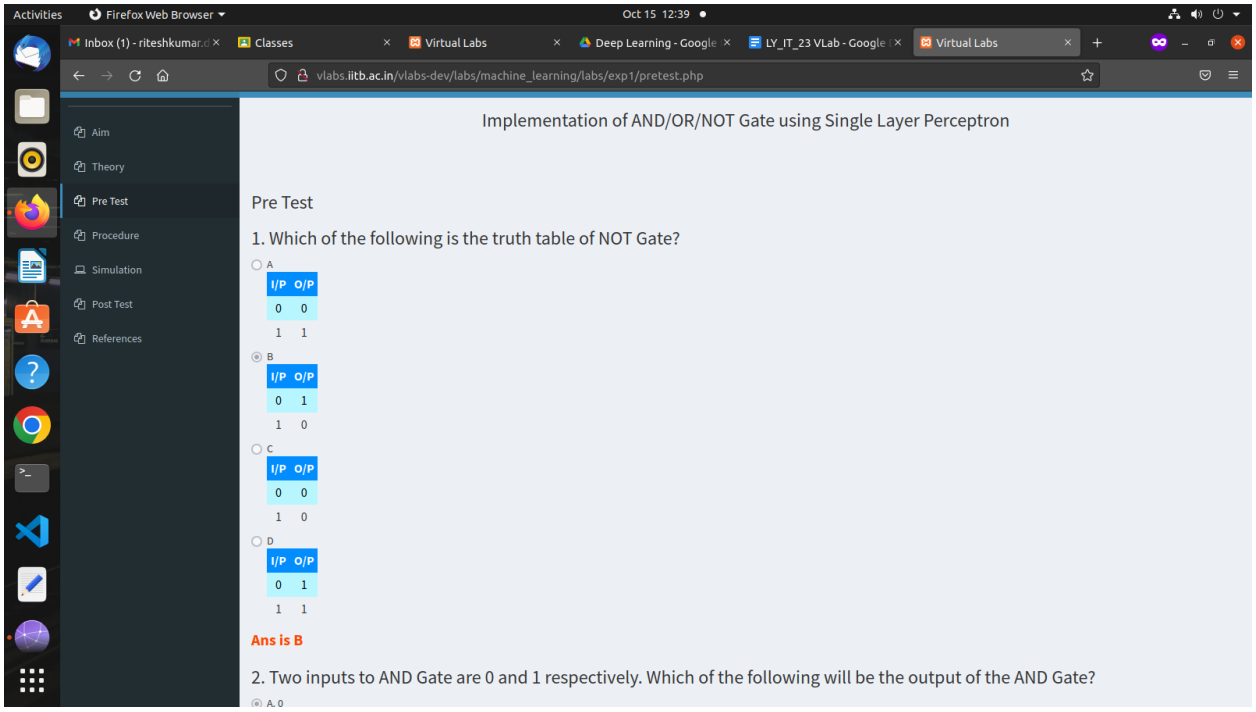
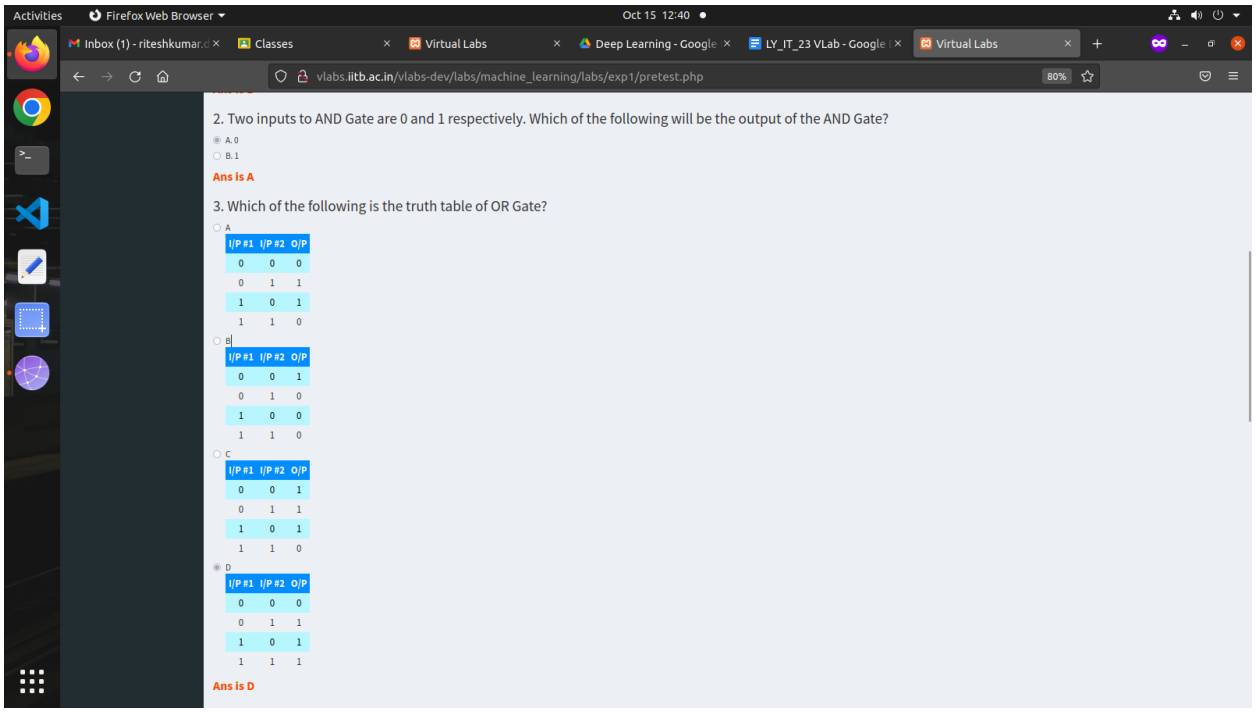
Ritesh Kumar Pandey
LY_IT_23

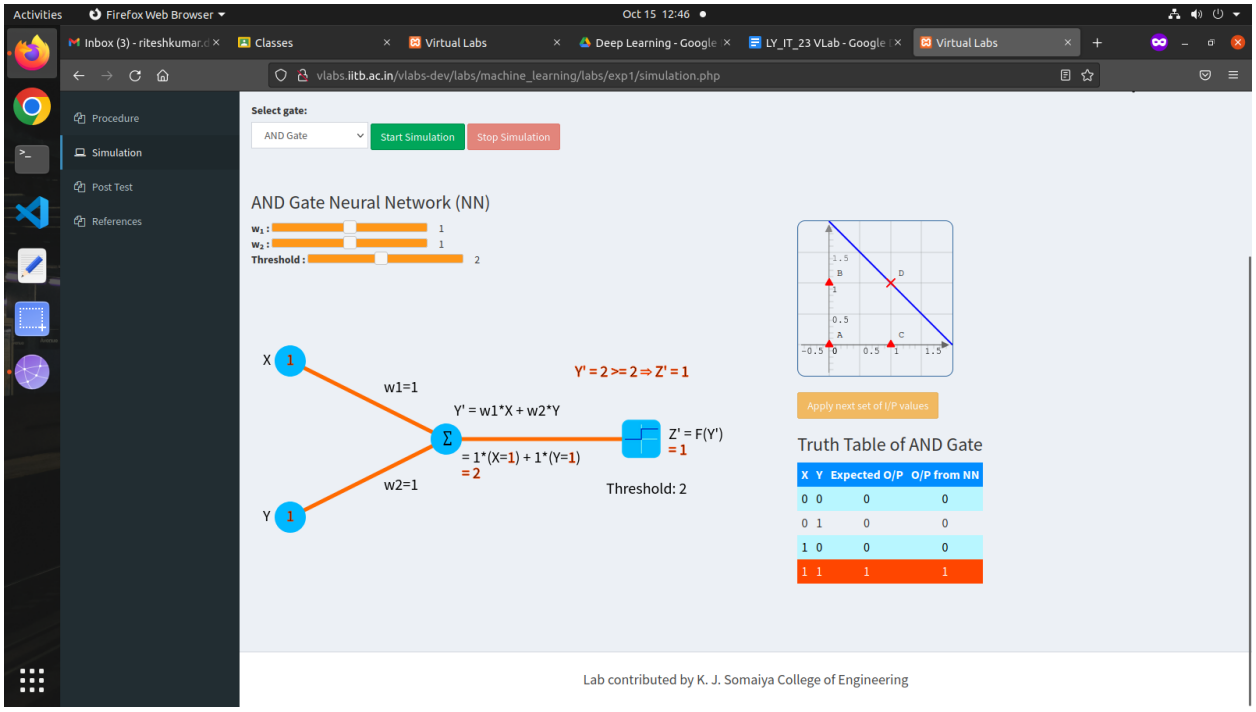
Experiment 1: Implementation of AND/OR/NOT Gate using Single Layer Perceptron

Pre-Test





Simulation: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Procedure
Simulation
Post Test
References
Select gate:
AND Gate
Start Simulation
Stop Simulation
AND Gate Neural Network (NN)
w1 : 1
w2 : 1
Threshold : 2
X
Y
1
w1=1
w2=1
Y' = w1*X + w2*Y
= 1*(X=1) + 1*(Y=1)
= 2
Y' = 2 >= 2 ⇒ Z' = 1
Z' = F(Y')
= 1
Threshold: 2
Apply next set of I/P values
Truth Table of AND Gate
X Y Expected O/P O/P from NN
0 0 0 0
0 1 0 0
1 0 0 0
1 1 1 1
