**Project Guideline & Rubric**

**DATA\*6200**

**Fall 2024**

This document outlines my expectations for the project in this course. The rubric for each component **is subject to change**. If this occurs, you will be notified via an announcement prior to the deadline of that component.

**Project description**

**In groups of 2 or 3,** students will complete an original project that culminates in the creation of an app/dashboard made using R Shiny, and other tools learned in lecture. There are two graded components to the project, the Presentation and the Final Report. Each of these has its own rubric on a following page. The instructor will provide feedback at each stage.

Students should choose a topic that is ambitious, such that it will require them to learn new skills, and even go beyond what we have covered in the course. Ambitiousness of a project will be judged based on the following criteria:

* The size, complexity, and availability of the data and associated wrangling methods used. For example, large datasets pulled from a variety of sources, with many variables that were hard to download/process, would be the most ambitious. However, don’t overdo it. Choose something that is challenging but manageable in the timeframe allotted.
* Complexity of the features your app/dashboard provides.

Please run your project idea by **November 18th at the latest.** You may be asked to change your project’s scope if it is not sufficiently ambitious. Note that groups of 3 have a higher expectation than groups of 2.

**Presentation - 10% of final grade (last week of classes)**

**Presentation materials are due at 12:59pm on the date of your presentation.**

Treat your presentation like a project proposal, where you are convincing the audience (me and your classmates) that this is a worthwhile project. You should:

* Motivate the need for your app/dashboard by identifying a problem and outlining how this app can help address this problem.
* Outline the data sources that you plan to use and why you plan to use them. Include key data visualizations that help the audience understand the input data.
* Outline a plan (including a timeline) for how you will complete this project.
* Give the audience an idea of what the app/dashboard will look like. This can be done in any way you like, including showing an unpolished prototype with some basic features.
* Create a standalone slide-deck that contains this key information. Use any software that you want, Powerpoint preferred. You should be able to send this deck to someone, and they should be able to get the gist of your project with no further context.

For groups of 2, presentations can be 8-10 minutes in length, for groups of 3, they should be ~10-12 minutes in length. Each group member should aim to speak for roughly the same amount of time.

Presentation materials will be assigned 1 grade for the whole group. Oration and question response will be judged individually. If a student had no/minimal chance to respond to questions, the weight of that component will be shifted to oration.

**Presentation materials (slides) [20 marks]:**

Tip: Slides shouldn’t be overly wordy; you should try to convey your ideas using visuals and brief bullet-points.

Below are statements that are consistent with different grades for this section. Note that these statements are just guidelines, and mark allocations are ultimately decided at the discretion of the instructor.

18-20 - The presentation materials (e.g slides) clearly describe the motivation of the work, and how the dashboard/app will solve a problem. The planned app/dashboard is clearly described, has obvious utility, and appears to be designed with the end-user in mind. It is very clear how the students will complete the project, including appropriate milestones and data descriptions. The slide deck is standalone and not overly wordy. The slides are aesthetically pleasing.

15-17 - The presentation materials (e.g slides) describe the motivation of the work, and how the dashboard/app will solve this problem. The planned app/dashboard is mostly described, appears to have some utility, and is designed with the end user in mind. 1 or 2 significant aspects of the app/dashboard were overlooked. It is mostly clear how the students will complete the project including appropriate data descriptions, but 1 or 2 items in the timeline seem redundant of unrealistic. The slide deck is mostly standalone and may be overly/underly wordy on a couple of slides. The slides are mostly aesthetically pleasing.

11-14 - The presentation materials attempt to describe the motivation of the work and how the dashboard/app will solve this problem, but some aspects are unclear or are not properly justified. The planned app/dashboard is described, but may have limited utility or functionality, and appears to not be user-friendly. Several major aspects of the app/dashboard were overlooked. It is somewhat clear how the students will complete the project including appropriate data descriptions, but the timeline/plan seems unrealistic or misguided. The slides are missing key components and may be overly/underly wordy. The slides are generally not very attractive.

<10 inadequate

**Oration and presentation skills [7 marks]:**

Below are statements that are consistent with different grades for this section:

7 - The student’s volume was loud enough for everyone to hear given the size of the audience. The student spoke with enthusiasm about the material they were presenting. The student undulated their voice and spoke at an understandable pace. The student made eye contact with the audience. The presentation was clearly rehearsed.

5 – The student’s volume was adequate, but the pace was slightly fast. They made a reasonable amount of eye-contact with the audience. What they were saying as mostly clear. The presentation was rehearsed.

