Assignment 5 : IEC2017047

ANN-1

QUESTION DESCRIPTION:

1. Implement Perceptron training algorithms for AND ,OR, NAND and NOR gates.
2. How will you verify your trained algorithms? Justify your solution.

RESULTS:

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------And Gate-----
Initial Values:
Threshold = -0.024519951936864737 , W1 = 0.3357721851871288 , W2 = 0.7865764596355385

 After training :
Threshold = 0.5754800480631352 , W1 = 0.2357721851871288 , W2 = 0.38657645963553855

------Or Gate-----
Initial Values:
Threshold = -0.21172865393572793 , W1 = 0.7166905948952452 , W2 = 0.4974986840226244

 After training :
Threshold = 0.08827134606427209 , W1 = 0.7166905948952452 , W2 = 0.4974986840226244

------Nand Gate-----
Initial Values:
Threshold = -0.644605883522524 , W1 = 0.5705180845766509 , W2 = 0.6643201002192959

 After training :
Threshold = -0.14460588352252407 , W1 = -0.12948191542334908 , W2 = -0.035679899780704044

------Nor Gate-----
Initial Values:
Threshold = -0.8154029769985117 , W1 = 0.8741496952765961 , W2 = 0.6144211872577462

 After training :
Threshold = -0.015402976998511814 , W1 = -0.025850304723403744 , W2 = -0.08557881274225376
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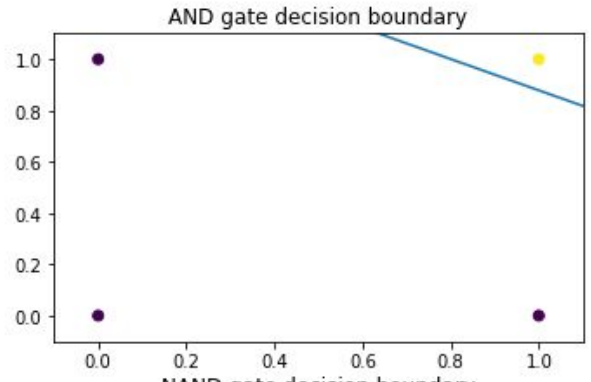
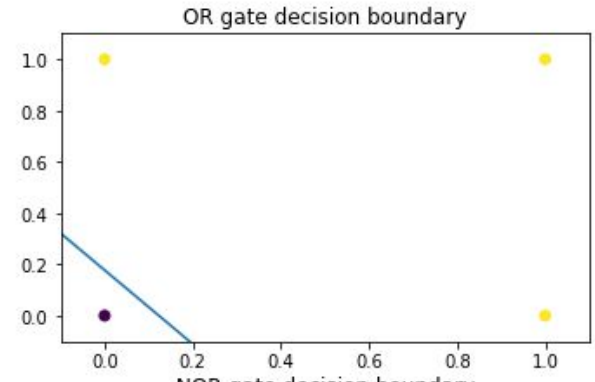
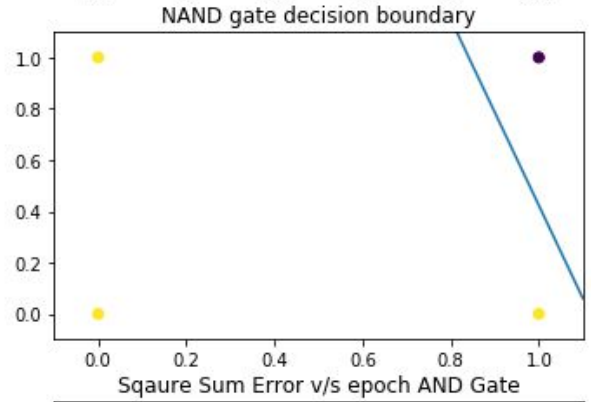
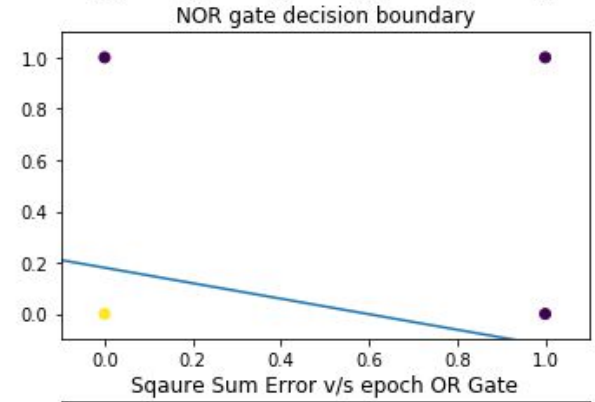
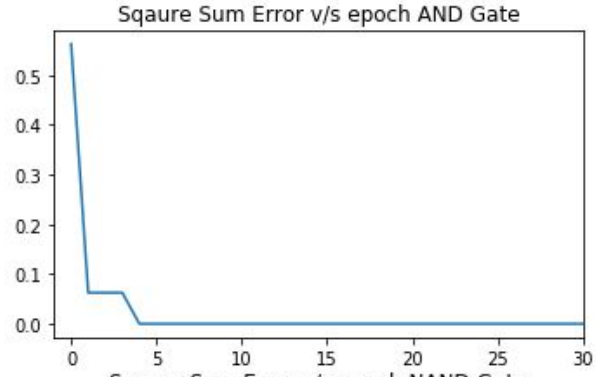
Decision Boundary of Gates, Yellow is 1 and Purple is 0