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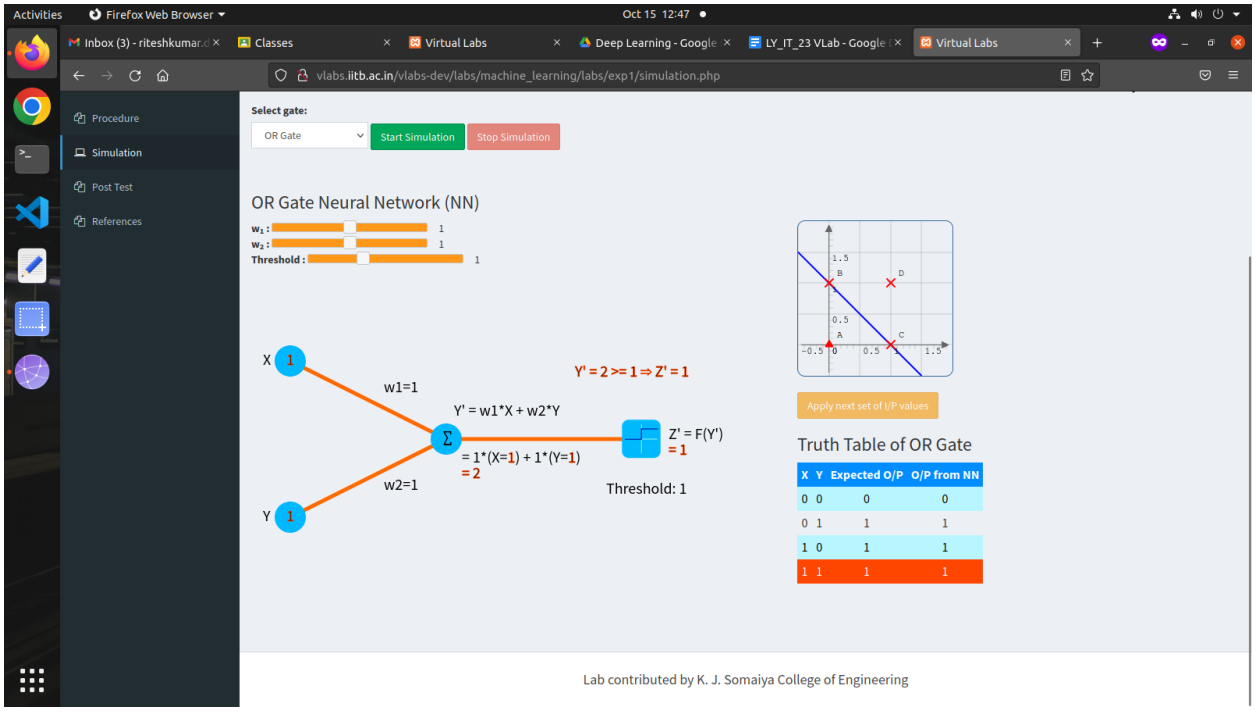
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Procedure
Simulation
Post Test
References
Select gate:
OR Gate
Start Simulation
Stop Simulation
OR Gate Neural Network (NN)
w1 : 1
w2 : 1
Threshold : 1
X
Y
1
w1=1
w2=1
Y' = w1*X + w2*Y
= 1*(X=1) + 1*(Y=1)
= 2
Y' = 2 >= 1 ⇒ Z' = 1
Z' = F(Y')
= 1
Threshold: 1
Apply next set of I/P values
Truth Table of OR Gate
X Y Expected O/P O/P from NN
0 0 0 0
0 1 1 1
1 0 1 1
1 1 1 1
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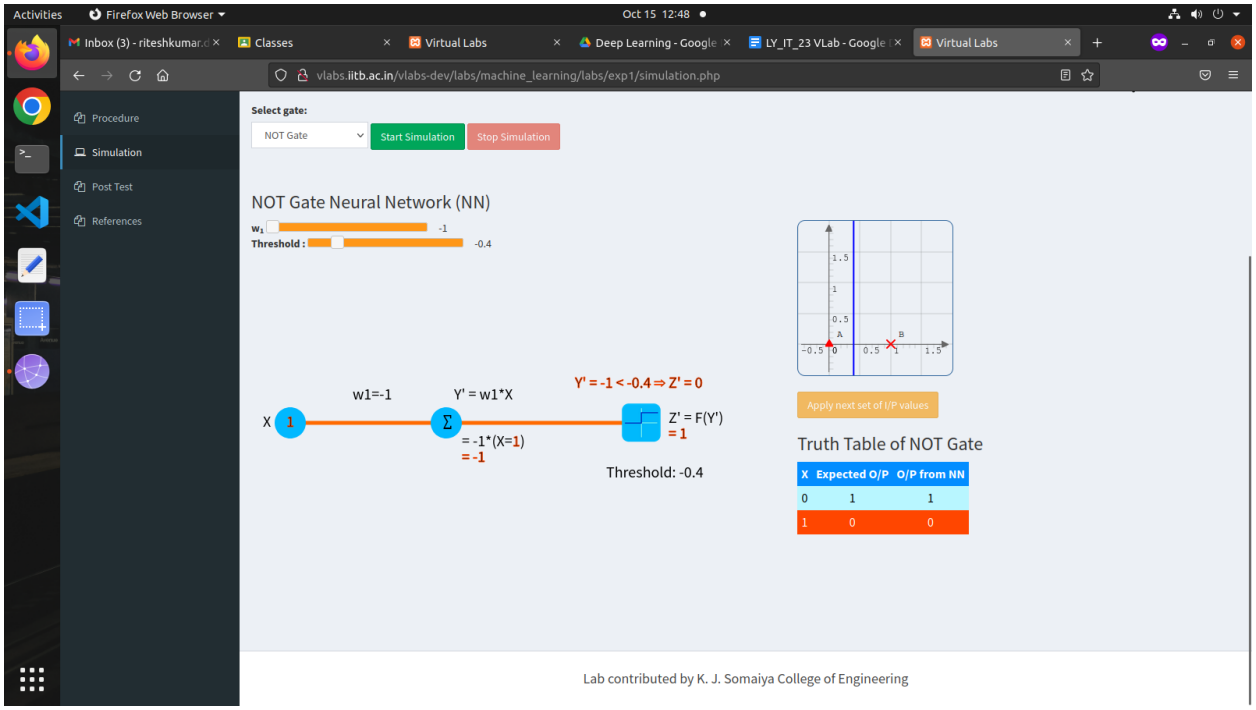
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Procedure
Simulation
Post Test
