Project Design Phase-I
Solution Architecture

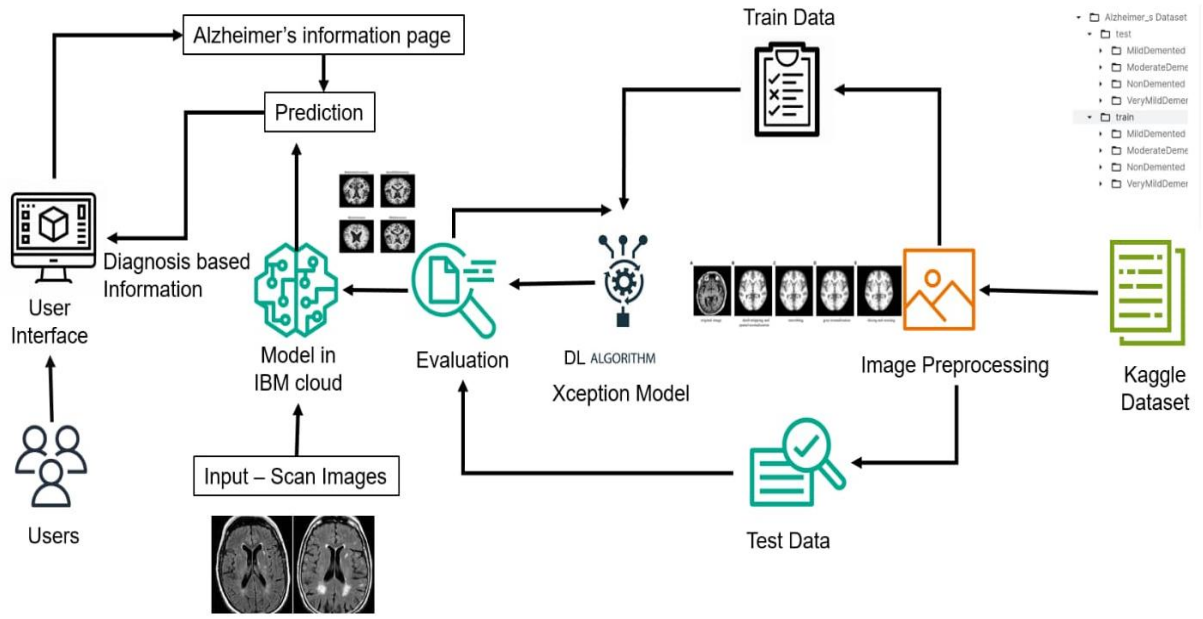
Date	5 May 2023
Team ID	NM2023TMID00211
Project Name	Project - Cognitive care: Early Intervention for Alzheimer's Disease
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges
the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

Solution Architecture Diagram :



Solution Architecture for Alzheimer's Prediction Web Application

User Interface (UI) :

The Alzheimer's prediction web application has a user interface that enables users to interact with the application. The UI has 3 options, namely general information about Alzheimer's disease, Alzheimer's disease prediction and image selection and diagnosis based information

Xception Deep Learning Model:

Once the user selects an image via application, the chosen image is processed by the Xception deep learning model. The Xception model is a convolutional neural network that has been trained on a Kaggle dataset to recognize patterns and features in medical images related to Alzheimer's disease.

Dataset :

Dataset consists of two files - Training and Testing both containing a total of around 5000 images each segregated into the severity of Alzheimer's The data consists of MRI images. The data has four classes of images both in training as well as a testing set:

Mild Demented

Moderate Demented

Non Demented

Very Mild Demented

Flask Application :

The Xception model is integrated with a Flask application, which is a web application framework that allows for the integration of different components of the application.UI is done with the help of Flask,html,css.

Prediction Generation :

The Xception model analyzes the image and generates predictions about the likelihood of Alzheimer's disease. These predictions are displayed on the Flask UI for the user to see. Additionally, the application may display information about treatments and potential next steps for users who receive a positive prediction.

IBM Cloud:

The model is integrated with IBM cloud for final deployment.

Benefits:

This process enables users to input an image and receive accurate predictions quickly. By utilizing the power of deep learning and machine learning algorithms, the application can provide accurate predictions that can help users take proactive steps towards better health.