Word Count

Team Weebs

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Tutorial Time: 10:30am – 12:30am  
  
Semester 1 - 2022

ENERGY USAGE IN AUSTRALIA

[link to website]

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# Introduction

## Background and Motivation

Who will use, or be interested in, this visualization? What kind of tasks will they want to do? Why is it important?

Nowadays, in Australia, the prevalent method of generating energy is by burning fossil fuels, while more renewable, cleaner energy options being much lower compared to fossil fuels(cite). Burning fossil fuels are one of the causes of global warming and it is directly causing the worsening environment state in Australia (cite), but at the time of this visualization’s creation, renewables have not become more dominant compared to the old energy generation source. This visualization is targeted towards the public, and in particular, the population that is conscious about the state of the environment, along with the proportion of their energy use coming straight from a non-renewable way. By creating this visualization, the biggest goal is to raise awareness on how much the energy proportion has not changed a great deal in the past few years, along with informing people on how important

## Visualization Purpose

What questions will the user be able to answer with your visualization? List the possible benefits of the completed visualization

This data visualization website aims to investigate the energy generation and consumption of Australia, highlighting all the sources that contribute to the energy economy of Australia. From that information, focus our lens on the disproportional energy distribution, calling to action a drive to reduce fossil fuel burning and focusing on the renewables sector.

## Project Schedule

Make sure that you plan your work so that you can avoid a big rush might before the final project deadline. Write this in terms of weekly deadlines

Week 9:

* Tutorial time:
  + Work on finalizing ideas for the aim of the visualizations
  + Conceptualize and research about energy production and consumption in Australia
  + Practice creating a choropleth, and looked at online works of visualization for inspiration
* Weekends:
  + Try in creating preliminary designs for the base visualizations
  + Make a functional choropleth map, color scheme and enhancements not finalized
  + Try in creating a

# Data

## Data Source

From where and how are you collecting your data? Provide a link to your data sources. What type of dataset is it? What are the attributes in your data set and what type of data are the values (i.e., categorical, ordinal, interval, ratio…)? Is there any data in the set that will not be included in your visualization? Why?

## Data Processing

Do you expect to do substantial data clean-up? What quantities do you plan to derive from your data? How will data processing be implemented? Will you be deriving any variables?

Describe clean up process that was implemented. Explanation and calculation of derived variables (if used)

# Requirements

## Must-have features

These are features without which you would consider your project to be a failure. Were you able to deliver all the promised features? If not, explain why

Must have features in our visualizations include:

* Choropleth
  + With hovering effects to show either another visualization, or interactive methods to show data
* Pie chart
  + Pie chart showing all data in a clear and visible way, with legend explaining color choice and polylines to indicate specific data in each chords/sector
* Area chart
  + Colors use are distinct and easy to see
  + Usage of buttons to shift between charts with/without animation to show data from different regions

## Optional features

Those features which you consider would be nice to have, but not critical. Were you able to deliver any of these extra features?

# Visualization design

How will you display your data? Provide some general ideas that you have for the visualisation design. Include sketches of your design. Include at least 2-3 alternative ideas for your visualization. Describe and justify your choice of visual encoding and idioms. Show the evolution of your design. How has it progressed? Justify the visualisation idioms you have chosen to represent your data

Description (including screenshots) and explanation of final design.

Notes:

* You are encouraged to provide your own structure to this section (sectional headings, …)
* You MUST show evidence of iterative design (sketches of alternative and preliminary designs).

