CIFAR-10 Image Classification Project Summary

Project Overview

This project involves building a Convolutional Neural Network (CNN) using TensorFlow and Keras to classify images from the CIFAR-10 dataset. The dataset consists of 60,000 32x32 color images divided into 10 classes such as airplane, automobile, bird, cat, dog, and more.

Objectives

- Load and normalize CIFAR-10 dataset
- Build a CNN model with convolutional, pooling, and dense layers
- Train the model on training data
- Evaluate model performance
- Visualize predictions using Matplotlib

What I Learned

- Learned the architecture and functioning of CNNs for image classification
- Understood the impact of normalization on model training
- Gained experience handling environment issues and dataset download errors
- Practiced using Google Colab for better resource management
- Learned how to evaluate deep learning models using loss and accuracy metrics

Matplotlib Usage

Matplotlib was used to visualize training samples and model predictions. It helped in understanding whether the model predictions matched the actual labels. The `imshow()` function was used to display images and `title()` to annotate predictions.