BioVis Final Project: Proposal

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Basic Info

Name	GitHub ID	Email
Fiona Heaney	fhheaney	fhheaney@wpi.edu
Rachel Murphy	rlmurphy2018	rlmurphy@wpi.edu
Shivangi Pandey	shivangiPandey11	spandey@wpi.edu

Link to project repository:

https://github.com/fhheaney/DataVisFinal

Background and Motivation

Originally we looked at CDC data on death rates. The CDC had large collections of data on drug deaths, obesity mortality, and disease deaths. However, this data seemed very morbid, making it less than ideal to choose for our project.

We also considered data from the Human Microbiome project, and the American Kennel Club. These sets did not provide us with enough opportunity to analyze the data from different aspects. We found that we wanted our visualization to compare multiple variables to see how they all work independently as well as in conjunction to produce the total energy consumption data.

Eventually, we decided on looking at worldwide energy consumption. The data is widely available and frequently updated. The World Data Bank, Energy Information Administration, Global Energy Yearbook and many other organizations update and publish data on energy consumption. These databases are often associated with reports on the estimation of the future changes in energy consumption.

Currently it is estimated that there will be a 48% increase in world usage of marketed energy. While the goal of our project will not be to predict energy consumption rates of the future, our project will look at the energy consumption throughout the world. Additionally, this energy consumption can be studied by looking at multiple variables that would cause an effect on how much energy a country would consume. Our hope is to show how different variables have effected energy consumption over the span of 10 years.

Project Objectives

The objective of our project is to visualize how different variables affect energy consumption throughout the world.

Currently we aim to study the energy consumption variations based on:

- Country
- Country Status (GDP)
- Season
- Climate
- Energy Source
- Population

We hope to identify and visualize correlations between energy consumption and other country variables.

Data

We will collect up to date data from the following databases:

- Global Energy Statistical Yearbook 2016
  https://yearbook.enerdata.net/#energy-primary-production.html

- World Data Bank
  http://databank.worldbank.org/data/reports.aspx?source=2&Topic=5#

- U.S. Energy Information Administration
  http://www.eia.gov/todayinenergy/detail.php?id=26212

