CENG3522 Applied Machine Learning Project

# Project Name

**Brain Tumor Detection System**

# Team Members

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# Goal /Motivation

With the advancement of medical technologies today, the early detection and treatment of many health issues have become possible. However, the early diagnosis of conditions such as brain tumors, which can pose potential life-threatening risks, still remains a significant challenge. To overcome these challenges and provide more effective healthcare services, we are focusing on innovative solutions based on artificial intelligence and machine learning.

Our goal is to develop a detection machine capable of identifying brain tumors early and accurately, providing a valuable contribution to the diagnostic process of medical experts. This machine could play a critical role in saving patients lives and improving the medical intervention process.

# Description of the Learning Problem

The learning problem in this project involves classifying MRI images into two categories: those indicating the presence of a brain tumor and those showing no evidence of a tumor. This falls under the domain of supervised learning, where the algorithm learns from labeled data to make predictions on unseen data.

# Datasets

Describe the data objects in this set and their features.

Provide a description of how you obtained or plan to generate the dataset

Provide the citation to the paper if alternative 3 is picked

## Services

List the services/APIs used for the system, especially alternative 4 is picked.

Yolo v8

Google Collabd

Roboflow

## Methods

We needed an object detection system, and we chose the YOLOv8 model for this purpose. To prepare our dataset for use with YOLOv8, we labeled all our data by separating it into classes using Roboflow.