CS – Diagnosing Alzheimer's Disease

DS 4002 – Spring 2023
Submission format: GitHub repository link
Individual Assignment

General Description: Submit to canvas a link to your GitHub repository for this case study

Preparatory Assignments: Everything in the course, especially finding communication

Why am I doing this? This is a chance to use the lessons learned in the course to employ skills at optimizing models and identify most ideal model to accomplish your goal. Additionally, it will challenge you to determine the best metric for assessing success of a model.

- Course Learning Objective: Analyzing image data
- Course Learning Objective: Prepare findings for written communication

What am I going to do? You will read the hook document to understand the prompt. The document will outline the task you would need to accomplish for this assignment. You will use CNN to create a model for image classification. You will then identify and create a different image classification model to accomplish the same task. Lastly, you will identify an analysis metric to evaluate and compare the two models' performance.

Tips for success: Talk to the professor and TA and be sure to ask any questions you

How will I know I have Succeeded? You will meet expectations on CS- Diagnosing Alzheimer's Disease when you follow the criteria in the rubric below.

Spec Category	Spec Details
Formatting	The final public Github repository should contain all of the following components: - README.md - License - Deliverable Model 1: CNN - Deliverable Model 2: Student's choice - Model evaluation document
README.md	Goal: Provide a brief overview of the case study and analysis outcomes Includes the following sections: - Title, Date, Author - Research Question - Brief Context - CNN Output - Model 2 Output (include a brief justification of model choice) - Conclusions (brief assessment of models using chosen metric and performance comparison) - References used (in IEEE format)
License	Goal: Explain to repository viewers the terms of using and/or sharing code found in this repository - MIT license is generally the default
CNN Model	Goal: Create a file with a CNN model for classifying MRI images - Code should categorize an input image into one of the four categories: Very Mild, Mild, Moderate, and no AD - Code should output a confusion matrix for the test set, as well as the chosen metric (ex/ RMSE)
Model 2 (Student Choice)	Goal: Identify another model for image classification; justify and employ the model - Code should categorize an input image into one of the four categories: Very Mild, Mild, Moderate, and no AD - Code should output a confusion matrix for the test set, as well as the chosen metric (ex/ RMSE)
Model Evaluation	Goal: Create a brief document outlining the outcomes of the models' performances - Should include brief discussion of the two models' performances in terms of chosen evaluation metric - Discuss pros/cons of the two models - Should be no longer than 1 page