Data Processing

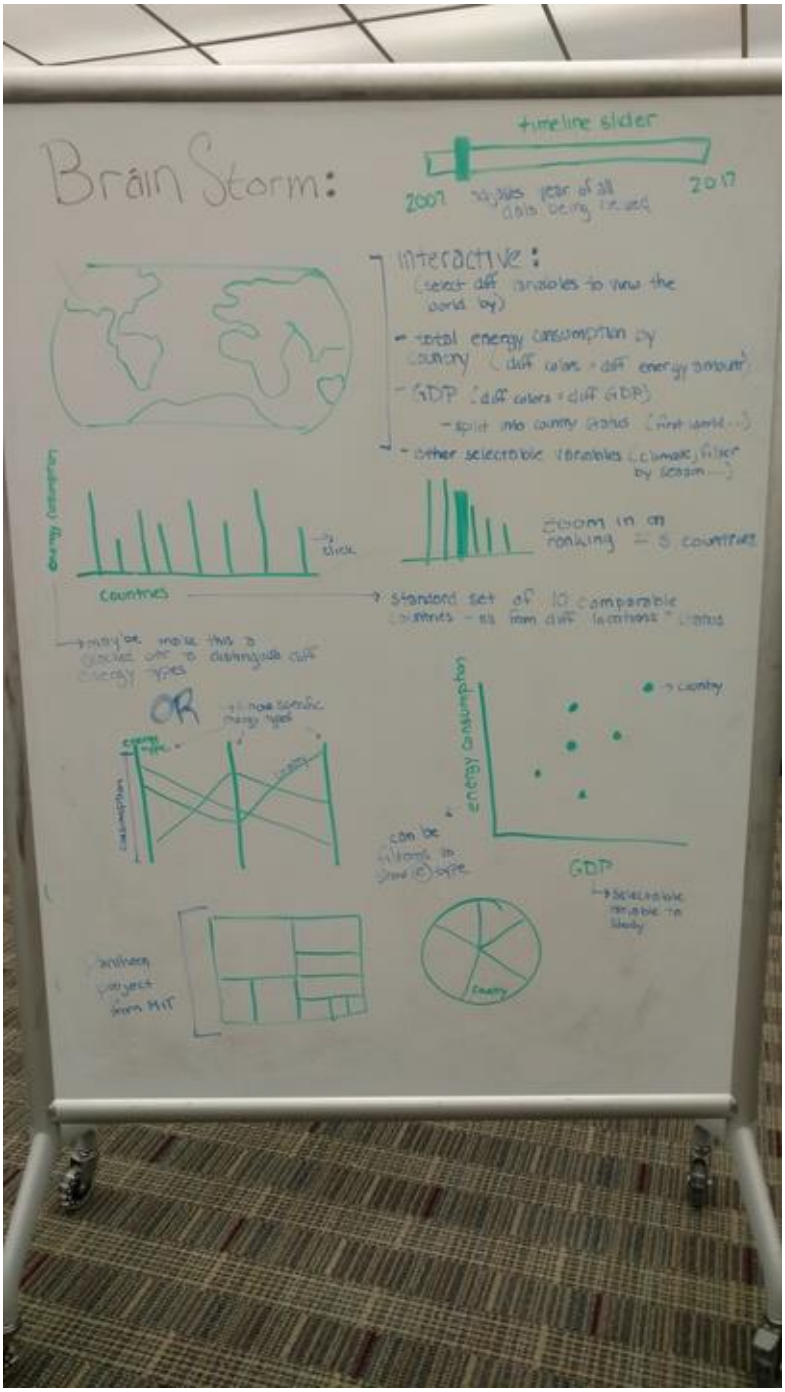
We will use the online filtering features in The Global Energy Statistical Yearbook and World Data Bank to do most of the data cleanup.

The World Data bank easily allows us to filter the data by country, population statistics, education statistics, year and many other available databases.

