The rest of the project is organized in three milestones. Each milestone will have an independent deadline, but only the last milestone will be graded. For all the other milestones, you will receive a thumbs up/thumbs down indicating whether you are on track or not. A thumbs down does not directly impact your final grade, but it indicates that the milestone has not been reached and that substantial work still needs to be addressed.

All the following milestones are discussed in this document.

**Deadlines**

Project proposal - October 5

Project prototype - November 5

Peer evaluation - November 19

Oral presentation – December 5/7

Final delivery – December 11

Peer assessment – December 11

**Submission**

Your project will be hosted on GitHub:

* Create a GitHub account if you do not have one.
* Create a repository for your project
* Add your group members and myself (username *IuricichF*) to the list of collaborators.
* Create a page for your repository from here (<https://pages.github.com>).

For every milestone you will be generally requested to upload new material on the GitHub repository and post your GitHub link on our group channel.

Tip – pin the links to your GitHub repository and GitHub page to your group channel in order to have them always at hand.

**Milestone 3 – Project proposal**

Submission – **GitHub + Slack**

**Deliverables:**

* A skeleton (in html) of your final website hosted on GitHub pages.
* The proposal document.

**Expectation:**

* The website should contain a skeleton of your final website. SVG elements containing your final visualizations should be empty at this time but the layout, the style, and the general structure should be there.
* The proposal document should address the following points. Use these points as headers in your document.
* *Basic Info*. The project title, your names, e-mail addresses, CIDs, a link to the project repository.
* *Background and Motivation*. Discuss your motivations and reasons for choosing this project, especially any background or research interests that may have influenced your decision.
* *Project Objectives*. Provide the primary questions you are trying to answer with your visualization. What would you like to learn and accomplish? Ideally you should have 1 question per visualization (i.e., at least 3 questions)
* *Data*. From where and how are you collecting your data? Provide a link to your data sources.
* *Data Processing*. Do you expect to do substantial data cleanup? What quantities do you plan to derive from your data? How will data processing be implemented?
* *Visualization Design*. How will you display your data? You are expected to create a dashboard with at least 3 visualizations. Develop three alternative prototypes for each visualization. Describe each prototype using the terminology learned in class. Create one final dashboard that incorporates the best of your designs and justify your choices (why you picked those among all prototypes). All graphs should be created in Tableau when possible.
* *Must-Have Features*. List the features without which you would consider your project to be a failure.
* *Optional Features*. List the features which you consider to be nice to have, but not critical.
* *Project Schedule*. Make sure that you plan your work so that you can avoid a big rush right before the final project deadline, and delegate different modules and responsibilities among your team members. Write this in terms of weekly deadlines.

**Milestone 4 - Prototype**

Submissions – **GitHub + Slack**

**Deliverables:**

* A functioning prototype of your website.

**Expectation:**

* All visualizations should be implemented (in D3js) by this time even if still static.

**Milestone 5 – Peer evaluations**

Submissions - **Gradescope**

**Deliverables:**

* An evaluation of another group’s project prototype

**Expectation:**

* Engage with the prototype. Interact with the visualization and try to exhaustively cover the views and interactions that the prototype supports. Note what you discover and learn about the dataset as you do so. Be sure to also read the write-ups to gain more insight into the process and design decisions behind the prototype.
* Next, author a constructive critique of the visualization covering at least the following concerns:
* Visual Encodings. Are expressive and effective visual encodings applied? How well do they reveal the most important features or trends of the underlying data? Is critical data easily seen, or is it unnecessarily "hidden" and only revealed in response to interaction? Is the target audience likely to understand the visualization?
* Interaction Techniques (if available). Do the supported interaction techniques enable more effective discovery of interesting trends, patterns or outliers? Do they engage the viewer in a process of meaningful exploration or learning? Are the interactions well-implemented, without notable performance issues or usability problems?
* Design Quality. Assess the overall design quality in terms of organization and presentation. Are elements appropriately titled or labeled? Is there appropriate spacing, layout, legible type, and other forms of design styling? Is it clear where to begin viewing/interacting with the design? Is the overall display confusing or cluttered? How successful is the prototype in meeting the intended goals?

