Implementation of ANN in Keras

Assignment Questions

PW SKILLS

Q1. Install and load the latest versions of TensorFlow and Keras. Print their versions.

Q2. Load the Wine Quality dataset and explore its dimensions.

Dataset link: **https://www.kaggle.com/datasets/nareshbhat/wine-quality-binary-classification**

Q3. Check for null values, identify categorical variables, and encode them.

Q4. Separate the features and target variables from the dataset.

Q5. Perform a train-test split, dividing the data into training, validation, and test datasets.

Q6. Scale the dataset using an appropriate scaling technique.

Q7. Design and implement at least two hidden layers and an output layer for the binary categorical variables.

Q8. Create a Sequential model in Keras and add the previously designed layers to it.

Q9. Print the summary of the model architecture.

Q10. Set the loss function('binary_crossentropy'), optimizer, and include the accuracy metric in the model.

Q11. Compile the model with the specified loss function, optimizer, and metrics.

Q12. Fit the model to the training data using appropriate batch size and number of epochs.

Q13. Obtain the model's parameters (weights and biases).

Q14. Store the model's training history as a Pandas DataFrame.

Q15. Plot the training history (e.g., accuracy and loss) using suitable visualization techniques.

Q16. Evaluate the model's performance using the test dataset and report relevant metrics.

Note: *Create your assignment in Jupyter notebook and upload it to GitHub & share that uploaded assignment file link through your dashboard. Make sure the repository is public.*