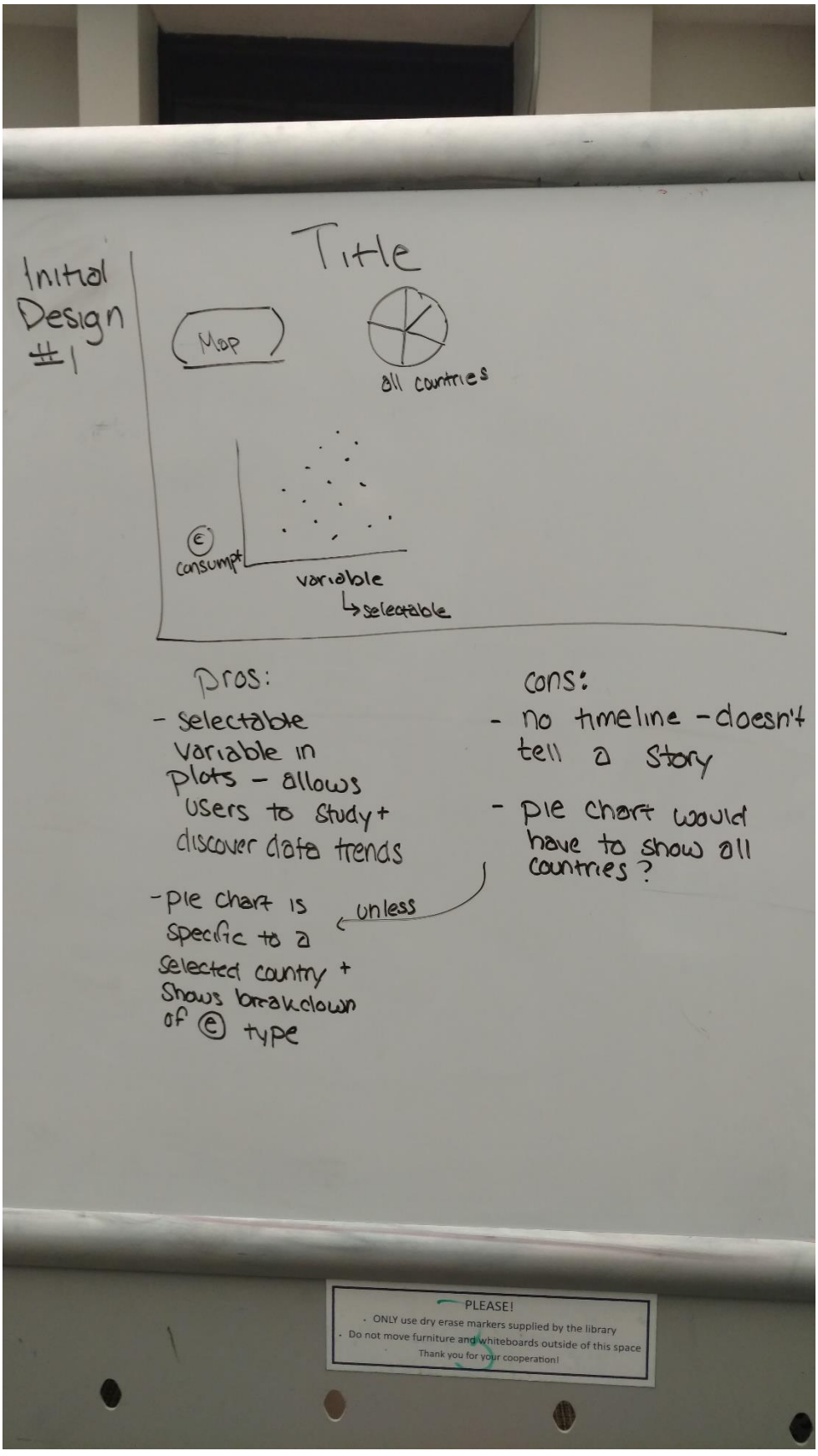
Conveniently, the data viewed from the World Data Bank can be downloaded after filtering.

Visualization Design

Initial BrainStorm:



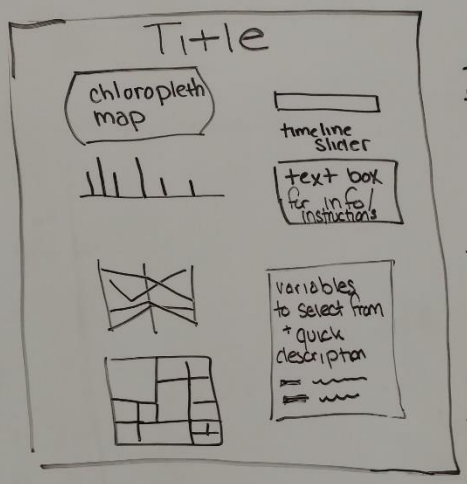
Initial Design 1/3:


Initial Design #1
Title
Map
all countries
€
consumpt
variable
selectable
Pros:
- selectable variable in plots - allows users to study + discover data trends
- pie chart is specific to a selected country + shows breakdown of € type
unless
Cons:
- no timeline - doesn't tell a story
- pie chart would have to show all countries?
PLEASE!
ONLY use dry erase markers supplied by the library
Do not move furniture and whiteboards outside of this space
Thank you for your cooperation!

