Programming task

Image Classification Task:

- Load the MNIST dataset.
- Build a simple convolutional neural network (CNN) using Keras Sequential model.
- Train the CNN model on the MNIST dataset.
- Evaluate the model's performance on a test set and report accuracy.
- Use grid search to optimize hyperparameters such as learning rate, batch size, and optimizer choice.
- Use Callback functions to automate training process like “ReduceLROnPlateau” and keep check on validation loss. Also use history object for result visualization.

Text Classification Task:

- Load the IMDb movie reviews dataset.
- Preprocess the text data (tokenization, padding).
- Build a simple recurrent neural network (RNN) for text classification.
- Train the RNN model on the IMDb dataset.
- Evaluate the model's performance on a test set and report accuracy.
- Use grid search to optimize hyperparameters such as learning rate, batch size, and optimizer choice.
- Use Callback functions to automate training process like “ReduceLROnPlateau” and keep check on validation loss. Also use history object for result visualization.