You are attempting to solve a unique problem using machine learning. You will convey the methods and results of this work in a report as we have been doing all semester..

Unlike the previous projects in this class, this project is individually directed. You should know how and where to find your data, as well as the machine learning goals (regression, classification, etc). You should follow the same analysis process as all previous projects and explain your process clearly. Make sure the data is available to me, whether in the GitHub repository or read in via URL in the code. Come to Dr. Kuchera's office hours with any questions you may have throughout the process.

The Write-Up

You will submit a PDF. A paper from AAAI, a notable artificial intelligence conference, is provided for guidance. You may use any word processing platform you prefer for your report. AAAI provides a LaTeXtemplate for those interested. Your writeup must also include an ethics section in line with the NeurIPS (another notable AI conference) guidelines: `https://neurips.cc/public/EthicsGuidelines`.

Here are some additional things to address in your report, in no particular order. This is *not* meant to be an exhaustive list.

Here's the overarching writing rule for this course: *you need to be sufficiently precise with your writing and include enough detail that a competent reader could reproduce your results.* Here are some specific things to address in your report, in no particular order, and no matter the format of the report. This is *not* meant to be an exhaustive list.

- What preprocessing did you perform on the data? Describe your exploratory data analysis. Did you generate any plots or charts? Describe these, along with any relevant findings, in your report.
- What models did you build? How do they compare in terms of performance? What was the best performing model, and how did it do? Optionally, you can go beyond the methods we've seen in class and try other models — if you go this route, you should describe how your chosen algorithm works (and don't forget to include citations!).
- What was your model-building and tuning regime? How did you address overfitting? How did you make hyperparameter choices?

Recommended Timetable

Here's a recommendation for how to budget your time over the next couple of weeks as you work on this assignment.

- **Week 1:** Explore the dataset, think about feature engineering, build your first model.
- **Week 1:** Run more thorough experiments (hyperparameter tuning, further feature engineering, etc.), analyze your results and iterate, search the literature for related work on the problem, write relevant background information, optionally meet with Dr. Kuchera to get advice/feedback (both on technical issues and on writing)
- **Week 2:** Complete experiments, take a step back and think about your report's narrative, write drafts, consult with Dr. Kuchera as appropriate.
- **Week 2:** Wrap-up any pending experiments, revise and proof-read the paper and submit.