References
Select gate:
NOT Gate
Start Simulation
Stop Simulation
NOT Gate Neural Network (NN)
w1
-1
Threshold :
-0.4
w1=-1
Y' = w1*X
= -1*(X=1)
= -1
X
1
Σ
Y' = -1 < -0.4 ⇒ Z' = 0
Z' = F(Y')
= 1
Threshold: -0.4
Apply next set of I/P values
Truth Table of NOT Gate
X Expected O/P O/P from NN
0 1 1
1 0 0
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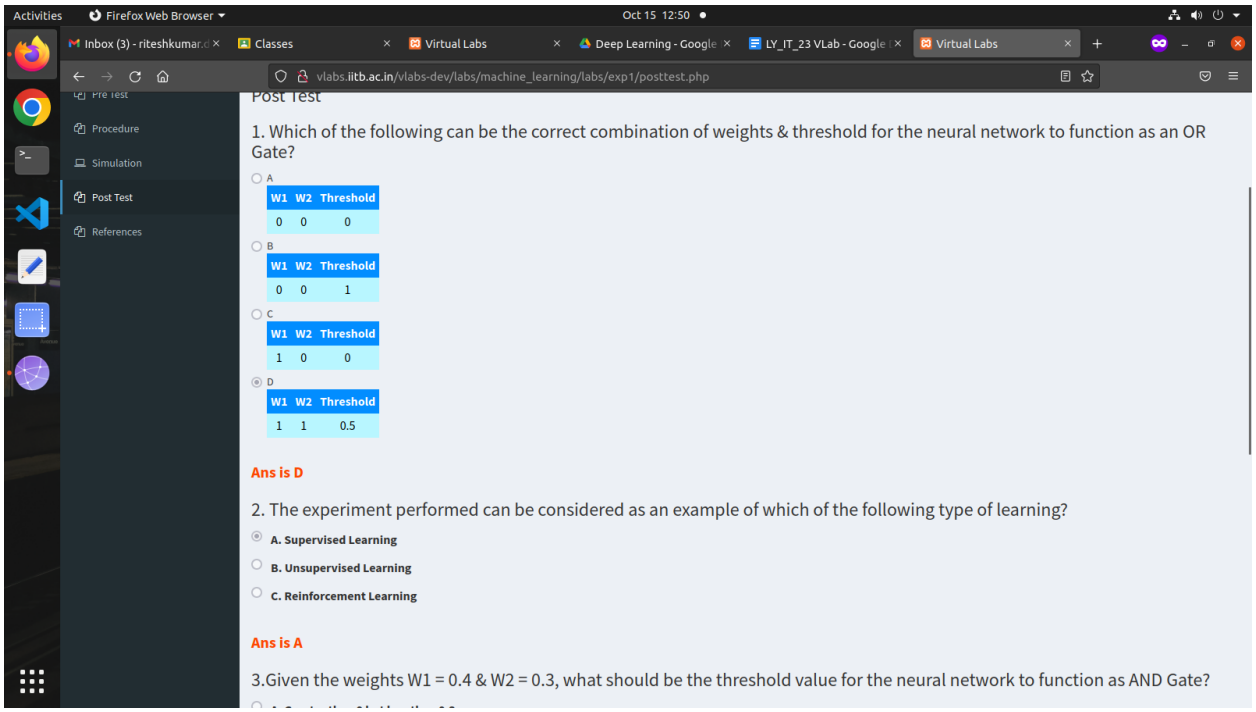
Post Test: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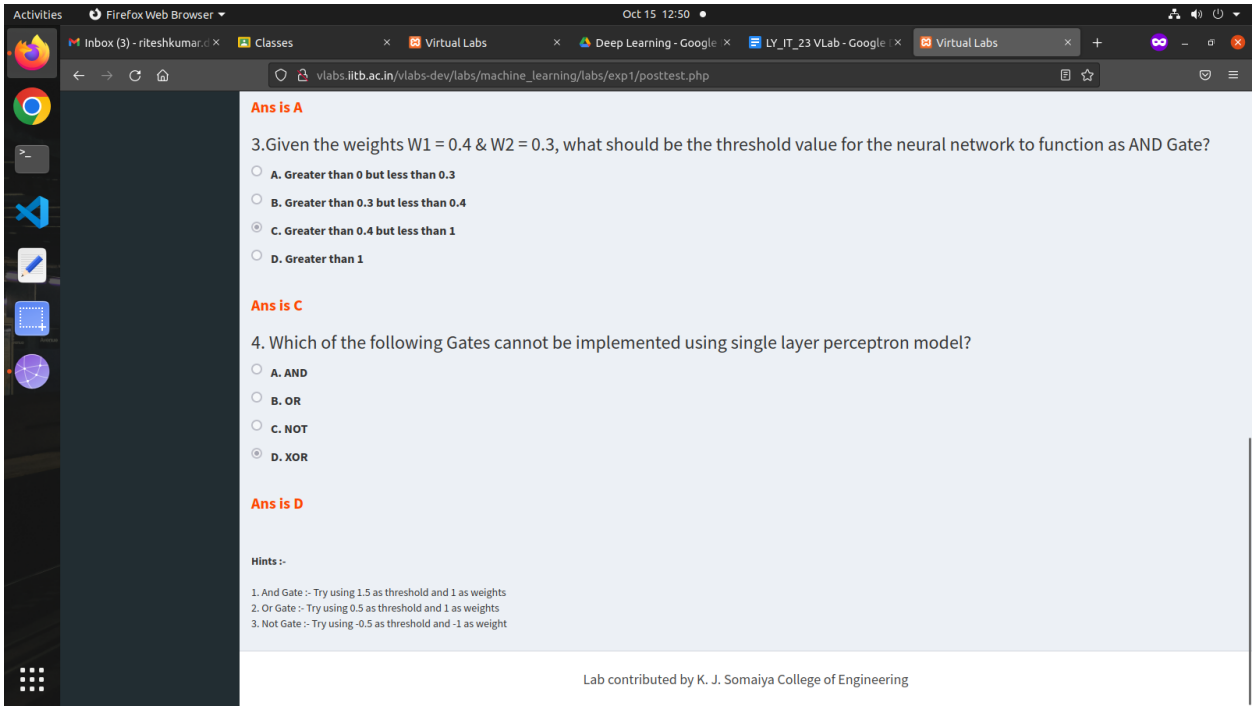
Pre Test
Procedure
Simulation
Post Test
References
Post Test
1. Which of the following can be the correct combination of weights & threshold for the neural network to function as an OR Gate?
