**MNIST Handwritten Digit Classification using a CNN**

📖 Project Overview

This project demonstrates a classic computer vision task: classifying handwritten digits from the MNIST dataset. It utilizes a Convolutional Neural Network (CNN) built with TensorFlow and Keras to achieve high accuracy in recognizing digits from 0 to 9.

This implementation is a foundational example of how CNNs can be used for image classification tasks. It covers the complete workflow, from loading and preprocessing the data to building, training, and evaluating the model.

✨ Features

Dataset: Uses the standard MNIST dataset, which is automatically downloaded.

Data Preprocessing: Includes reshaping, normalization, and one-hot encoding for optimal model performance.

Model Architecture: A sequential CNN model with multiple convolutional, max-pooling, and dense layers.

Training: Trains the model on 60,000 training images and validates on a subset of that data.

Evaluation: Measures the final accuracy of the trained model on 10,000 unseen test images.

Clear Output: Prints the model summary and final test accuracy to the console.