Assignment 3- Artificial Neural Network Regressor

Due May 13, 2025, Time 24:00

1. Given the dataset in .csv file containing 506 observations and 13 attributes. Use the provided dataset for building a Neural Network model to predict the house price in suburbs (the 14th column).
2. Use Python library: Tensorflow, Keras for implementation.
3. Partition the dataset into train:test = 80:20, random seed and random state = 1234.
4. Perform data preprocessing as appropriate, such as Data Normalization by StandardScaler
5. Construct 1-hidden layer Neural Network model trained with **relu** activation and Adam optimizer.
6. Use Keras tuner, a library that helps you search for optimal hyperparameters: number of units in the hidden layers, and the learning rate for Adam optimizer
7. Fine-tune the training model with validation_split = 0.2. Plot loss graph to optimize the number of trained epochs.
8. Test the output model at the epoch of the best loss. Evaluate the model performance with MAE, MSE, RMSE.
9. Analyze and summarize the results in terms of MAE, MSE, RMSE.
10. Submit the PDF report file including the link to your colab notebook.