Project Prototype

Duke Computer Science 216 – Everything Data, Spring 2020
Due by class time (4:40 pm) on Monday, April 6, 2020.

General Directions

The prototype deliverable is intended to demonstrate a minimal proof of concept or initial exploratory data analysis for the project. Your prototype should consist of a written report, along with any accompanying data, code, or other supplementary resources that demonstrate your work so far in the project. The report should contain at least three parts, which we define below. In terms of length, it should be 2-4 pages using standard margins (1 in.), font (11-12 pt), and line spacing (1-1.5). A typical submission is around 2-3 pages of text and possibly 3-4 pages overall with tables and figures.

You should convert your written report to a pdf and upload it to gradescope under the assignment "Project Prototype" by the due date. Be sure to include your names and netids in your final document and use the group submission feature on gradescope. You do not need to upload your accompanying data, code, or other supplemental resources demonstrating your work to gradescope; instead, your report should contain instructions on how to access these resources (see part 2 below for more details).

Part 1: Introduction and Research Questions

Your prototype report should begin by reintroducing your topic and restating research questions from your proposal. You can start with the text from your proposal, but you should update your introduction and research questions to reflect any changes in the project vision, and you should specifically point out what has changed since the proposal. Do not assume that your reader has recently read your proposal; your introduction should be sufficient to provide context for the rest of your report.

Part 2: Preliminary Results and Methods

The preliminary results section of your report should summarize the results obtained so far in the project. This may include, but is not limited to, results from data scraping and linking, initial modeling, or sample visualizations. Where possible, results should be summarized using clearly labeled tables or figures and supplemented with written explanation of the significance of the results with respect to the research questions outlined in the previous section. Your results do not need to be final or conclusive for your entire project (you will discuss next steps in part 3), but should demonstrate substantial effort and progress, and should provide a concrete proof of concept or initial analysis with respect to your research questions.

Your results should be specific about exactly what data were used and how the results were generated. For examples, if you used a Bayesian inference model to determine certain probabilities, you should precisely specify the model. If you scraped multiple web databases and merged them into a working database, then you should explain how you did so. Your report itself should include an explanation of your methods, but it should also contain instructions on how to access your full implementation (that is, your code, data, and any other supplemental resources like additional charts or tables). The simplest way to do so is to include a link to a Duke box folder (box.duke.edu) containing all of your materials, but you can also use other services like gitlab (gitlab/cs.duke.edu/) if you prefer.

Part 3: Reflection and Next Steps

In this part, you should begin by reflecting on the progress of your project so far. What has been successful, and what has been challenging? What new or different methods or data might you need to adequately address your research questions? How has your vision for your project changed since your proposal? You should conclude your written report by discussing next steps. These should be concrete and specific actions that your group will take to address the needs identified in your reflection and lead toward a successful final project.

Rubric

Prototypes will be evaluated on the following rubric. Formative feedback (comments) will also be provided. The project prototype is worth 20% of the overall project grade.

- 100% - Exceptional prototype. Addresses all of the above components with remarkable clarity and insight. Has substantial, feasible, and relevant research questions, and the preliminary results demonstrate above and beyond effort and progress with respect to those research questions. Methods are exceptionally sophisticated, appropriate, and well explained. Reflection demonstrates deep insight about challenges and next steps provide concrete steps toward successfully completing the project.

- 95% - Good prototype. Addresses all of the above components. Has substantial, feasible, and relevant research questions, results demonstrate substantial effort and progress with respect to those research questions, and methods are appropriate and clearly explained. Reflection demonstrates awareness of challenges and next steps provide concrete steps toward successfully completing the project.

- 90% - Developing prototype. Addresses all of the above components but has some areas for minor improvement. For example, the research questions may still need slight refining, the results may not be very well labeled and explained, or the description of the preliminary methods or next steps may need to be made slightly more precise in places.

- 80% - Emerging prototype. Addresses all of the above components but has areas that need major improvement. For example, the results may not demonstrate substantial effort and progress but only superficial engagement with data sources, the introduction and research questions may be disconnected from the preliminary results and methods, or the reflection and next steps might be vague and not provide any concrete steps toward completing the project.

- 60% - Incomplete prototype. Some of the above components are not addressed at all or only in superficial fashion.

- 0% - No submission, or submission only superficially addresses all components.