**Week 1:**

Summary:

We met as a team, reviewed the coursework guidelines, and created a timeline to track tasks and deadlines leading up to the Week 4 deliverable.

Challenges:

Coordinating a meeting time to discuss was difficult due to varying schedules. To resolve this, we agreed to meet online during the week and come in early on Fridays for lab work.

Next Steps:

Meet next week to discuss potential applications and datasets.

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**Week 2:**

Summary:

We discussed possible applications suggested by each group member, analyzing their pros and cons to shortlist a few. The three application ideas included:

- Email Spam Classification: Helps users avoid spam emails.

- Disaster Detection (Hurricanes, Typhoons, Flooding): Aims to predict disaster formation and track its impact, helping implement early warnings.

- Vehicle License Identification: Categorizes vehicle details for fines and other purposes.

Challenges:

Deciding on an application was challenging. Ms. Hend helped by providing insights on the pros and cons, which aided our final choice.

References:

<https://huggingface.co/datasets/TrainingDataPro/email-spam-classification>

<https://www.kaggle.com/datasets/hudairr/email-spam-detection-dataset>

<https://www.kaggle.com/datasets/venky73/spam-mails-dataset>

<https://www.kaggle.com/datasets/jackksoncsie/spam-email-dataset>

[https://medium.com/@azimkhan8018/email-spam-detection-with-machine-learning-a-comprehensive-guide-b65c6](https://medium.com/@azimkhan8018/email-spam-detection-with-machine-learning-a-comprehensive-guide-b65c6936678b)

[**https://www.kaggle.com/datasets/noaa/hurricane-database**](https://www.kaggle.com/datasets/noaa/hurricane-database)

[**https://www.kaggle.com/datasets/headsortails/us-natural-disaster-declarations**](https://www.kaggle.com/datasets/headsortails/us-natural-disaster-declarations)

[Typhoon datasets and code. (figshare.com)](https://figshare.com/articles/dataset/we_selected_Typhoon_Fung-wong_Typhoon_No_16_of_2014_Typhoon_Ampil_Typhoon_No_10_of_2018_and_TyphoonLekima_Typhoon_No_9_of_2019_as_the_primary_researchcontexts_Figure_2_c_depicts_the_detailed_paths_of_these_threetypical_typhoons_/23967159)

<https://www.statista.com/statistics/744015/most-expensive-natural-disasters-usa/>

h[ttps://searchworks.stanford.edu/view/jp095bg5089](https://searchworks.stanford.edu/view/jp095bg5089)

<https://www.kaggle.com/datasets/prernarohra/earthquake-intensity-dataset>

<https://www.kaggle.com/datasets/syedahnafraza/global-earthquake-and-aftershock-data-january-23>

<https://www.kaggle.com/datasets/mikolajbabula/disaster-images-dataset-cnn-model>

<https://www.kaggle.com/datasets/sheezawaheed/number-plate-dataset-of-uae-5-emirates/data>

<https://universe.roboflow.com/label-11-qi1do/uae-car-wtiyo/dataset/5>

<https://universe.roboflow.com/zara-hara/car-plate-k6xij>

Next Steps:

Start preprocessing the dataset for the chosen application.

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**Week 3:**

Summary:

We examined 2–3 selected datasets, understanding their structure and potential usage. Preprocessing began, using Lab 1–3 as a guide.

References:

YouTube videos and ChatGPT.

Challenges:

Encountered difficulties in plotting graphs, handling missing values, and preprocessing images. Google Collab and online resources helped clarify these steps.

Next Steps:

Prepare the presentation slides.

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**Week 4:**

Summary:

We focused on dataset preprocessing and visualized data using scatter plots, histograms, correlation matrices, and heatmaps. Image processing involved resizing and adjusting colors to highlight features, using MATLAB with various colormaps.

Challenges:

Had questions about the presentation content but clarified them with Ms. Hend.

Next Steps:

Complete and fine-tune the presentation.

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**Week 5:**

Summary:

We practiced clustering and the Bayes classifier through in Lab 4 and Lab 5 and tried implementing it using our preprocessed dataset.

Next Steps:

Continue working on the labs and complete remaining tasks.

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**Week 6:**

Summary:

Met to assess coursework progress, discuss upcoming tasks, and giveresponsibilities among team members.

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**Week 7:**

Summary:

Worked through the Decision Tree lab, learning the basics and applications.

Next Steps:

Continue studying decision trees.

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**Week 8:**

Summary:

Started work on the Linear Regression for Predicitng Maximum Wind and Logistic Regression lab for different type of hurricane.

Next Steps:

Finish Lab 8 and start drafting the report due in Week 11.

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**Week 9:**

Summary:

Work on Neural Network algorithms on our image data set to predict damage or no image and continue working on the report.

Next Steps:

Finalize the results to add to report

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**Week 10:**

Summary:

Organize the GitHub repository and get all necessary results to add to report. Simultaneously worked on creating a PowerPoint presentation for final project pitching.

Next Steps:

Organize the report, recheck all the content etc..

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**Week 11:**

Summary:

Submitted the report and work on finishing the final project pitch ppt

Next Steps:

Complete the PPT and Report

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**Week 12:**

Summary:

Prepare for the presentation

Next Steps:

Prepare for final exam 😊

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