Fashion MNIST - Machine Learning Project

Project Summary

The project is an implementation of a Dense Neural Network for the Fashion MNIST dataset using the Keras API. It includes functions to load the data, build and train the model, and evaluate its performance on test data.

The denseNN function builds and trains a dense neural network on the training data. It takes in data subsets and hyperparameters, constructs a Sequential model with dense layers specified by denseLayers, and compiles the model with a loss function and metric. It then trains the model on the training data using the fit method of the Sequential object. If valProportion is not zero, it validates the model on the validation data. The function returns the training history and evaluation results.

Dense neural networks are a type of artificial neural network that have become increasingly popular in recent years due to their ability to learn complex non-linear relationships in data. They are used in a wide variety of applications, including image and speech recognition, natural language processing, and machine translation.

One of the key benefits of dense neural networks is their ability to automatically learn features from raw data, which eliminates the need for manual feature engineering. This is particularly useful in cases where the input data is high-dimensional and difficult to analyze using traditional methods.

Overall, this code provides a framework to train and evaluate dense neural networks on the Fashion MNIST dataset, while allowing for flexibility in choosing hyperparameters and network architecture.