**Project Initialization and Planning Phase**

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| Date | 9 December 2024 |
| Team ID | 739902 |
| Project Title | Alzheimer Disease Prediction |
| Maximum Marks | 3 Marks |

**Project Proposal (Proposed Solution) template**

This project proposal outlines a solution to predict Alzheimer’s disease using deep learning techniques. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

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| **Project Overview** |  |
| Objective | To develop a deep learning model capable of predicting the risk of Alzheimer’s disease early using brain imaging. |
| Scope | The project focuses on building and evaluating a predictive model for Alzheimer’s risk. It includes data collection, preprocessing, model development, and deployment. The application is intended for researchers and healthcare professionals. |
| **Problem Statement** |  |
| Description | Early detection of Alzheimer’s disease is challenging due to the lack of accessible diagnostic tools that analyze complex data like imaging. |
| Impact | Solving this problem would enable early interventions, improve patient outcomes, and reduce healthcare costs by offering a non-invasive, data-driven diagnostic approach. |
| **Proposed Solution** |  |
| Approach | 1. Collect data from public datasets, such as MRI scans. 2. Preprocess and clean the data to ensure quality. 3. Engineer features that are significant for Alzheimer’s prediction. 4. Build and evaluate deep learning model that is xception model to predict Alzheimer’s risk. 5. Deploy the model as a user-friendly web-based tool for healthcare use. |
| Key Features | 1. Deep learning algorithms for Alzheimer’s prediction.  2. A comprehensive analysis of multi-modal data (imaging).  3. Deployment of a web-based interface for user interaction. |

**Resource Requirements**

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| **Resource Type** | **Description** | **Specification/Allocation** |
| **Hardware** |  |  |
| Computing Resources | CPU/GPU specifications | T4 GPU |
| Memory | RAM specifications | 8 GB |
| Storage | Disk space | 1 TB SSD |
| **Software** |  |  |
| Frameworks | Python frameworks | Flask, TensorFlow |
| Libraries | Additional libraries | numpy, tensorflow, sklearn, imblearn |
| Development Environment | IDE, version control | Jupyter Notebook, Git |
| **Data** |  |  |
| Data | Source, size, format | Kaggle dataset, 10,000 images, JPG |

