

FIT3179 Data Visualisation

Assignment II

Gayi (Gracee) Liao 33233357

Website URL:

<https://kitkatug.github.io/Data-Visualisation-II/>

GitHub Repository URL:

<https://github.com/kitkatug/Data-Visualisation-II>

No. of Words: 907

Introduction

The data visualisation, “Touring Around Australia with Airbnb” subjects to the topics of tourism and accommodation in Australia. It focuses on being an informative piece for travellers/tourists while presenting data for those interested in the human flow in Australia.

What

The data was obtained from Kaggle (Blanche, 2020) and Inside Airbnb (2023) which were inclusive of all the attributes used in the visualisation. Namely the longitude/latitude, states and regions, prices, number of trips and purposes. Based upon these attributes four categories were defined: location, costs, timeline, and purpose. These were separated from the introduction

Why & How

The category, location mainly consisted of longitude and latitude: two quantitative attributes which is determined by the channel position and best represented with a point mark. The idiom chosen that fits these criteria is a symbol map shown in figure 1.

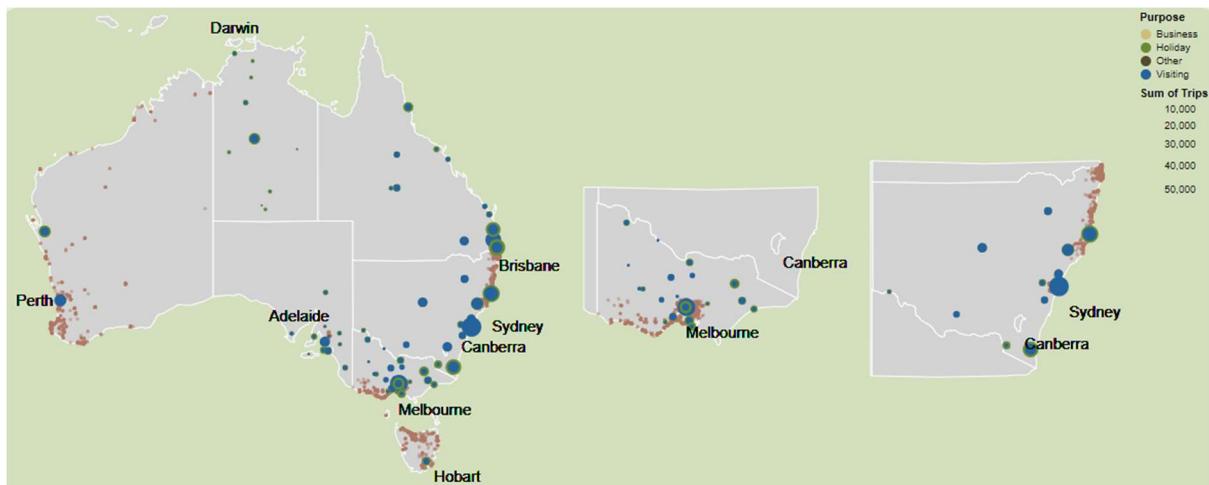


Figure 1: Symbol Map

The two quantitative attributes are encoded by three types of channels, colour, size, and position. Where colour represents the purpose and Airbnb's, while size represents the sum of trips in that area. The position channel shows the location of the trips and Airbnb's, this allows viewers to compare between the most accommodating travel spots. To enhance the viewer's experience, closer visualisations of the denser states, Victoria, and New South Wales, are shown with textual annotations to help viewers grasp an idea of location. A selection is available for users to go through each purpose and a toolbox helps them gain more information. See figure 2.

