AAI-521 Final Project: Instructions

This document outlines research questions to facilitate the iterative development of your computer vision project components:

1 - Project Selection & Setup:

- Problem Definition. Include a clear statement describing the initial state of a problem by answering the following questions:
    - What is the problem you are going to solve?
    - Why does the problem need to be solved?
    - What aspect of the problem will a computer vision algorithm solve?
- Ensure your problem is interesting and understandable.

2 - EDA and Pre-Processing:

- Include a clear discussion that ensures all steps are clearly explained and addresses the following:
    - How did you make sure that you are ready to apply deep learning models?
    - What type of pre-processing is required on your data?
    - How can you define and refine various feature variables that you may potentially use for the modeling?
    - Have additional features added to demonstrate necessary image processing, image preparation, or image access for later AI computation?

3 - Modeling Methods:

- Perform modeling using the training dataset.
- Evaluate the model(s) using the test dataset and validate as well.
- Ensure all modeling methods are well-motivated, correctly implemented, and, to the extent appropriate, span the range of methods discussed in this course.

4 - Validation and Performance Metrics:

- Cross-validation and/or held-out test sets are used in accordance with best practices to assess model performance.
- Performance metrics are carefully tailored to the project objectives.

5 - Modeling Results and Findings:

- Discuss the results comparing different models and explain the differences and the challenges.
- Ensure all project objectives are fully met, findings are clearly presented, and question(s) are technically addressed in the report.
- Include tables/graphs comparing the different models, including their characteristics, performance, and accuracy.