

Project Assessment Report

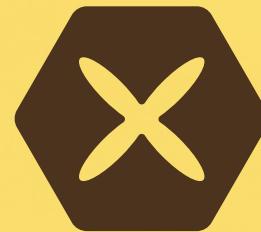
COURSE: DEEP LEARNING AND REINFORCEMENT LEARNING,

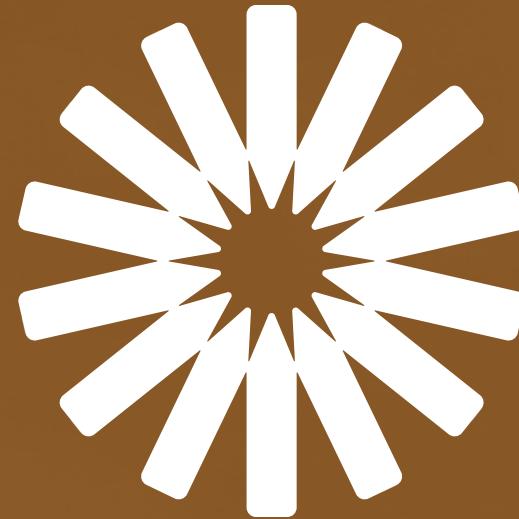
STUDENTS: SOHAM RAO(1BG23CS154)

SUHAS R(1BG23CS162)

THANMAYEE MK(1BG23CS169)

PROJECT TITLE: TUMOR DETECTION





Project Goals

The main goal is to develop an **AI model** that assists in diagnosing MRI scans, significantly improving accuracy and efficiency in healthcare.

Intended Impact

To increase the accuracy of pre-existing brain tumor detection models using Convolutional Neural Networks (CNNs) for classifying MRI images.

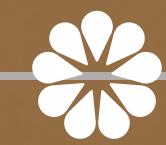
Project Objective



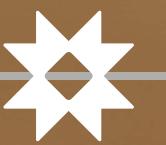
Methodology and Workflow



Data Collection
Loaded MRI dataset containing images with and without brain tumors (labeled as yes and no)



Data Preprocessing
Preprocessed and split data into training and testing sets



Model Training
Designed and implemented a CNN model using PyTorch



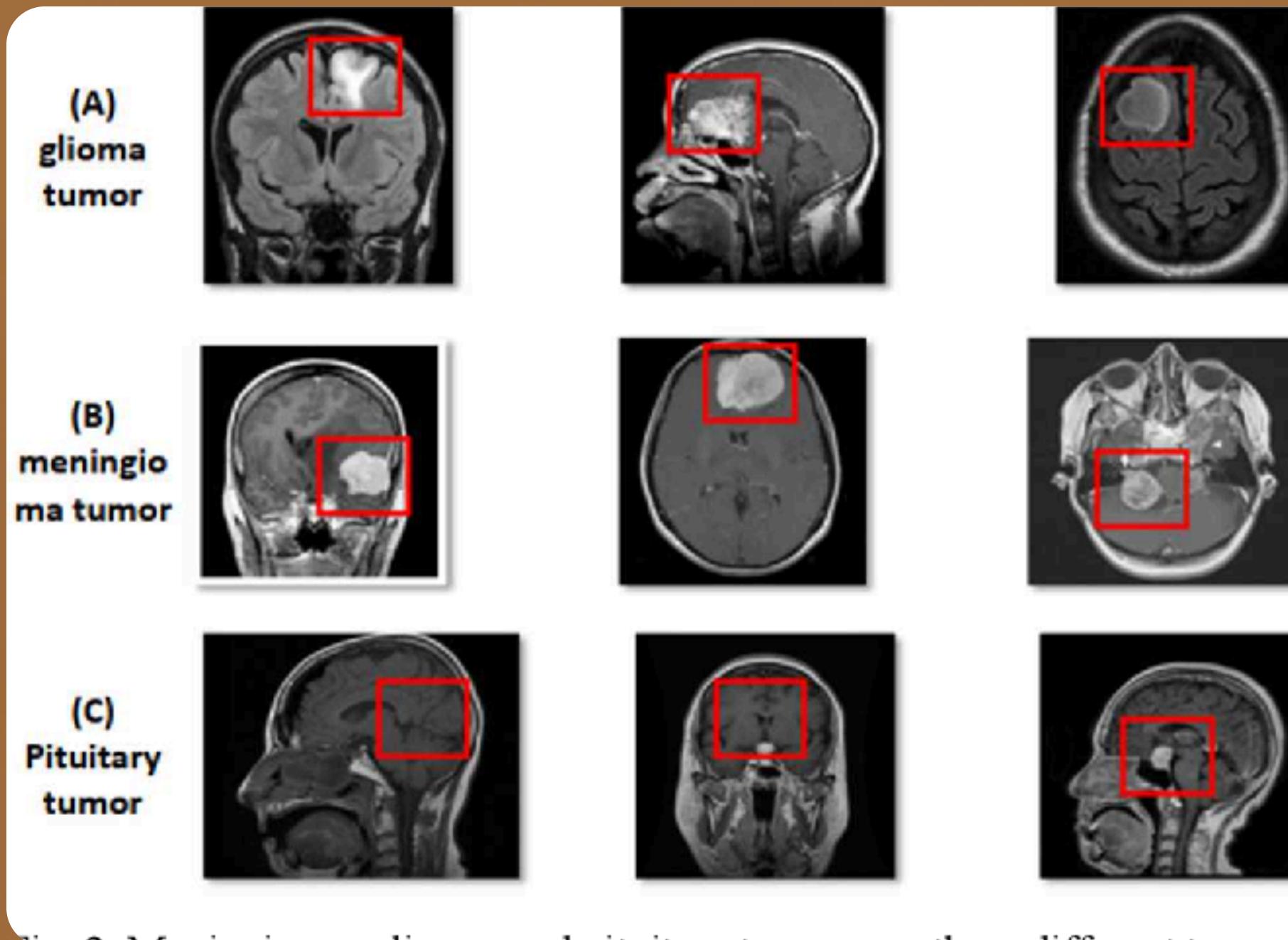
Model Evaluation
Trained the model on labeled data



