REPORT

PRINCY GAUTAM(B20BB051)

Problem 1

Method

Import necessary libraries needed for calculations and visualization.

Read the iris dataset using pandas library.

Separate the features and target variable from this dataset.

Normalize the data using standard scaler.

Convert the target to NumPy array and then use label encoder over it to turn the categorical variables to numerical.

Split the dataset into train and test sets in the ratio of 70:30.

Import MLP Classifier from the scikit library.

Classify with the help of MLP model with two hidden layers and different learning rate.

Fit the model over training sets and make predictions. Print the score over training set and accuracy over predictions and test.

Crate an empty list.

Implement MLP over a range of max iterations with a step of 10.

Fit the model and make predictions

Calculate the mean squared error and append these values in the empty list.

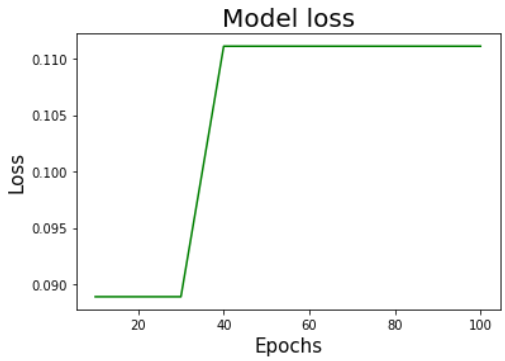
Plot a graph between the max iterations and the loss values.

Results and observations

We see that the target variable of the form of categorical needs to be converted to numerical.

Constant learning rate gives us highest accuracy and invscaling giving the least.

Loss is a result of bad prediction. If the model's prediction is perfect, the loss is zero; otherwise, the loss is greater. High loss is worse for any model.



Problem 2: (Regression Task)

Method

Download and read the train and test datasets with the help of pandas library.

The dataset requires preprocessing.

In the test dataset count the missing values.

Create an empty list and append it with the values if sum of nan counts is positive.

If a column entry has a data type of object then it must be replaced with xx , or else if the data type is float then replace it with the mean.

This way all the missing values are replaced.

Use one hot encoder over the categorical column.

Train the MLP model and print the predictions of the house prices.

Calculate MSE.

Plot the histogram.

Results and observations

We need to preprocess the data using many ways.

Predictions are shown for sale price of house.

I was getting a last moment error in this problem 2 which I could not solve due to time boundations.

Colab file link:

https://colab.research.google.com/drive/1ritteoj9GjtbswwNJNuLF52YGCP7YH8#scrollTo=agm4rkoGQm9C