ASSIGNMENT -1

Individual Assignment (100 points)

Instructions:

- Submit the paper review as a word or pdf file.
- Submit code as a Python notebook (.ipynb) file along with the HTML version.
- Write elegant code with substantial comments. If you have reused code from a website add the links as reference.

1. Paper Review – Select and review a technical paper from the list of papers (40)

2. Train two different models using sklearn to learn each of the following gates: Logistic Regression, Support Vector Machine (SVC)

AND

INPUT		OUTPUT
A	B	
0	0	0
1	0	0
0	1	0
1	1	1

OR

INPUT		OUTPUT
A	B	
0	0	0
1	0	1
0	1	1
1	1	1

XOR

INPUT		OUTPUT
A	B	
0	0	0
1	0	1
0	1	1
1	1	0

NAND

INPUT		OUTPUT
A	B	
0	0	1
1	0	1
0	1	1
1	1	0

Note: To learn the above gates you will need 100% accuracy on the training data. If a gate cannot be learned by the model mention the reason why. (20)

3. Use randomly generated data to demonstrate how the ROC curve differs from (Precision-Recall) PR curve for unbalanced datasets. Plot both curves on different levels of imbalance between the two classes (e.g. 50/50, 75/25, 90/10). Summarize your observations. (20)

4. Design an optimal solution and submit a screenshot with the neural network architecture and hyperparameters for the below classification problem (20). Summarize your design in a few statements.

Refer: https://playground.tensorflow.org/