HW1 Report

Data Set:

The data set I Choose is the quality of red wine and white wine, each kind of wine contains 1400 lines of data, and the data set has 12 attributes.

Table

Description automatically generated

Neural Network:

Text

Description automatically generated

The neural network I use contains 4 layers, which using backpropagation algorithm, The activation function I use is Sigmoid Function

Graphical user interface, text

Description automatically generated

The loss function I use is mse function and I use Descent as a way to optimization.

Data processing:

Graphical user interface, text, application, email

Description automatically generated

Firstly I read In the data from csv file and store them into a array list.

Then transfer the array list into a matrix in order to fit the model.

I use one-hot method to represent the label.

Text

Description automatically generated

Then I shuffle the data in order to improve the training effect.

Training outcome:

Text

Description automatically generated with medium confidence

The average accuracy is 65.9%

Chart, line chart

Description automatically generated

Confusion Matrix:

Graphical user interface

Description automatically generated with medium confidence

Reference:

<https://www.youtube.com/watch?v=r1TPMvIqJiE&t=761s>

<https://julialang.org/>

https://github.com/nwenzel/Julia\_Neural\_Network/blob/master/julia\_nn\_function.jl