Implementation
Evaluated the model's performance using standard metrics



Key Project Assumptions



Data Quality

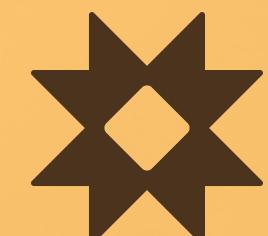
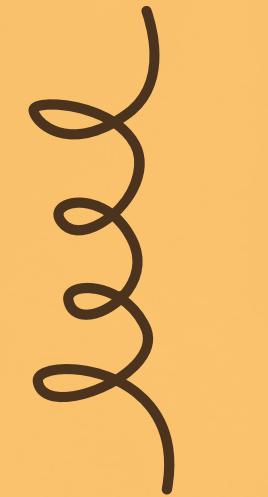
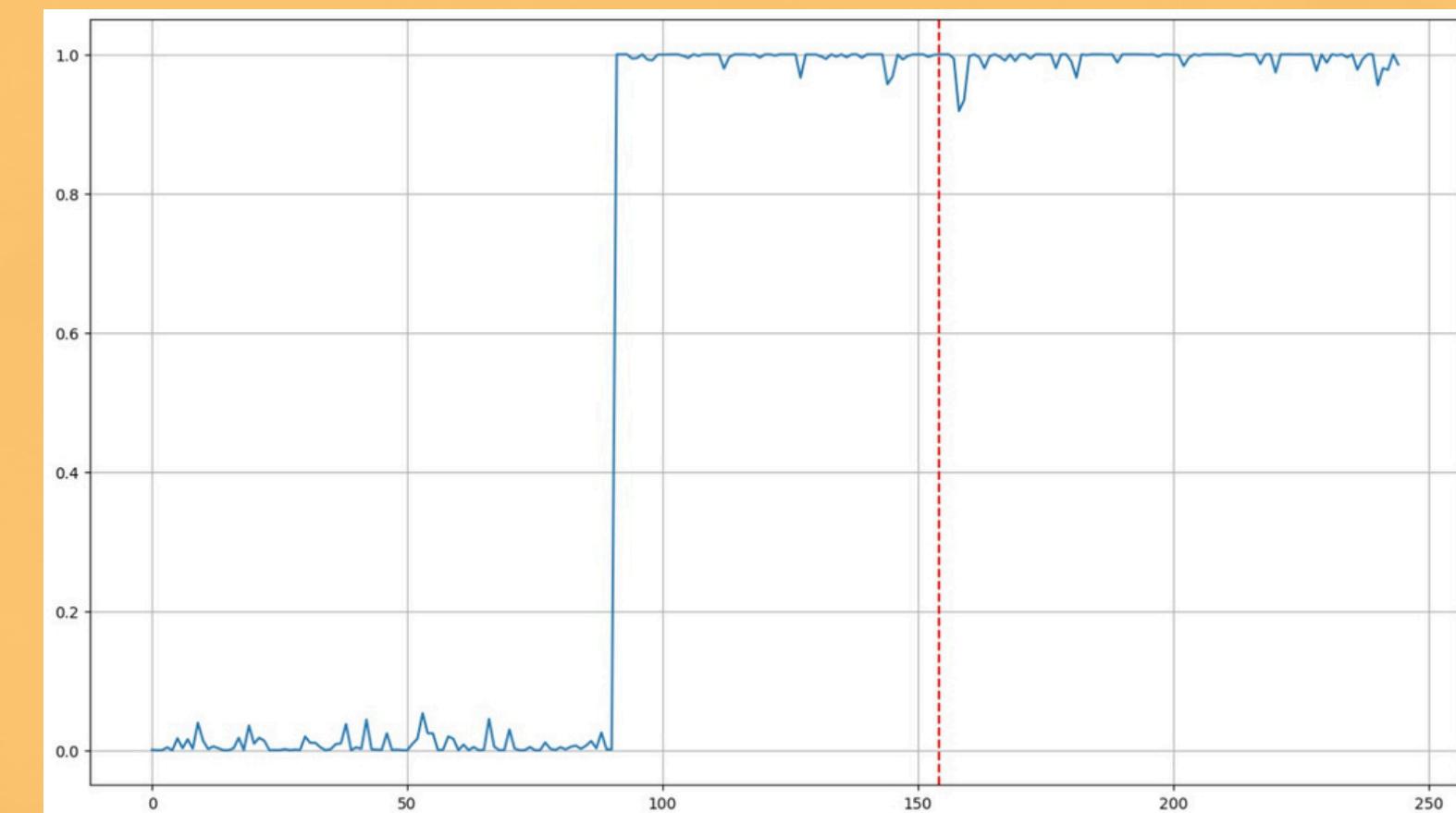
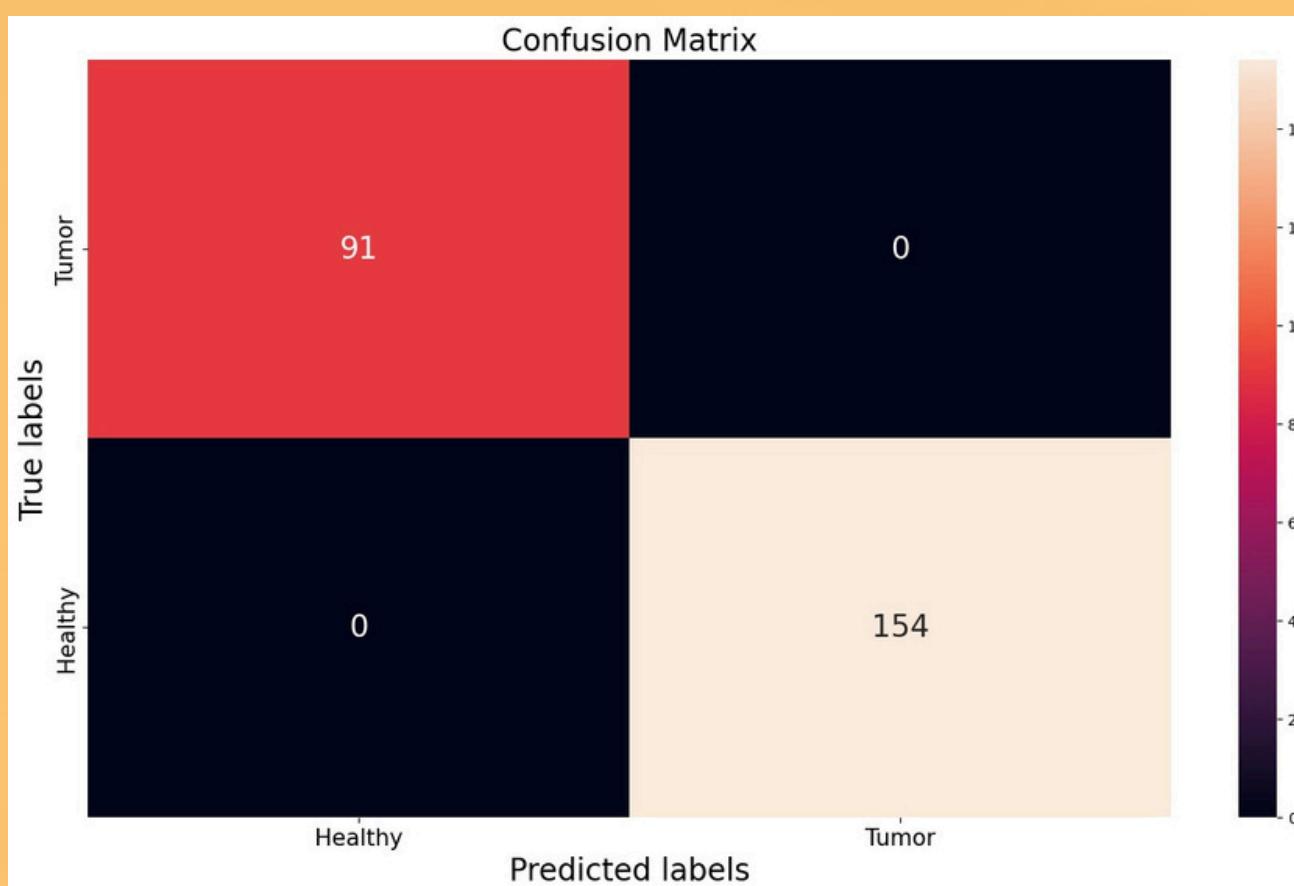
- The dataset is correctly labeled and representative of real-world MRI scans
- The input MRI images are of consistent quality and format
- Tumors in the images are visibly distinguishable by the CNN
- Binary classification (yes/no) is sufficient for the scope of this project