Initial Design 2/3:

Inital Designs:

(2)



pros:
- timeline to tell story

cons:
- lots going on
- maybe add more interactive features
- maybe add a way to compare how countries rank

PLEASE!
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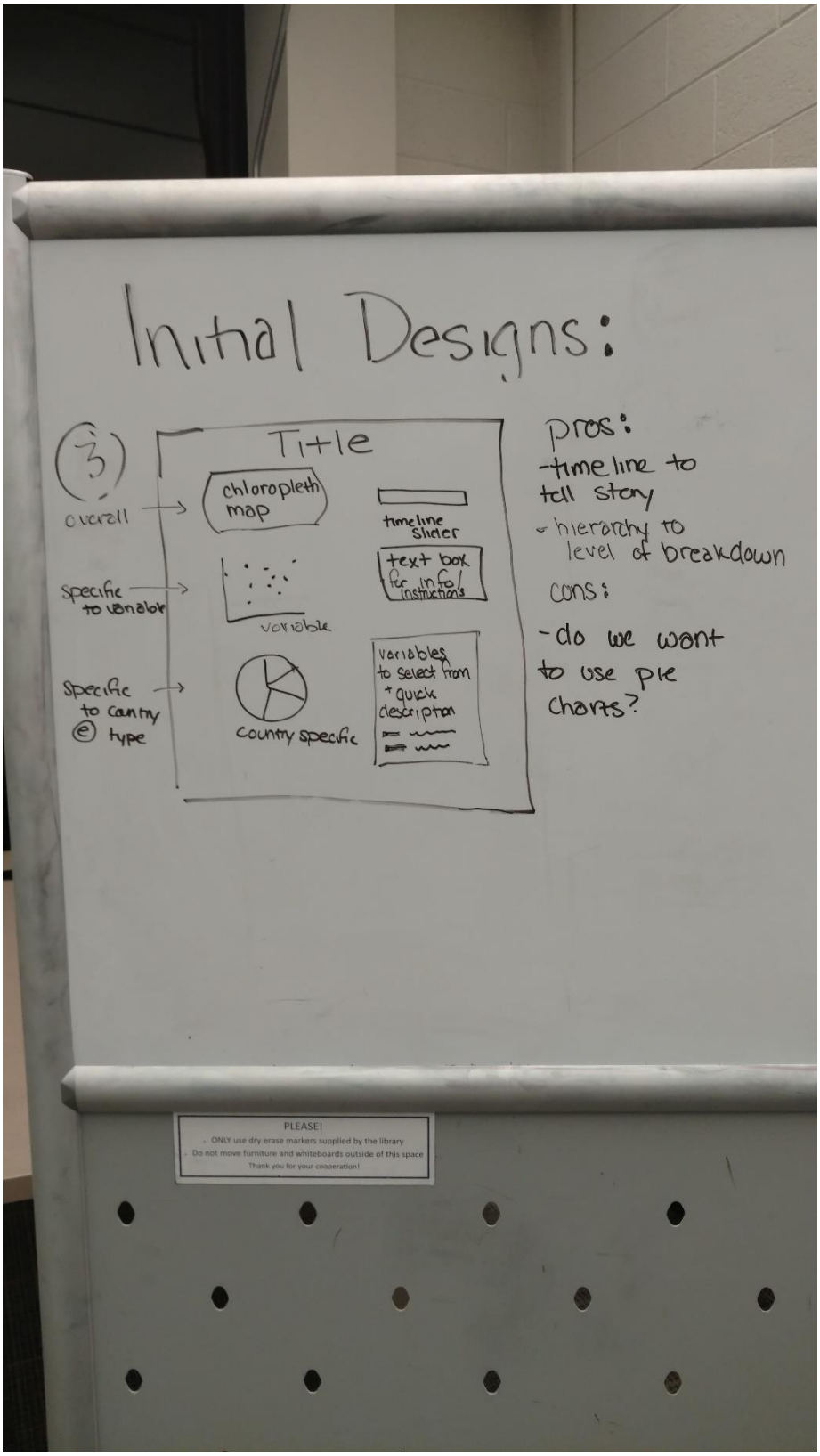
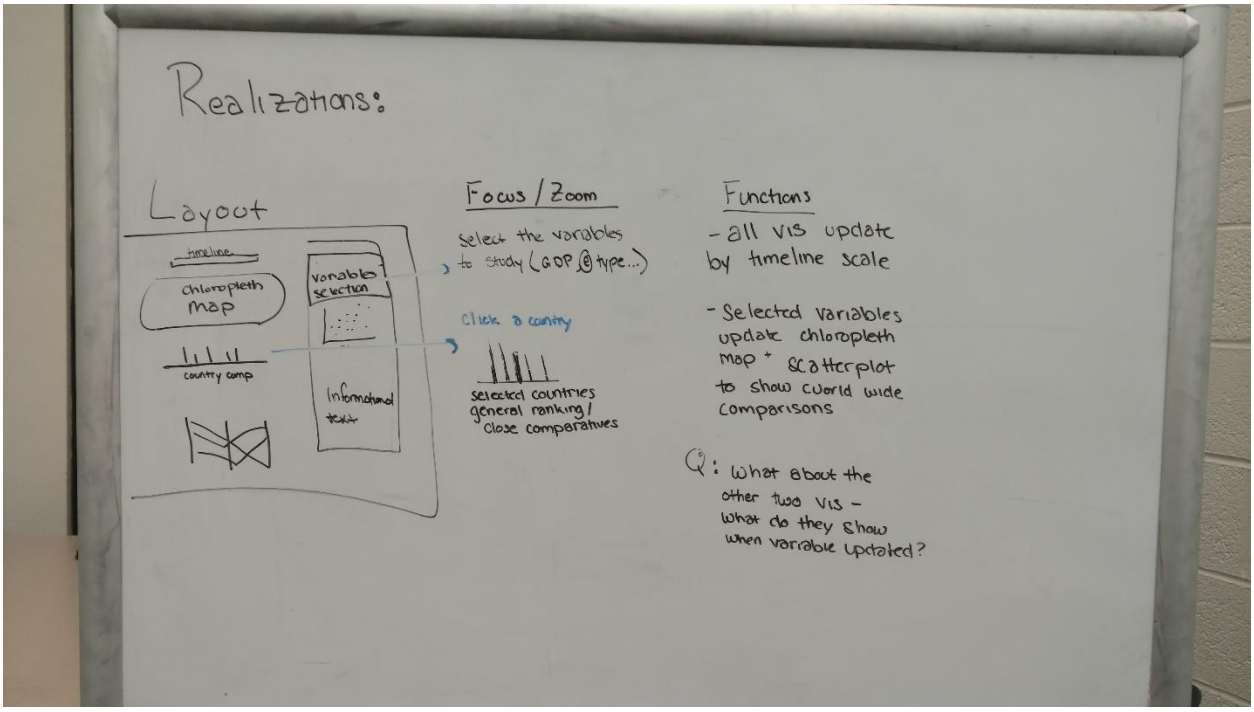
Thank you for your cooperation!

Initial Design 3/3:



Realization:



Must Have Features

- Chloropleth map
- Timeline
- Country comparison bar chart
    - With clickable (“zoom” / “rank”) feature
- Parallel coordinates
- Basic variables:
    - GDP / country status
    - Population
    - Energy consumption by type and total

Optional Features

- Pantheon project / tree map
- Pie charts
- Scatter plot
- Additional variables;
    - Climate
    - Season
    - Energy source exports
    - Energy production

Project Schedule

Date	Goal / Accomplishment
Feb 15	Project Proposal
Feb 16	Data Collection / Processing
Feb 18	Prototypes of all necessary visualization elements
Feb 22	All basic visualizations working (aim for 80% of visualization goals complete)
Feb 23	Prototype Presentation
Feb 24	Adjust to class feedback
Feb 25	Add in extra features
Feb 27	Compile Progress Book
Feb 28	Video Demo
Mar 02	Project Submission