For each of the concerns listed above – visual encodings, interaction techniques, and overall design quality – we recommend using the "I like / I wish / What if?" format. Be sure to share positive feedback on effective aspects, critical (but respectful!) feedback on what might be improved, and wilder (even half-baked) ideas a team might explore in subsequent design iterations. Each peer review should contain at least a dozen such comments, often much more!

**Milestone 6 – Presentation**

Submissions – **Oral presentation**

**Deliverables:**

* A 5-minute presentation illustrating your project.

**Expectation:**

* Your presentation should be composed of a single slide with team members and the project title. During your presentation, you should showcase the functionalities of your website interactively. You can use this milestone in the preparation of the final delivery.

**Milestone 7 – Final delivery**

Submissions – **GitHub + Gradescope**

**Deliverables:**

* Final website with code.
* Process book.
* Project screen-cast.
* Peer assessment.

**Expectation:**

* **Project report:** An important part of your project is your process book. Your process book details your steps in developing your dashboard, including the alternative designs you tried, and the insights you got. Develop your process book out of the project proposal. **Equally important to your final results is how you got there!** Your process book is the place you describe and document the space of possibilities you explored at each step of your project. It is not, however, a journal or lab notebook that describes every detail - you should think carefully about the important decisions you made and insights you gained and present your reasoning in a concise way.

We strongly advise you to include many figures in your process book, including photos of your sketches of potential designs, screen shots from different visualization tools you explored, inspirations of visualizations you found online, etc. Several images illustrating changes in your design or focus over time will be far more informative than text describing those changes. Instead, use text to describe the rationale behind the evolution of your project.

Your process book should include the following topics. Depending on your project type the amount of discussion you devote to each of them will vary:

* *Overview and Motivation*: Provide an overview of the project goals and the motivation for it. Consider that this will be read by people who did not see your project proposal.
* *Related Work*: Anything that inspired you, such as a paper, a web site, visualizations we discussed in class, etc.
* *Questions*: What questions are you trying to answer? How did these questions evolve over the course of the project? What new questions did you consider in the course of your analysis?
* *Data*: Source, scraping method, cleanup, etc.
* *Exploratory Data Analysis*: What visualizations did you use to initially look at your data? What insights did you gain? How did these insights inform your design?
* *Design Evolution*: What are the different visualizations you considered? Justify the design decisions you made using the perceptual and design principles you learned in the course. Did you deviate from your proposal?
* *Implementation*: Describe the intent and functionality of the interactive visualizations you implemented. Provide clear and well-referenced images showing the key design and interaction elements.
* *Evaluation*: What did you learn about the data by using your visualizations? How did you answer your questions? How well does your visualization work, and how could you further improve it?

As this will be your only chance to describe your project in detail make sure that your process book is a standalone document that fully describes your results and the final design.

* **Project screen-cast:** Each team will create a **3-to-5 minute screen-cast with narration** showing a demo of your visualization and/or some slides. You can use any screencast tool of your choice. Please make sure that the sound quality of your video is good - it may be worthwhile to invest in an external USB microphone. Upload the video to an online video-platform such as YouTube or Vimeo and embed it into your project web page.

. Focus the majority of your screencast on your main contributions rather than on technical details. What do you feel is the best part of your project? What insights did you gain? What is the single most important thing you would like your audience to take away? Make sure it is front and center rather than at the end.

* **Peer assessment**: It is important to provide positive feedback to people who truly worked hard for the good of the team and to also make suggestions to those you perceive not to be working as effectively on team tasks. We ask you to provide an honest assessment of the contributions of the members of your team, including yourself. The feedback you provide should reflect your judgment of each team member:
* Preparation – were they prepared during team meetings?
* Contribution – did they contribute productively to the team discussion and work?
* Respect for others’ ideas – did they encourage others to contribute their ideas?
* Flexibility – were they flexible when disagreements occurred?

Your teammate’s assessment of your contributions and the accuracy of your self-assessment will be considered as part of your overall project score.

**Grading criteria**

* Process Book - Are you following a design process that is well documented in your process book?
* Solution - Is your visualization effective in answering your intended questions? Was it designed following visualization principles?
* Implementation - What is the quality of your implementation? Is it appropriately polished, robust, and reliable?
* Presentation - Are your website and screencast clear, engaging, and effective?

Your individual project score will also be influenced by your peer evaluations.