NARASARAOPETA ENGINEERING COLLEGE

(Autonomous)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2023-2024

Batch Number	BB-4
Team Members	Malapati Venkata Sai Pavan Kumar - 20471A0596 Sampathi Gopi Krishna - 20471A05B0
Guide	N.Vijaya Kumar
Title	**Brain Tumor Detection**
Domain/Technology	Deep Learning
Dataset Link	https://www.kaggle.com/navoneel/brain-mri-images-for-brain-tumor-detection
Base Paper Link	https://acrobat.adobe.com/link/review?uri=urn%3Aaaid%3Ascds%3AUS%3Abe54e288-f3b9-3b1d-9239-304ee012462a
Software Requirements	Browser: Any Latest browser like Chrome Operating System: Windows 10 Language: Python Platform: Visual Studio Code
Hardware Requirements	Processor: Intel(R) Core™2 i5-5500U CPU @ 2.50GHz RAM: 8GB (gigabyte) System Type: 64-bit operating system, x64-based processor
Abstract	The accurate and timely detection of brain tumors plays a crucial role in the effective management of neurological disorders. This abstract presents a comprehensive overview of a novel approach for brain tumor detection leveraging deep learning techniques. Our proposed method utilizes convolutional neural networks (CNNs) and VGG16 techniques to analyze medical imaging data, specifically magnetic resonance imaging (MRI) scans.The workflow involves pre- processing of MRI images to enhance features, followed by a CNN- based feature extraction stage that learns hierarchical representations. The extracted features are then fed into an VGG16 methodology to capture temporal dependencies and spatial relationships within the data. This hybrid deep learning architecture enhances the model's ability to discern subtle patterns indicative of brain tumors, improving both sensitivity and specificity.To facilitate model training and evaluation, a curated dataset of diverse brain tumor cases is utilized. The model demonstrates promising results in terms of accuracy, sensitivity, and specificity during rigorous validation and testing phases. The proposed approach not only outperforms traditional methods but also exhibits robustness against variations in imaging conditions and tumor characteristics.In conclusion, our deep learning-based approach showcases the potential for significantly improving the accuracy and efficiency of brain tumor detection in clinical settings. The integration of CNN and VGG16 methods in a unified framework demonstrates the synergy of spatial and temporal information, making it a promising avenue for enhancing the capabilities of automated brain tumor diagnosis.

Signature of the team members **Signature of the Guide** **Signature of the project coordinator**