**TDS 3401 Project: Creating Interactive Visualizations**

In this project, you will explore the issues involved in implementing interactive visualization software. You must choose the data domain as well as the techniques you wish to implement. For example, the [zipcode](http://benfry.com/zipdecode/) and [NameVoyager](http://www.babynamewizard.com/voyager#prefix=&sw=both&exact=false) applications shown in class apply the interactive technique of dynamic queries – to the problem of uncovering patterns in zip codes and baby names. Similarly, [treemaps](http://www.cs.umd.edu/hcil/treemap/) were originally developed to display hierarchical file structure, and were later adapted to the problem of interactively depicting a [map of the stock market](https://finviz.com/map.ashx). We have seen many other examples of interactive visualization techniques in class. The goal with this project is not only for you to gain hands-on experience implementing a visualization technique, but also for you to think about the effectiveness of the specific visualization techniques you re-implement in the context of the data domain you work with.

This is a group project of 2-3 students. Your implementation should contains at least four meaningful data visualizations. If you choose to have 3 members, then the project scope should be wider (at least 6 visualizations) to ensure each member has a significant data visualization task in the project. Groups of four or more are not allowed. Your group must write code using D3 for this project.

**Project Proposal Due:** 23rd Jan 2020, 11:59pm

**Final Project Due:** 4th March 2020, 11:59pm

**Deliverables**

For this project you are responsible for the following:

1. **Describe the data domain and storyboard the interaction techniques you will use.** Start by choosing the data domain and interactive visualization techniques you will implement. Think about why the domain and the techniques are a good match for one another. Then write a description of the data domain and the interactive visualization application you will build. The description should include a storyboard of the interface/displays you will create. Be sure to explain the features of your application. Most importantly you should explain why the interaction techniques you will implement will be effective in the context of your data domain. The goal of this exercise is to think through the various concerns that go into the implementation of the visualization and interaction techniques. This is why it is important that you perform this task *first*, before actually building the visualization. As part of your prototyping, you may find it helpful to use existing tools (e.g., Tableau) to explore the data and test multiple visualization strategies.
2. **Implement your visualization design with D3**.

**Note:** while you are free to use non-programming tools (e.g., Tableau) to explore your data set and try out design ideas, you must **program the final application yourself in D3** and submit your code.

1. **Produce a final writeup**. Your final submission should include:
2. **Project Report**

* A brief description of your final interactive visualization application.
* Your storyboard
* An explanation of changes between the storyboard and the final

implementation.

* The development process. Include a breakdown of how the work was split among the group members. Include a commentary on the development process, including answers to the following questions: Roughly how much time did you spend developing your application (in man-hour)?
* What aspects took the most time?

1. **Source Code**

* The source code for your application. Please ensure that the code submitted is in working order. If any special instructions are needed for building or running your software, please include them in the writeup or provide a readme file.

**Note:** An example report with storyboard is enclosed as a sample for your reference. Please note that in this sample report, there are only two meaningful visualizations. For your project, you should have **at least four meaningful visualizations** as stated above in the deliverables above.

**Data Sets**

You can choose one of the dataset from [<https://www.dataquest.io/blog/free-datasets-for-projects/>.](https://www.springboard.com/blog/free-public-data-sets-data-science-project/) Optionally, you can choose a dataset from other source that is approved by your lecturer.

**Milestones**

**Project Proposal:** You should first prepare a project proposal and submit it to MMLS by **23rd Jan 2020, 11:59pm.** Your project proposal should include the following details:

* Project Members
* Project Title
* Proposed Dataset
* Project Description

**Final Project:** You should submit a zip file that contains the the **report** and **source code** of your visualization project to the MMLS by **4th or 5th March 2020, 11:59pm**. A presentation session for the project will be arranged on 5th March 2018. Time and venue to be confirmed.

**Project Rubrics**

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| **Criteria** | **Marks** |
| **Data used is appropriate and sufficient for the analysis** | **2.5** |
| **Headers, directions, and visual cues are given as guides to the user** | **2.5** |
| **Basic visualization rules and best practices are consistently applied and demonstrated** | **5** |
| **The visualization allows the user to conduct the intended analysis** | **5** |
|  |  |
| **Viz is clean, clear, concise, captivating (Shaffer 4Cs)** | **2.5** |
| **Attractiveness and attention to design and details of craft** | **2.5** |
| **The visualization is usable and actionable** | **5** |
| **Quality, integrity, and impact of the findings and analysis** | **5** |
| **Overall effectiveness of communication and presentation** | **5** |
|  |  |
| **Dashboard** | **2.5** |
| **Interaction** | **5** |
| **Animation** | **2.5** |
|  |  |
| **Report** | **5** |
|  |  |
| **TOTAL** | **50** |