2- The student spoke too softly in a monotone voice, showing little enthusiasm or understanding of the material being presented. The presentation appeared unrehearsed. There was a disconnect between what the student was saying and what was on the slides.

**Response to questions [3 marks]:**

The student responded well from questions in the audience.

[30 marks total]

**Final report and deliverable – 30% of final grade (Due Dec 12th, 2024)**

The final report should describe

* The motivation behind the app and who the intended end user is
* Describe the overall design philosophy of the app/dashboard
* Outline all important features of the app/dashboard, including their motivation and reasoning.
* Describe limitations of the app/dashboard with respect to the motivation and end user.
* Describe **realistic** improvements that you could make to the dashboard if you had more time, or more software options.

There is no page limit or minimum for the report. Please be brief, and don’t feel the need to include every small detail. If you are unsure about including certain details, feel encouraged to put them into an appendix.

You can write your report using any software. You may structure the report in any reasonable way that is appropriate for your project, but you may want to structure it according to the bullet points above.

You are to submit your final report alongside the code that is used to create the app, alongside the app/dashboard itself (if possible).

**Final report + deliverable Rubric**

Below is a rubric with a breakdown for each element of the report + deliverable. For each element, mark ranges are listed with statements that are consistent with that mark range. Note that these statements are just guidelines, and mark allocations are ultimately decided at the discretion of the instructor. Furthermore, although these statements are applicable to all groups, groups with 3 members will generally be held to a higher standard than those with 2.

Ambitiousness (/5)

4-5 – The project involved interesting data/methods that were beyond what we covered in class. The complexity of the data/methods used to wrangle the data and create the app was very high. The app has sophisticated functionality.

2-3 - The project involved routine methods that we covered in class. The complexity of the data/methods used to wrangle the data and create the app was moderate, the app has mostly basic functionality.

0-1 – inadequate

Motivation (/10)

9-10 – Extensive background information/motivation is given to the reader in the final report, with appropriate references (if required). A gap in knowledge is clearly identified, and it is clear how this app/dashboard fills that gap. It is abundantly clear how this app/dashboard will be used by the end user.

7-8 – Background knowledge is provided with some appropriate references. It is mostly clear why the project is being conducted, and the motivation for the project is appropriately outlined. It is mostly clear how the app will be used by the end-user.

5-6 – Limited background knowledge is provided. Some references are provided but may be from irrelevant sources. The motivation for the project is stated but is generally not clear. The utility of the app to the end-user is not obvious.

<5 - Inadequate

Design philosophy and Features /20

18-20 – The app/dashboard has an abundance of useful features/elements that are easy to use/understand. These features are well described in the written report, and work as described. The visualizations in the app/dashboard are very clear and show a strong grasp of good data visualization principles. The app is easy to use and has clear documentation where appropriate.

14-17 – The app/dashboard has mostly useful features/elements that are mostly easy to use/understand, with some redundant features/elements. Features are mostly described in the report but may work slightly differently than intended. The visualizations in the app are mostly clear and easy to understand but are lacking in 1 or 2 significant data visualization principles. The app/dashboard is mostly well documented.

10-13 - The app/dashboard has only simple or has many redundant features/elements. Features are not well described in the report. Many visualizations in the app/dashboard are not clear or easy to understand and do not follow good data visualization principles. The app is not well documented/described.

<10 inadequate.

Limitations and future work (report) /10

9-10 - The limitations of the app are clearly identified based on the motivation of the work and the end user. Realistic suggestions for improvements to the app/dashboard are given in the report.

7-8 – The limitations of the app are identified based but may lack context or not have the end-user in mind. Suggestions for improvements to app/dashboard are made but may be slightly vague or unrealistic.

5-6 – Limitations are mentioned but are not significant or are irrelevant to the problem at hand. Suggestions for improvements are made but are mostly vague or irrelevant.

<5 inadequate

Code and app functionality /10:

9-10 - Good coding principles are followed in the submitted code (commenting, structure, easy to follow, etc.). It is clear the student understands coding principles shown in class and is not relying on Chatbots for any significant portion of coding. As a result, the app runs as smoothly as it should, given the nature of the task and timeline.

7-8 – Good coding principles are mostly followed with 1-2 significant issues (e.g lack of comments, unreadable structure in 1 or 2 sections, etc.). It is clear the student understands coding principles shown in class but may have small sections where they rely on Chatbots. The app runs fine, but functionality could be improved in 1-2 significant aspects.

5-6 – Good coding principles are not followed or large sections of code clearly copied straight from chatbots. The app/dashboard does not run well.

<5 inadequate

[55 marks total]