Project Initialization and Planning Phase

Date	15 March 2024
Team ID	Team-738168
Project Title	Cognitive Care: Early Intervention for Alzheimer's Disease
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

Alzheimer's disease (AD) is a progressive and irreversible neurological disorder that affects the brain, leading to memory loss, cognitive impairment, and changes in behavior and personality. It is the most common cause of dementia among older adults and is characterized by the buildup of abnormal protein deposits in the brain, including amyloid plaques and tau tangles.By using deep learning models like Xception to analyze medical imaging data, it may be able to identify early signs of Alzheimer's disease before symptoms become severe. This can help healthcare providers to provide early treatment and support for patients and their families, ultimately leading to better outcomes for all involved.

Project Overview	
Objective	Primary Objective:- • Is to develop an AI model for early and accurate detection of Alzheimer's disease. • Improve the sensitivity of cognitive assessments by leveraging transfer learning techniques. • Facilitate early intervention for individuals at risk for Alzheimer's disease..
Scope	This project focuses on the development and initial testing of the Cognitive Care AI model. The scope includes: • Data collection and pre-processing of cognitive assessments, brain scans, and electronic health records. • Training and refining the AI model using transfer learning. • Validation of the model's accuracy in detecting early signs of AD. • Developing a user interface for healthcare professionals to access the model's results.
Problem Statement	

Description	The core principle of cognitive care is to intervene at the earliest stages of Alzheimer's, when symptoms are mild or even during the preclinical phase. Early intervention holds the potential to maximize the effectiveness of strategies and improve patient outcomes.
Impact	solving the problem by creating an accurate Alzheimer's Disease prediction model that has potential to revolutionize patient care, reduce healthcare costs, and improve the lives of individuals and families affected by this devastating disease.
Proposed Solution	
Approach	Employing Deep Learning techniques to analyze and predict Alzheimer's Disease.Create a dynamic and adaptable Alzheimer's Disease detection system using CNN model.
Key Features	Implementation of Deep Learning-based on Alzheimer's Disease detection model.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	Intel(R) Core(TM) i5-1035G1 CPU @ 1.00GHz 1.19 GHz
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Colab
Libraries	Additional libraries	pathlib,numpy,random matplotlib.pyplot,os,pandas, tensorflow,scikit-learn
Development Environment	IDE, version control	Colab,Flask,HTML
Data		
Data	Source, size, format	Kaggle dataset, 6,400 images