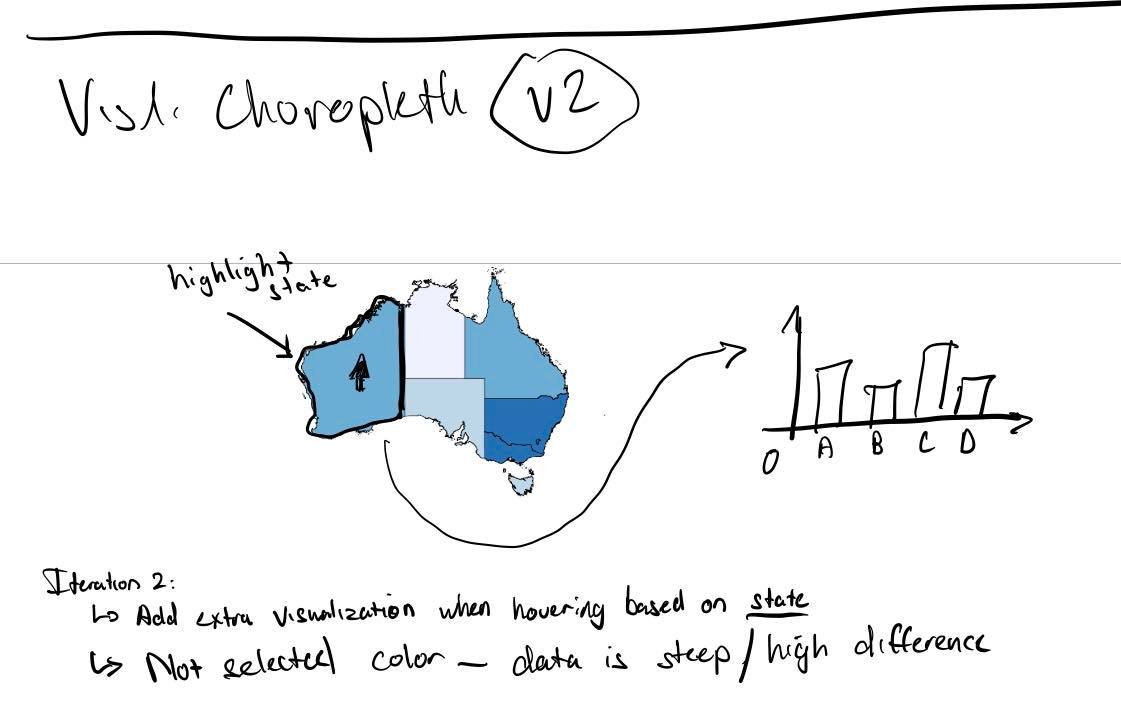
## Method of data display:

