Mockup for Project Proposal

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# Original Requirements

Submit a short (1-2 page) project proposal, including a description of the problem, why it's interesting, and what other approaches have been tried. Then there needs to be a discussion on what the student's hypothesis is and how the student's specific solution will improve or solve the problem.

# Requirements Breakdown

## In Summary

* 1–2-page project proposal.
* Description of the problem and why it’s interesting.
  + What other approaches have been tried.
* Discussion on what is the hypothesis – in other words what will the approach be and what do we expect.
  + How do we believe this solution will improve or solve the problem?

# Problem Description

Data Science has been a core field during the covid-19 pandemic in order to try and find control through predictability by using patterns found in historic data.

The [SEIR](https://en.wikipedia.org/wiki/Compartmental_models_in_epidemiology#The_SEIR_model) (Susceptible 🡪 Exposed 🡪 Infectious 🡪 Recovered) simulation model has been one of the popular [ways](https://c2m-africa.shinyapps.io/togo-covid-shiny/) of forecasting in what state the population of a give area in terms of infected and those not infected or recovered.

Configuring the equation to be accurate is a challenge when trying to predict for instance what New York’s recovered, healthy, and sick count will be over time due to the immunization phases and requirements that are to follow for the rest of this year.

# Hypothesis

We intend on using a time series which has been [shown](https://www.washingtonpost.com/graphics/2020/world/corona-simulator/) to be effective for simulating SEIR. Using NYC’s requirement for vaccinations and target goals we could simulate how the turnout may be and study early adopters of the vaccination such as [Russia](https://graphics.reuters.com/world-coronavirus-tracker-and-maps/countries-and-territories/russia/) to further tweak variables in our equation for realistic expectations.

# Team Plan

**Stage 1:**

Everyone: Sync up on choosing a dataset to use and what the approach will be to solving the problem.

2 Persons (Group 2): Gather agreements into a proposal and finalize for group to submit. **DUE FEB 28**

**Stage 2:**

2 Persons (Group 1):

* ETL and EDA on data.

2 Persons (Group 3)

* Model building, testing, and predictions.

2 Persons (Group 2):

* Documenting the resources, problem, and approach from Stage 1.
* Formatting and editing of work from stage 2 of the ETL and EDA.
* Finalize and submit Mid-Term Draft:
  + The final version of the project is a medium length (10-12 pages) paper describing the project, along with a runnable demo of any code. Code listings, interpreter output, and exploratory data visualization should not be included in the paper itself. This is an expanded version of the initial proposal that **includes more** ***discussion of prior approaches***, ***results of the student's approach***, and a ***final assessment of whether the project effectively solved the goal*** stated in the initial proposal. **DUE APRIL 11**

**Stage 3:**

2 Persons (Group 1):

* ETL and EDA on data analysis and details.

2 Persons (Group 3):

* Model building, testing, and prediction summary analysis and details.

2 Persons (Group 2):

* Document formatting for results in Stage 3. Wrap up in conclusion. Export in a summarized version to Power Point for possible presentation tool. **DUE MAY 23**

NOTES ON FINAL REQUIREMENTS:

1. Final project papers are required to be medium length 10-12 pages (20-24 pages if printed single-sided) and double spaced, along with a runnable demo of any code. Code listings, interpreter output, and exploratory data visualization should not be included in the paper itself. In keeping the amount of required pages relatively low, we expect the writing to be concise, succinct, and to-the-point. Key points should be expressed in clear, simple and easy-to-understand language. The final project paper, along with supporting commentary -- discussion of prior approaches, results of the student's approach, and a final assessment of whether the project effectively solved the goal – must be submitted 3 weeks before the course ends
2. Given that most Capstones are group projects, it is preferred that final papers are prepared in LaTeX, using the collaborative features of online LaTeX editors such as overleaf.com or sharelatex.com. Alternately, papers may be prepared in Microsoft Word format (Microsoft Word 2010) and delivered in Adobe Acrobat PDF format (Adobe Acrobat XI Pro).Written papers shall be prepared on standard 8.5 by 11 inch pages.
3. Student name and course code must be included in the heading section for all pages
4. The proposal pages shall be bound along the left side and numbered on the bottom, right side.
5. Each page shall have a one-inch margin at the top and the bottom and on each side.
6. Notations of proprietary material and any other identifying information printed on each page may be included in the margin.
7. Text shall be in Times New Roman, 12 point font. However, text included in figures or graphics in the written proposal may be reduced to 9 point font, times new roman. Table text must maintain 12 point font.
8. Should the proposal require foldout pages for graphics, one foldout page shall not exceed 17 by 11 inches. Foldouts will be counted as two (2) pages, regardless of size, and subsequent page numbering must be adjusted appropriately.