A
W1 W2 Threshold
0 0 0
B
W1 W2 Threshold
0 0 1
C
W1 W2 Threshold
1 0 0
D
W1 W2 Threshold
1 1 0.5
Ans is D
2. The experiment performed can be considered as an example of which of the following type of learning?
A. Supervised Learning
B. Unsupervised Learning
C. Reinforcement Learning
Ans is A
3.Given the weights W1 = 0.4 & W2 = 0.3, what should be the threshold value for the neural network to function as AND Gate?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Ans is A
3.Given the weights W1 = 0.4 & W2 = 0.3, what should be the threshold value for the neural network to function as AND Gate?
A. Greater than 0 but less than 0.3
B. Greater than 0.3 but less than 0.4
C. Greater than 0.4 but less than 1
D. Greater than 1
Ans is C
4. Which of the following Gates cannot be implemented using single layer perceptron model?
A. AND
B. OR
C. NOT
D. XOR
Ans is D
Hints :-
1. And Gate :- Try using 1.5 as threshold and 1 as weights
2. Or Gate :- Try using 0.5 as threshold and 1 as weights
3. Not Gate :- Try using -0.5 as threshold and -1 as weight
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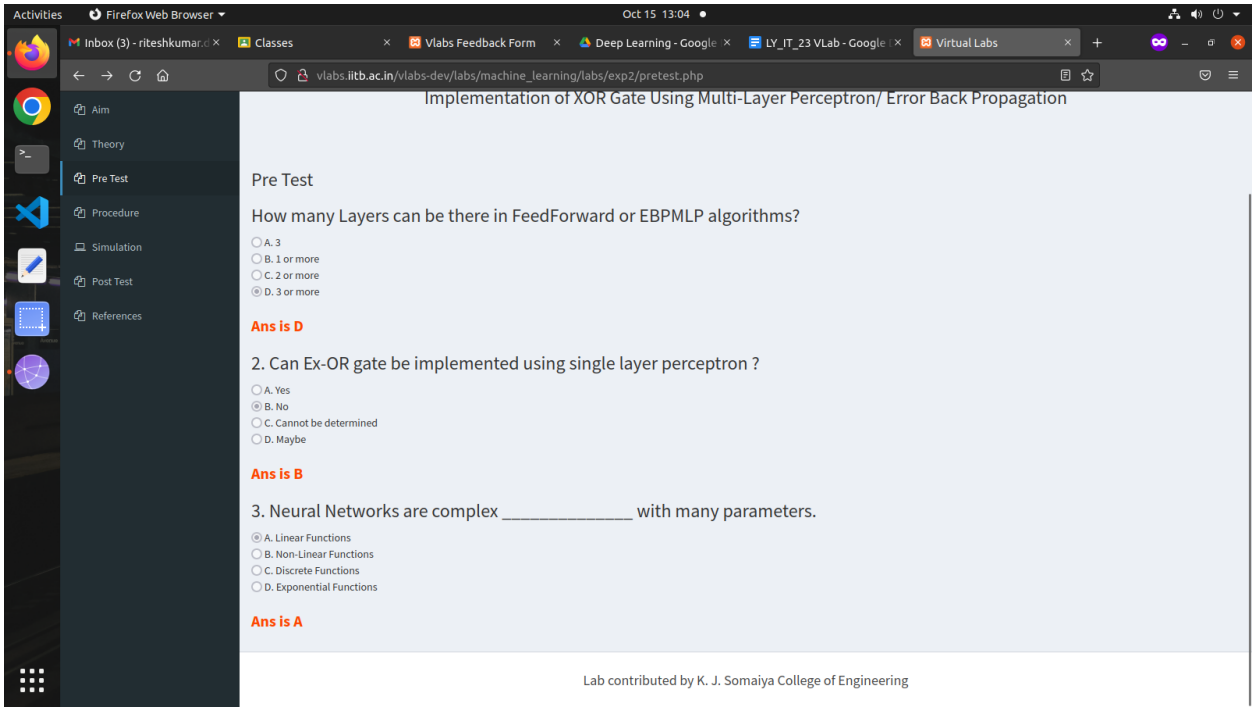
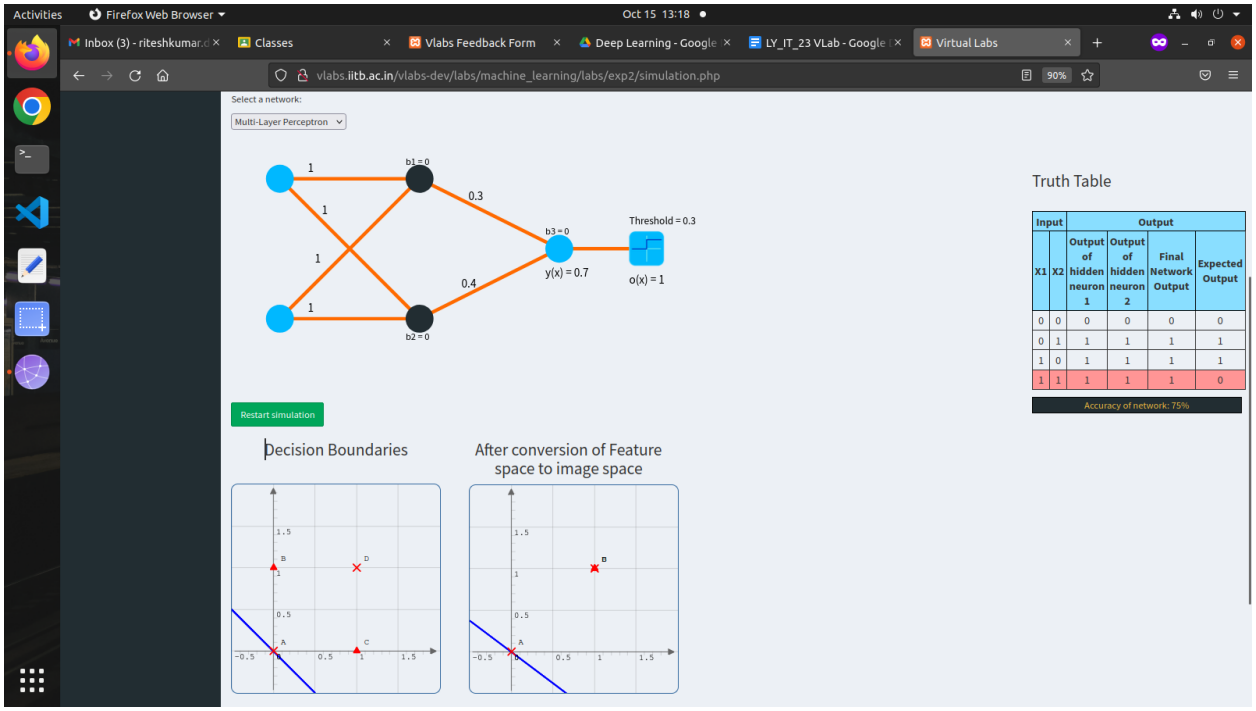
Experiment 2: Implementation of AND/OR/NOT Gate using Single Layer Perceptron

Pre-Test:



Simulation:



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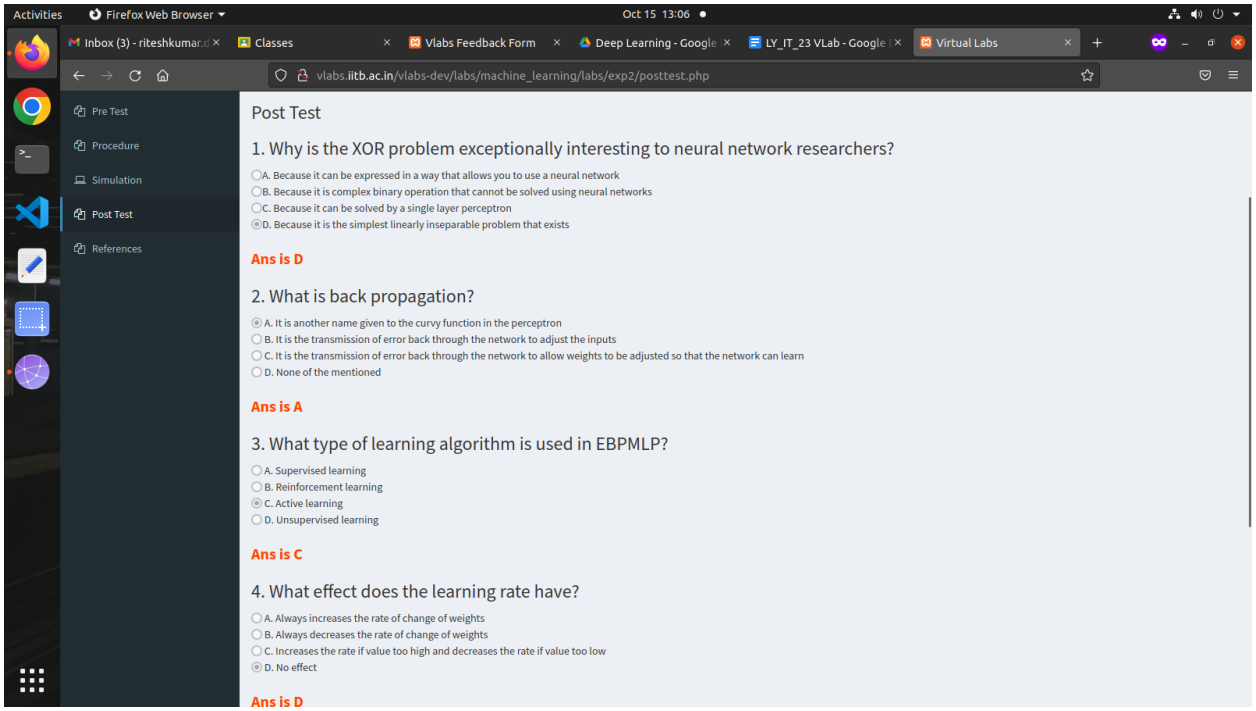
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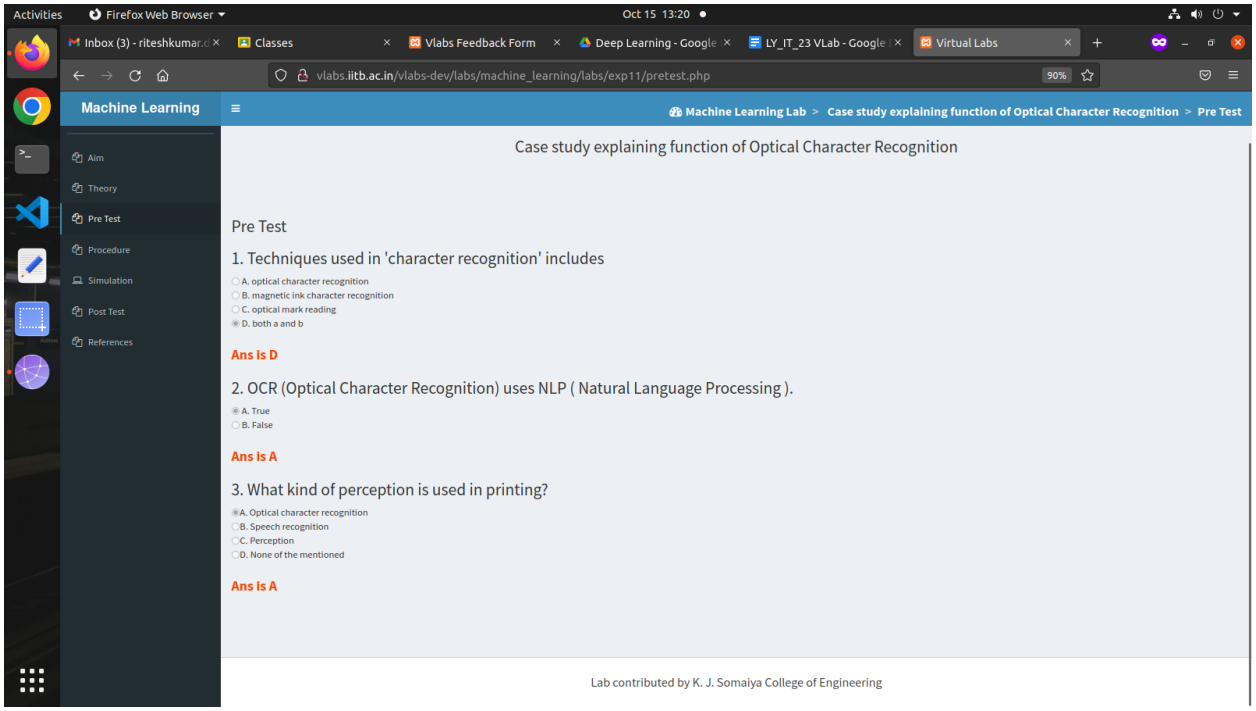
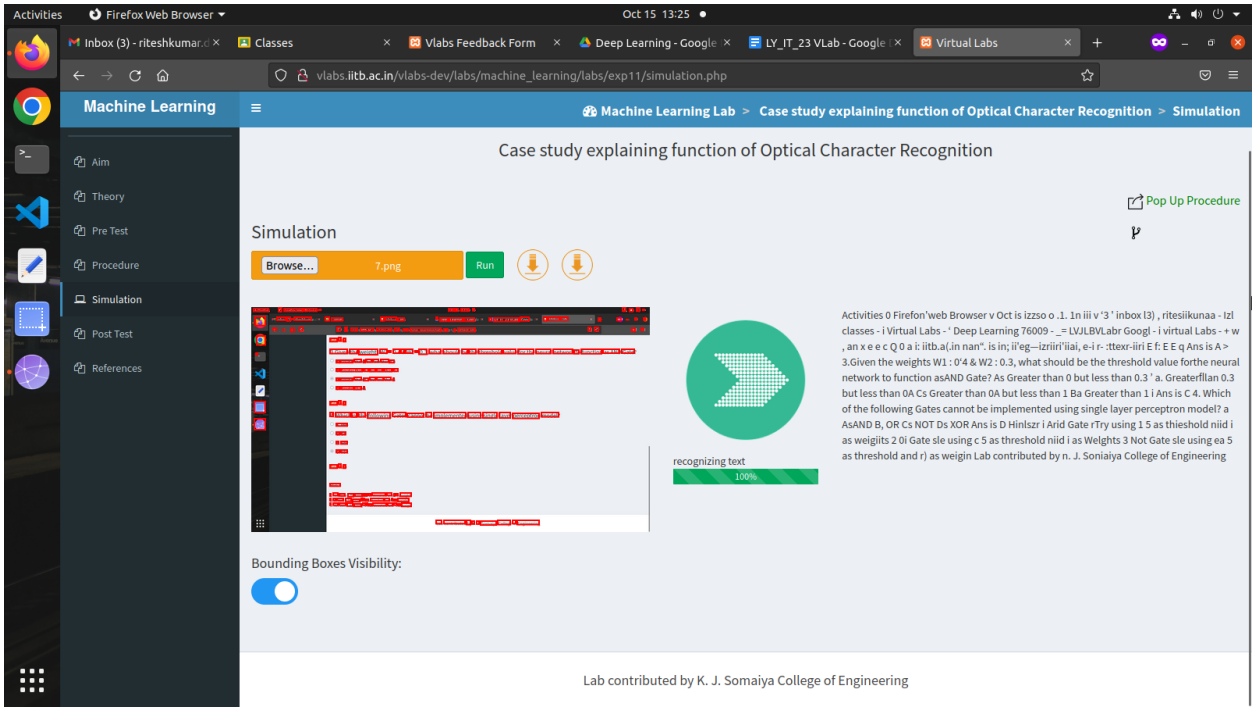
Pre Test
Procedure
Simulation
Post Test
References
Post Test
1. Why is the XOR problem exceptionally interesting to neural network researchers?
A. Because it can be expressed in a way that allows you to use a neural network
B. Because it is complex binary operation that cannot be solved using neural networks
C. Because it can be solved by a single layer perceptron
D. Because it is the simplest linearly inseparable problem that exists
Ans is D
2. What is back propagation?