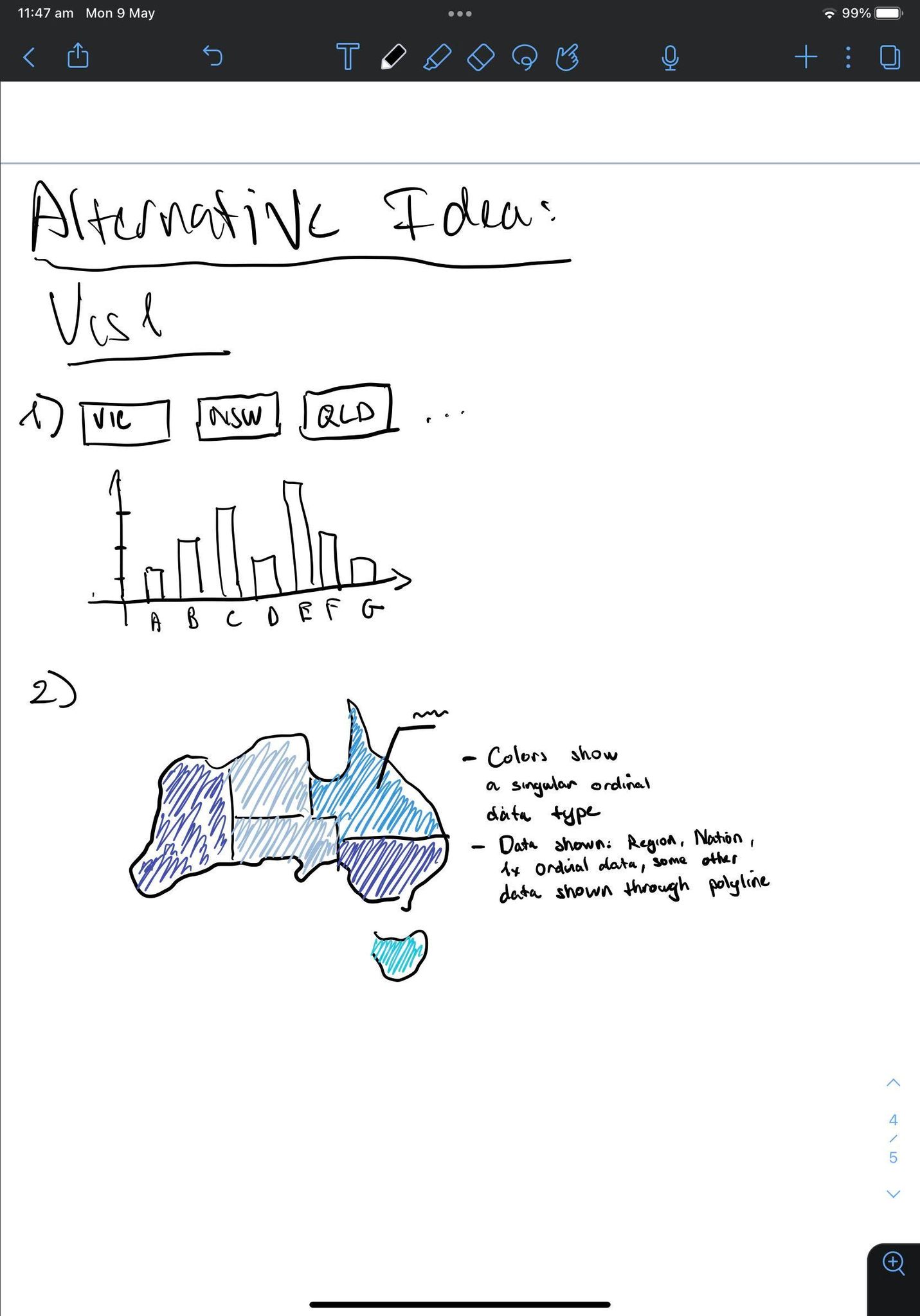
The way we plan to show our data is through 3 visualizations:

1. Choropleth
   1. General ideas
      * Using a choropleth, we want to show energy generation/consumption data in specific states, shown to the user from the user hovering their mouse on top of specific regions on the map. By doing this, our goal is to introduce an appropriate amount of interactivity to the visualization, along with communicate with the audience that “the visualization is about Australia, and about the states in Australia” without having to state it outright.
      * In addition, the colors used in the visualization would be distinct enough for the audience to make out differences in hues and saturation in order to make out the difference in data.
   2. Sketches and iterations