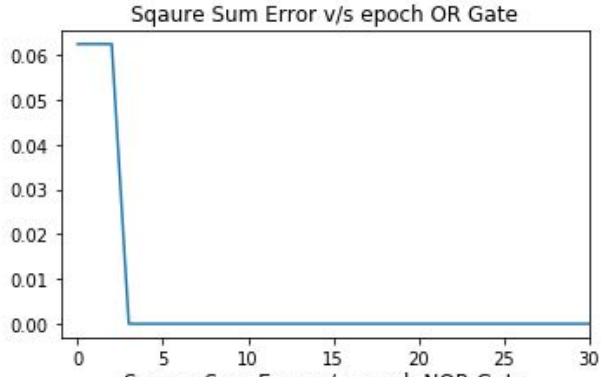


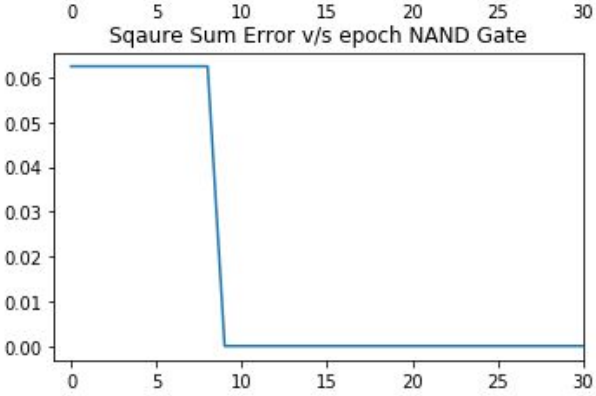


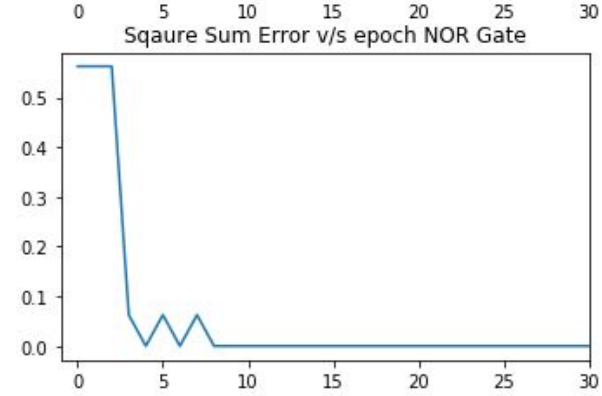












CONCLUSION:

Perceptron Training algorithms for AND, OR, NAND and NOR gates are implemented and verified by plotting the decision boundaries