Project Proposal

Abdullah Alshamrani

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Project Information

Name: Abdullah Alshamrani
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Team Members: Abdullah Alshamrani
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Brief Project Description

This project aims to deliver a diagnostic outcome regarding the presence or absence of brain tumors based on the analysis of medical images, specifically utilizing publicly available brain tumor future datasets including images, features, and labels obtained from Kaggle[1]. The project involves exploratory data analysis (EDA), Data preprocessing, comparison of traditional machine learning and deep learning models, and focus on convolutional neural networks to choose the most optimal machine learning model. Additionally, I will design an interactive user interface to upload an image and obtain the output of brain tumor classification.

Scope of Technology

The project proceeds with EDA to gain valuable insights and patterns within the dataset. Subsequently, a meticulous data preprocessing phase ensures that the collected data is appropriately cleaned and prepared for effective model training. The project then delves into a thorough comparison between traditional machine learning models and deep learning models, placing a specific emphasis on Convolutional Neural Networks (CNNs). The goal is to identify the most optimal machine learning model for accurate brain tumor classification using Python and Flask Web App. As a user-centric enhancement, the technology project extends its scope to the design and implementation of an interactive user interface. This interface enables users to effortlessly upload medical images and receive the output of brain tumor classification, making the entire diagnostic process accessible and user-friendly. In summary, the technology project integrates data science, machine learning, and user interface design to deliver a useful solution for diagnosing the presence or absence of brain tumors based on medical image analysis.

References

[1] https://www.kaggle.com/datasets/jakeshbohaju/brain-tumor/data