Diagram, schematic

Description automatically generated



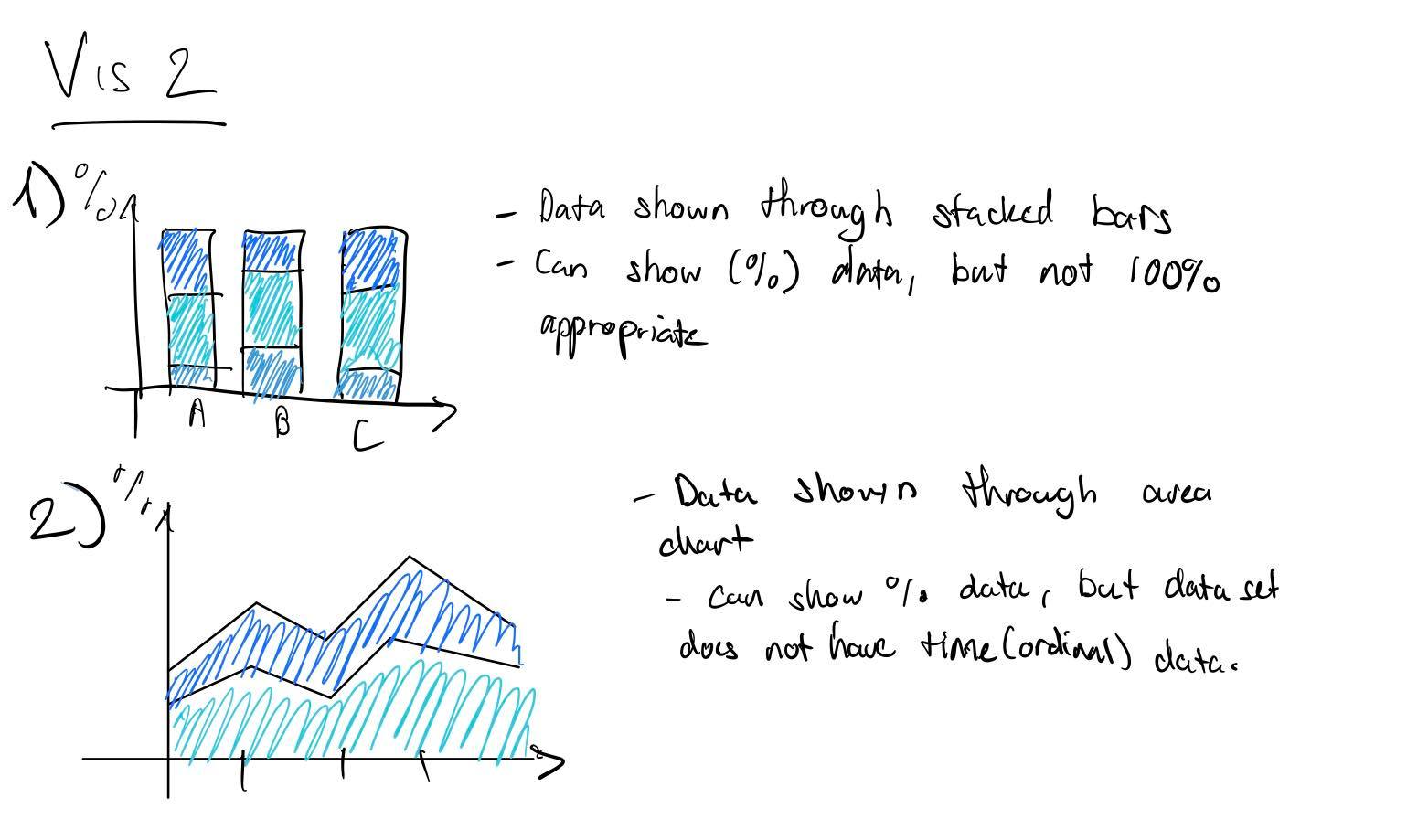
* 1. Alternative ideas
     + The same data can be represented using just a bar chart with alternating buttons to cycle between states, but this is not as interactive and does not show clearly the region and the states within the region of focus, and it also does not allow us to also change the colors of each state to show another type of data. Having a choropleth is more flexible in that way.
     + The same data can also be represented using only a choropleth with polylines showing up when mouse hovers on it, but the amount of data shown is pale in comparison to having a mouse hover and showing another chart for each state. To encompass all the data, it is better to utilize the way proposed above.
     + 
  2. Visual encoding and idioms

1. Pie charts
   1. General ideas
      * We needed to show percentage data of how much renewable energy contribute to total energy consumption/generation in Australia, so we went through several types of graphs to represent percentage data, but we landed on pie charts to show our data.
   2. Sketches and iterations

Diagram

Description automatically generated

* 1. Alternative ideas
     + It is possible to represent our data in stacked bar charts to show percentages, but we have only 1 category, so it is not 100% appropriate
     + It can also be shown through the use of area charts, but is not appropriate as well since



* 1. Visual encoding and idioms

1. Area chart
   1. General ideas
   2. Sketches and iterations
   3. Alternative ideas
   4. Visual encoding and idioms

# Validation

Test your visualization with users and report the results

# Conclusion

Provide a summary of the project and what you learnt from doing it.