**NAME : RHEA PANDITA**

**CLASS : AI & DS -B**

**REG NO : 21011101100**

**AI\_ASSIGNMENT : SUBMISSION OF WHITEBOX NEURAL NETWORK DESIGN**

**DESCRIPTION OF THE DATASET :**

1. The dataset is a csv file containing information about wine quality named “winequality-red”
2. Dataset was taken from Kaggle
3. Contains 1600 row x 12 columns (first row = header row)
4. The data type is numeric with 9 columns having float datatype and 3 contain int datatypes.

**Library-Based NN Design :**

1. Have taken this from Kaggle as well
2. Used libraries – numpy, pandas and tensorflow
3. Used inbuilt functions to train the model
4. Usage of sigmoid function gave greater loss compared to ReLu function

**Whitebox NN Design :**

1. Used libraries such as random ,math and csv
2. Made user-defined functions for the model training
3. Usage of sigmoid function gave around 38-40% accuracy
4. Usage of ReLu function gave around 13% accuracy.

**Comparison of results :**

1. When using Sigmoid function and ReLu function for both types of NN, both of them showed considerably less accuracy (greater difference between predicted and expected value)
2. When using sigmoid for blackbox and whitebox, whitebox implementation showed greater accuracy
3. When using ReLu function for blackbox and whitebox, blackbox showed greater accuracy.