1. Use Python to train a simple perceptron model to classify the patterns on a NAND function. To begin training, select your initial weights randomly between 2 and -2.

|  |  |  |
| --- | --- | --- |
| X1 | X2 | Target |
| -1 | -1 | 1 |
| -1 | 1 | 1 |
| 1 | -1 | 1 |
| 1 | 1 | -1 |

2. Use Python to train a simple perceptron model to classify a set of randomly generated patterns. Generate randomly two set of data set in two dimensions x1 and x2. One data set has -0.5 <= x1 <= 0.5 and -0.5 <= x2 <= 0.5 with target of -1, and the second data set is between two circles with radius of 3 and 4with the center of the coordinate. To begin training, select your initial weights randomly between 2 and -2.