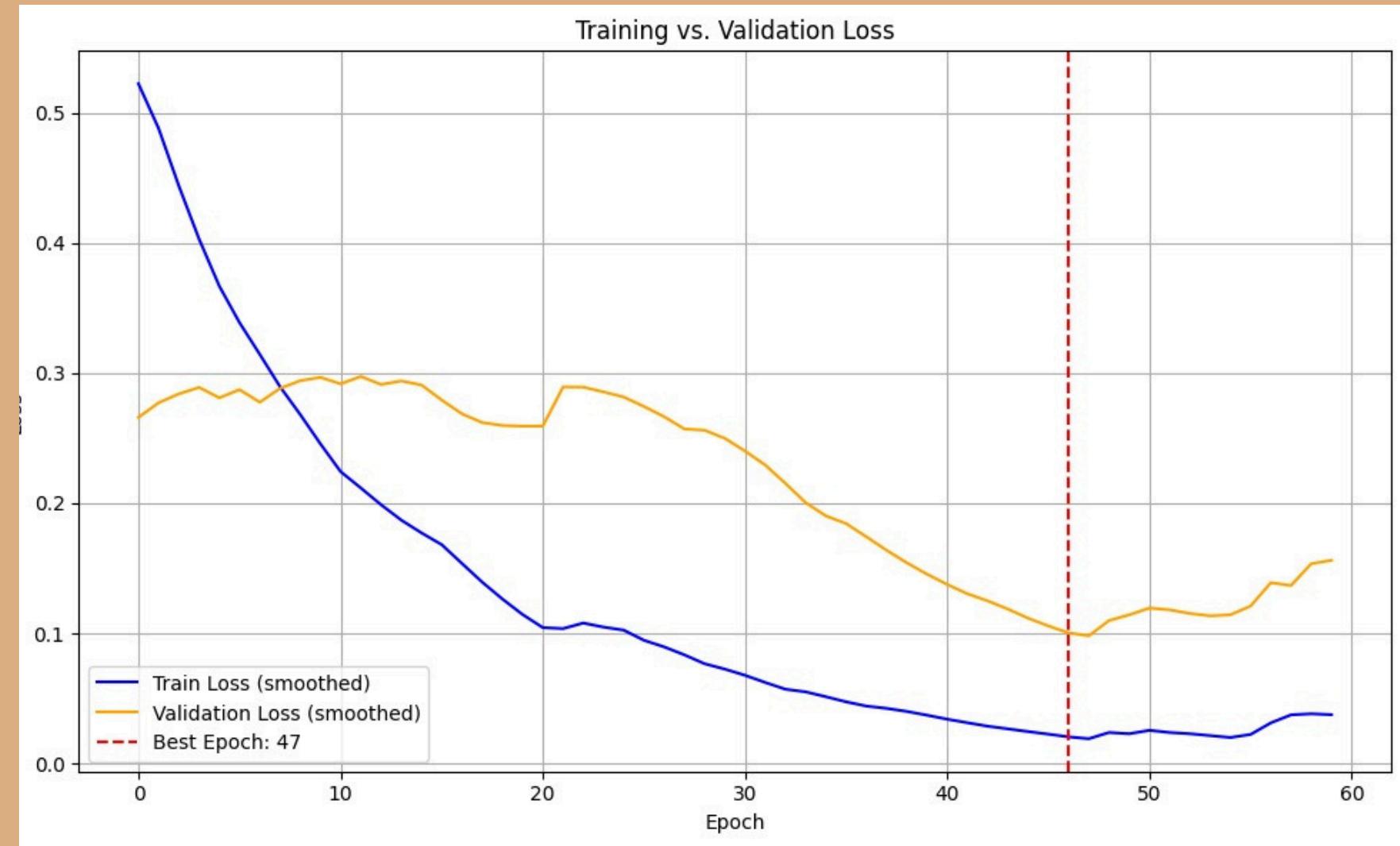
Evaluation Metrics

- Achieved high accuracy in classifying MRI images
- Model showed strong performance on test data, indicating good generalization
- Confusion matrix, accuracy, loss curve, and sample predictions were used for evaluation (add visual content here if needed)

Future evaluations will focus on enhancing model robustness through additional training with diverse datasets.

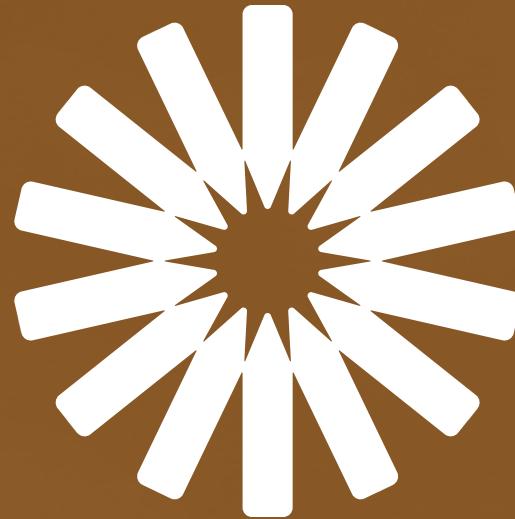
- adding prognosis prediction (meaning how much more time they'll live for)





Normal-77.5% accuracy

Resent Model-95.9% accuracy



Summary of Project Results and Implications

Key Findings

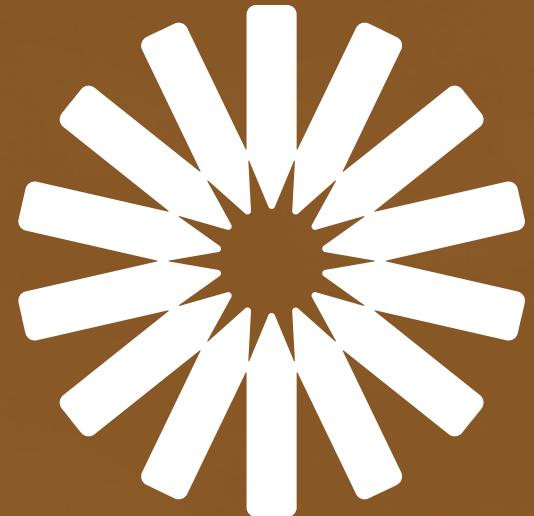
The AI model successfully predicted **health outcomes** with a high degree of accuracy, demonstrating significant potential in enhancing MRI diagnostics for clinicians.

Successfully developed a CNN model that can classify brain MRI scans based on the presence or absence of a tumor.

Outcomes:

This project contributes to improved efficiency in healthcare diagnostics and aids early detection of brain tumors, potentially saving lives.





-
- Integrate a chatbot assistant to interpret model results and explain the MRI report in simple terms
 - Add tumor localization using techniques like Grad-CAM to highlight affected areas
 - Include a prognosis estimator to predict patient outcomes based on image and clinical data
 - Expand classification to include types or grades of tumors

Future Directions for the Project



Thankyou