A. It is another name given to the curvy function in the perceptron
B. It is the transmission of error back through the network to adjust the inputs
C. It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
D. None of the mentioned
Ans is A
3. What type of learning algorithm is used in EBPMLP?
A. Supervised learning
B. Reinforcement learning
C. Active learning
D. Unsupervised learning
Ans is C
4. What effect does the learning rate have?
A. Always increases the rate of change of weights
B. Always decreases the rate of change of weights
C. Increases the rate if value too high and decreases the rate if value too low
D. No effect
Ans is D

Experiment 3: Case study explaining function of Optical Character Recognition

Pre-Test:



Simulation:



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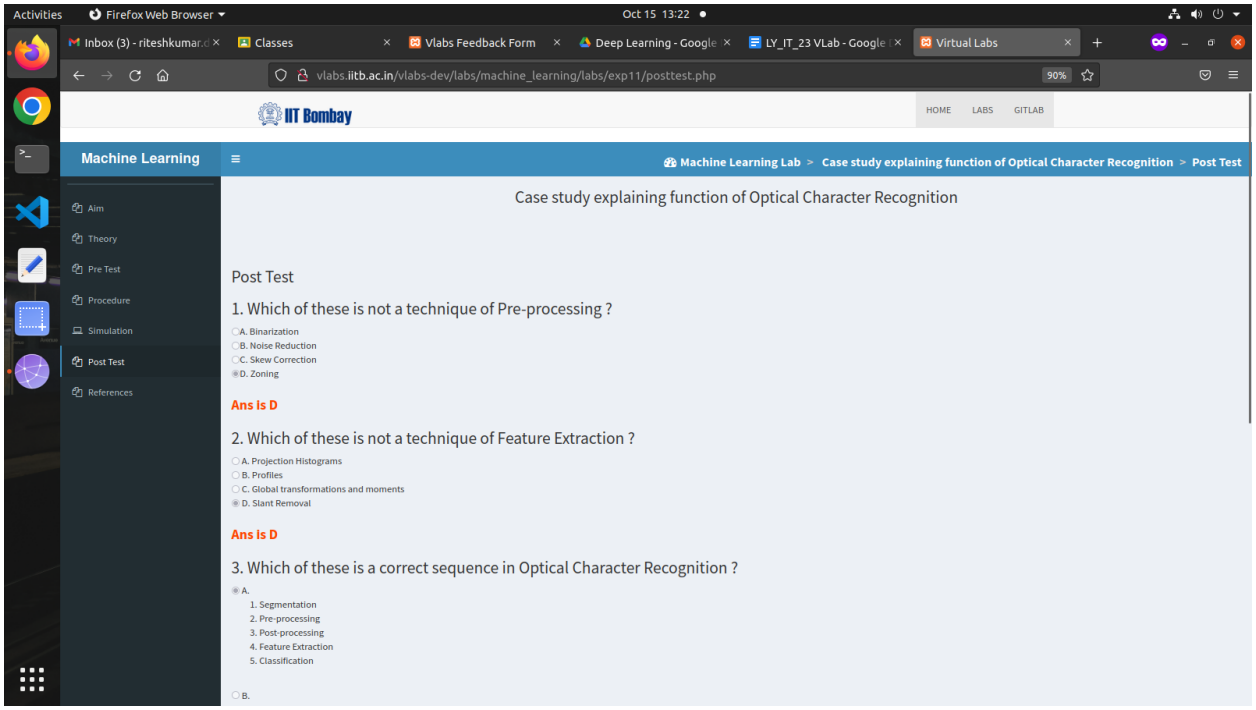
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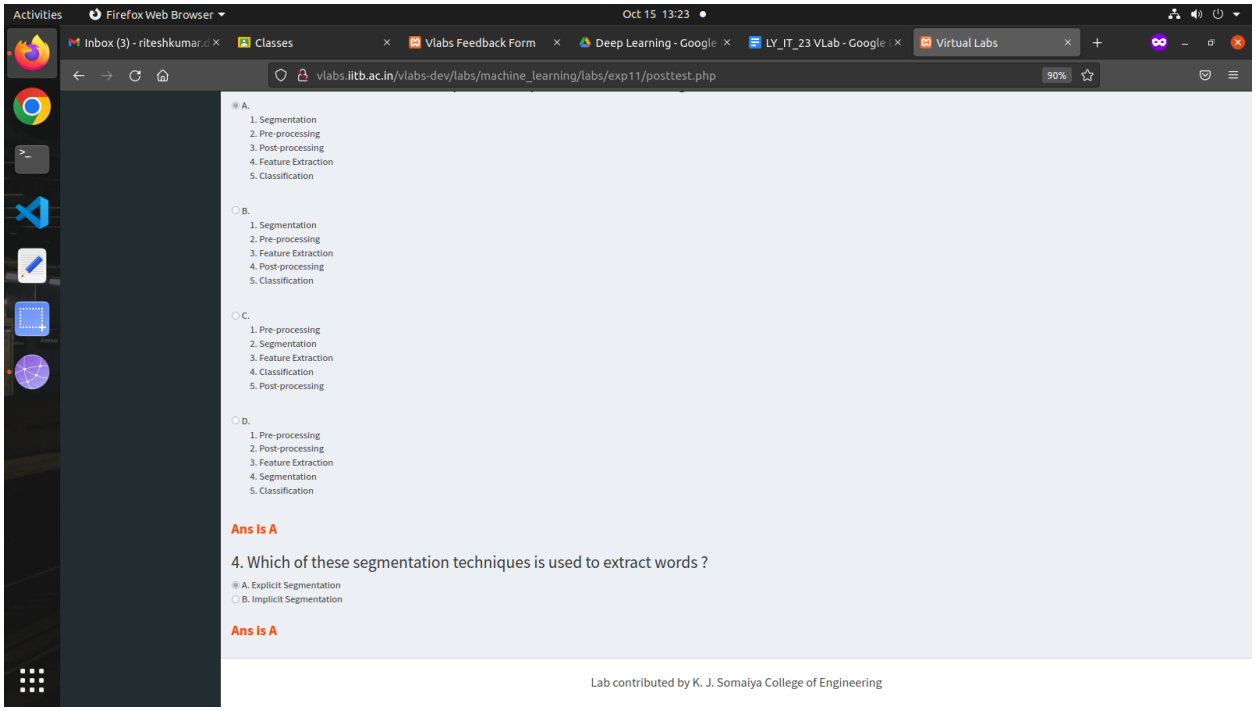
Machine Learning
Machine Learning Lab > Case study explaining function of Optical Character Recognition > Post Test
