**Brain Tumor Classification Using Deep Learning**

**ABSTRACT :**

This project presents an automation system for detecting and classifying brain tumors from MRI images using deep learning techniques. Leveraging ResNet50, a deep convolutional neural network (CNN) architecture, which is very strong at high performance for image recognition, for recognizing the patterns in association with the kind of tumors, the system accurately identifies and analyze MRI images to classify a given brain scan into one of four categories: Glioma, Meningioma, Pituitary tumors, and Normal (non-tumorous) cases. The model was trained and validated on a labelled dataset of MRI images to ensure robust performance in tumor classification. To enhance usability, we have developed a web application of the system by using Flask, allowing users to upload MRI scans and receive real-time predictions. Experimental results demonstrate the system’s effectiveness, achieving high accuracy in multi-class tumor classification. This project aims to aid medical practitioners in early diagnosis and treatment planning by providing a reliable and accessible tool for brain tumor analysis.

**Key points:** Brain tumor detection, MRI image classification,Deep learning,ResNet-50,Transfer learning,Medical image analysis,Flask web application,Automated diagnostics

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