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**Project\_5 Handwritten Digit Classification report**

The project on handwritten digit classification utilizing the MNIST dataset successfully demonstrated the capabilities of a Convolutional Neural Network (CNN) in image recognition tasks. Through data preprocessing, pixel values were normalized, and the dataset was reshaped to meet the CNN's input requirements. A sequential CNN architecture was implemented with convolutional, pooling, dense, and dropout layers, effectively balancing feature extraction and reducing overfitting.

The model achieved high accuracy, validated through metrics such as the confusion matrix and classification report. Training and validation history plots showcased steady improvement and minimal overfitting. This project highlighted the efficacy of neural networks for digit classification and emphasized potential for further enhancements via architectural modifications and data augmentation strategies.