Aim
Theory
Pre Test
Procedure
Simulation
Post Test
References
Case study explaining function of Optical Character Recognition
Post Test
1. Which of these is not a technique of Pre-processing ?
A. Binarization
B. Noise Reduction
C. Skew Correction
D. Zoning
Ans is D
2. Which of these is not a technique of Feature Extraction ?
A. Projection Histograms
B. Profiles
C. Global transformations and moments
D. Slant Removal
Ans is D
3. Which of these is a correct sequence in Optical Character Recognition ?
A.
1. Segmentation
2. Pre-processing
3. Post-processing
4. Feature Extraction
5. Classification
B.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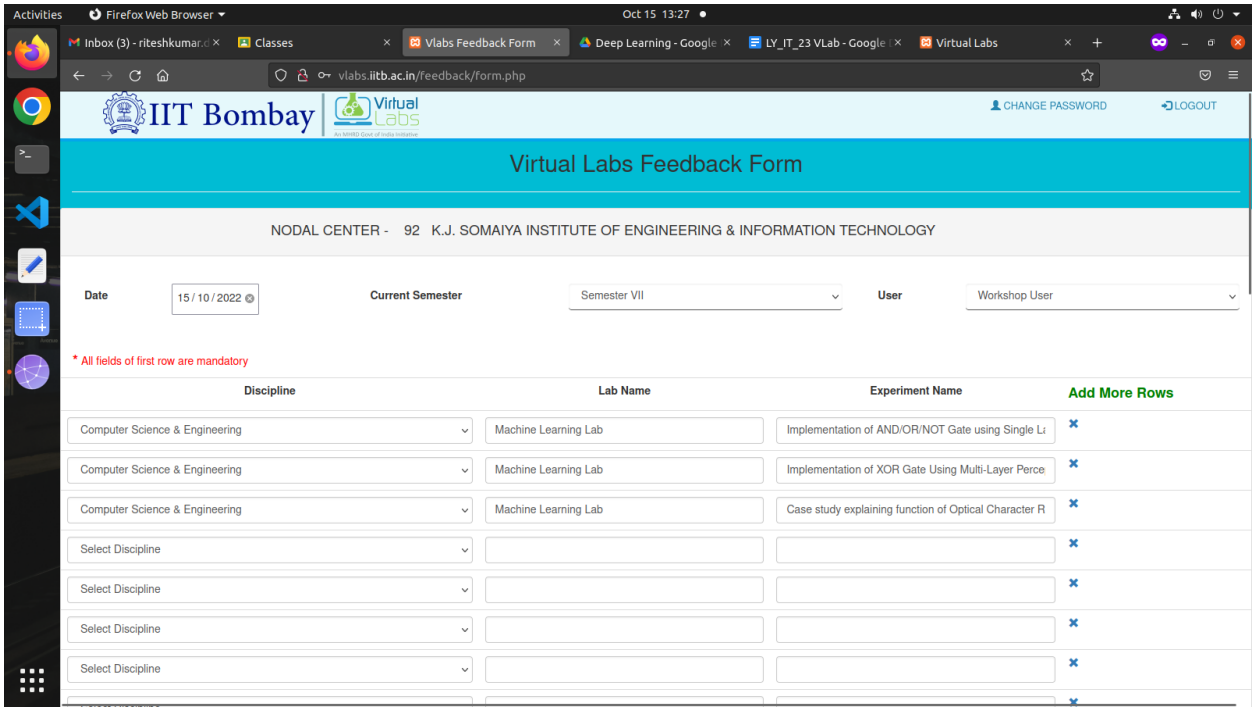
A.
1. Segmentation
2. Pre-processing
3. Post-processing
4. Feature Extraction
5. Classification
B.
1. Segmentation
2. Pre-processing
3. Feature Extraction
4. Post-processing
5. Classification
C.
1. Pre-processing
2. Segmentation
3. Feature Extraction
4. Classification
5. Post-processing
D.
