Case Study Rubric

DS 4002 – Fall 2025 – Masato Takedai
Due: TBA
Submission Format: Described on Canvas Assignment

Individual Assignment

Why am I doing this? This is your opportunity to showcase your technical and conceptual skills in a unified project. The case study will represent a hands-on scenario with many decisions that you will have to make similar to ones you will be making in projects in other academic courses or in a professional environment.

What am I going to do? The GitHub repository can be found at https://github.com/MasatoTakedai/DS4002-Case-Study. You will find a large dataset of the Charlottesville parking tickets dataset from 1999-today, and your job is to run several machine learning models to try to predict appeal success. There are multiple steps in cleaning and preparing this dataset, as many rows and columns should be deleted and new columns should be engineered as well. Running the models on the dataset, you should be able to find a prediction accuracy at least better than luck, and you should create an confusion matrix out of the results.

Tips for success:

- Do lots of trial and error with what features are included and what features are engineered. The model's performance is heavily dependent on what features are put in.
- Create a nice, formatted output style that gives you as much insight from the results as possible
- Some features should be broken apart for the model to be able to make analysis from it easier

How will I know I have Succeeded? You will meet expectations on the case study when you follow the criteria in the rubric below.

Spec Category	Spec Details
Formatting	● Submit each component listed in the rest of this rubric as advised below. ○ README.md ■ Submit the written portion as a README file ○ Source code ■ Submit code created for all portions in a GitHub repository.

	○ References ■ References should be included on a separate page at the end of the **Written Portion** PDF file. ■ IEEE citation style
README.md	● Discuss your interpretation of the case study ● Summarize what you produced and what conclusions you made from your outputs ● Write about any struggles or breakthroughs that you had ● Should be enough for readers to orient themselves with your repo
Code and outputs	● Submit well documented code throughout your whole process ○ Write comments to describe your thought process ○ .ipynb or .py format ● Submit any outputs from the study ○ Should be well-formatted and easy to interpret
References	● Submit a list of any references that you used ● IEEE format

Acknowledgements: Special thanks to Jess Taggart from UVA CTE for coaching on making this rubric. This structure is pulled from Streifer & Palmer (2020).