Case Study: Real-World Deployment of Brain Tumor Classifier

Objective:

To automate the classification of brain MRI scans into tumor and non-tumor categories using a deep learning model that can assist radiologists in faster diagnosis.

Tools & Technologies:

Python
TensorFlow / Keras
Matplotlib & Seaborn
VS Code / Jupyter

Implementation Summary:

We implemented MobileNetV2 with a custom classification head. The model was trained on a labeled MRI dataset. Accuracy and loss plots were generated, and the confusion matrix demonstrated reliable classification performance.

Outcome:

- Validation Accuracy: ~87%
- Inference Time: ~20ms per image
- Deployment Suitability: Ideal for hospitals with limited computational infrastructure.

Impact:

Our deep learning model can serve as a second opinion tool for radiologists, reducing workload and enhancing diagnostic efficiency.