1. Pre-processing
2. Post-processing
3. Feature Extraction
4. Segmentation
5. Classification
Ans is A
4. Which of these segmentation techniques is used to extract words ?
A. Explicit Segmentation
B. Implicit Segmentation
Ans is A
Lab contributed by K. J. Somaiya College of Engineering

Feedback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Semester VII
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Lab Name
Experiment Name
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Implementation of AND/OR/NOT Gate using Single La
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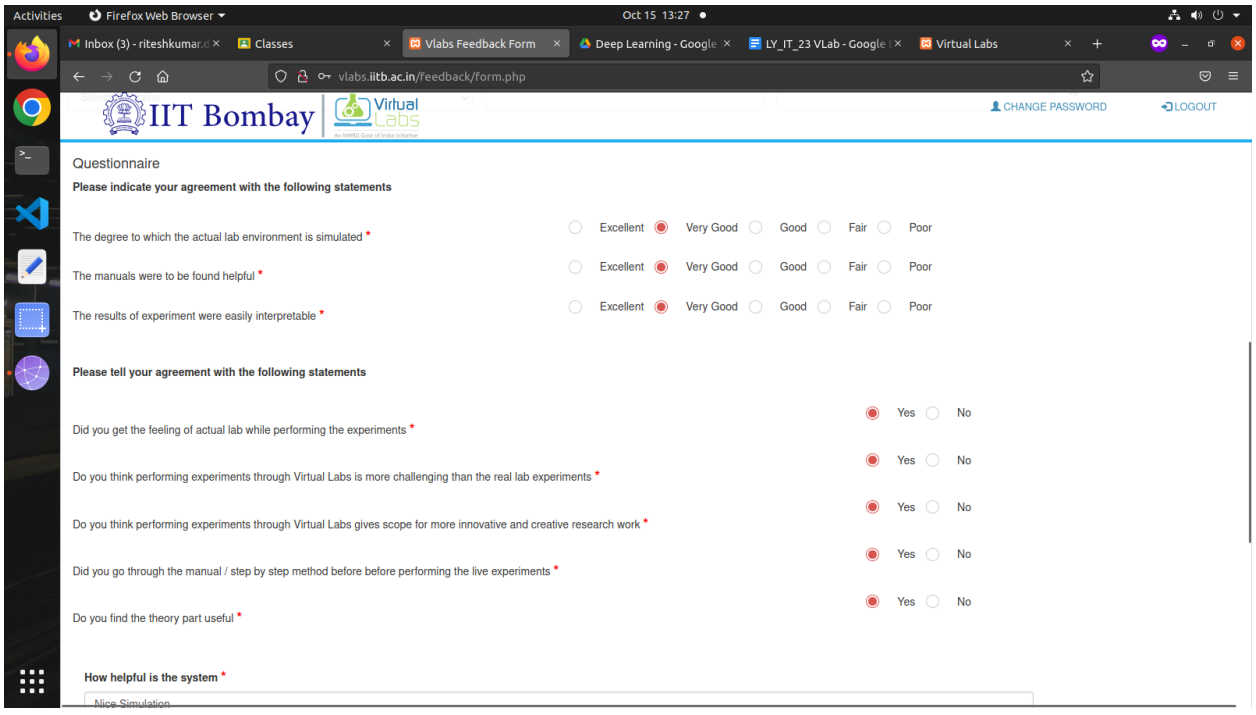
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Please indicate your agreement with the following statements
The degree to which the actual lab environment is simulated *
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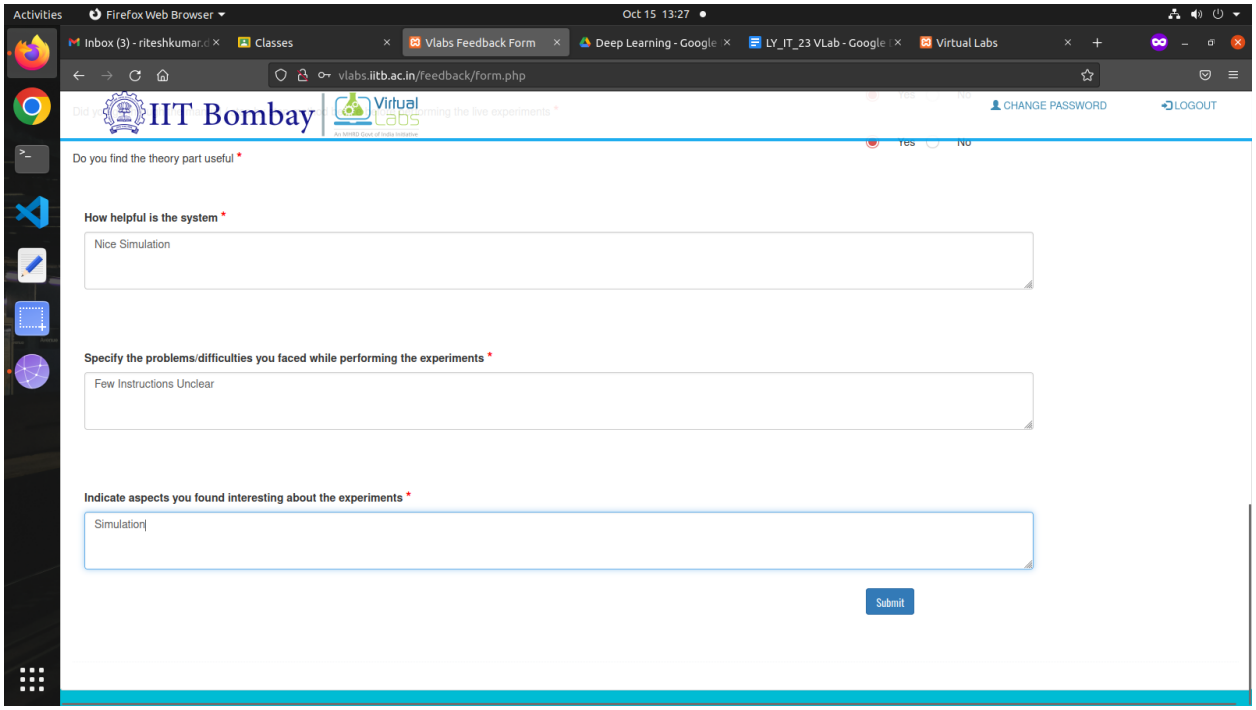
Very Good
Good
Fair
Poor
The manuals were to be found helpful *
Excellent
Very Good
Good
Fair
Poor
The results of experiment were easily interpretable *
Excellent
Very Good
Good
Fair
Poor
Please tell your agreement with the following statements
Did you get the feeling of actual lab while performing the experiments *
Yes
No
Do you think performing experiments through Virtual Labs is more challenging than the real lab experiments *
Yes
No
Do you think performing experiments through Virtual Labs gives scope for more innovative and creative research work *
Yes
No
Did you go through the manual / step by step method before before performing the live experiments *
Yes
No
Do you find the theory part useful *
Yes
No
How helpful is the system *
Nice Simulation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Do you find the theory part useful *
Yes
No
How helpful is the system *
Nice Simulation
Specify the problems/difficulties you faced while performing the experiments *
Few Instructions Unclear
Indicate aspects you found interesting about the experiments *
Simulation
Submit