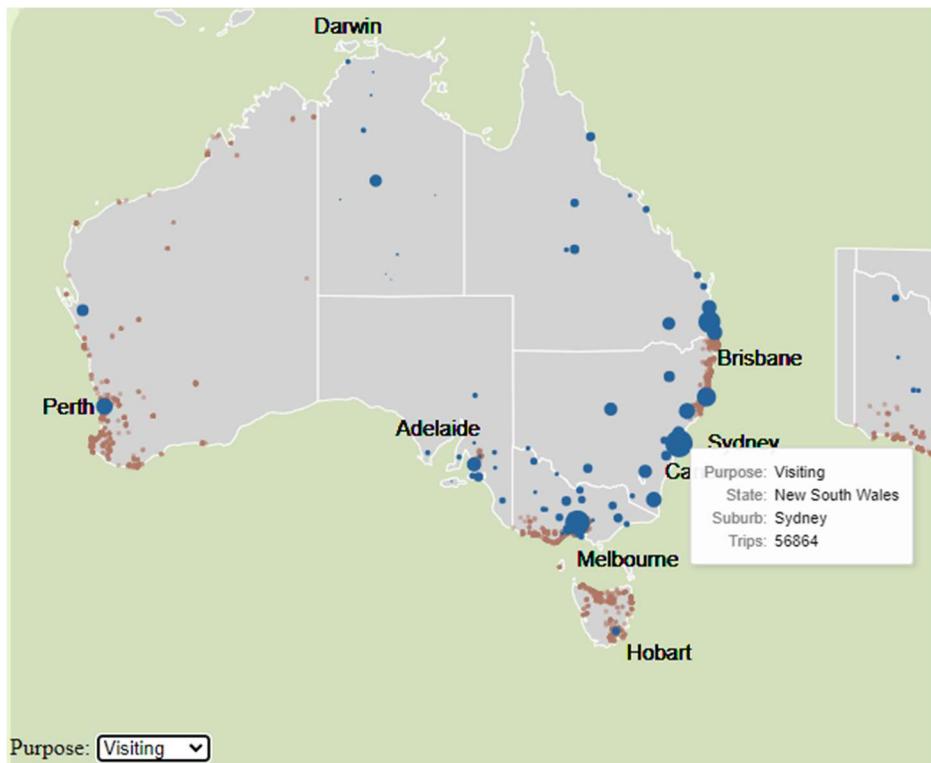


Figure 2: Selection & Toolbox

The second category, costs is presented with a radial plot. While presenting the attributes of price and state, the radius is determined in an orderly fashion so users can see the cheapest and most expensive states. While there are two attributes to this graph, the focus is the price which can be broken down into components (states). So, the best idiom to represent this is a part-to-whole visualisation. (GIJN Staff 2019) See figure 3.

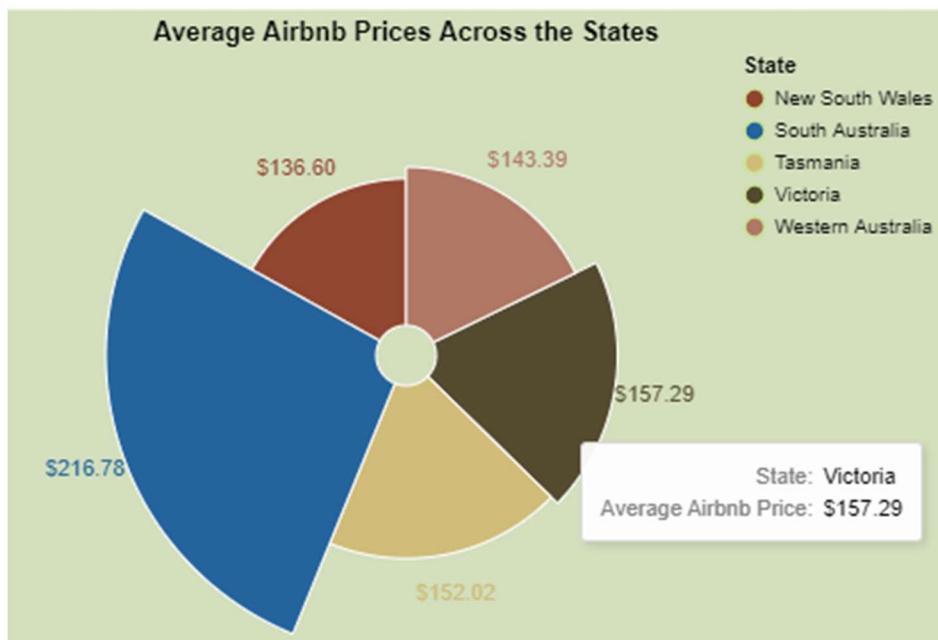


Figure 2: Radial Plot

Here the colour channel is primarily used to convey the states in adjunction to the textual mark which annotates the sections. The radius/size of the section is a channel that allows viewers to compare between the prices.

To increase the informative aspect of the visualisation, the number of trips is represented by a waterfall chart with the attributes of year and total trips. This chart best shows the decrease and increase in tourism through the mark, bar, which is shown by the colour channel hue using, red and green where red is decrease and green is increase. This idiom was chosen due to its blocky appearance and effectuality, where it firstly aligns with the “blocked colour theme” and secondly can strongly differentiate between decrease and increase compared to a line graph or a regular bar graph.

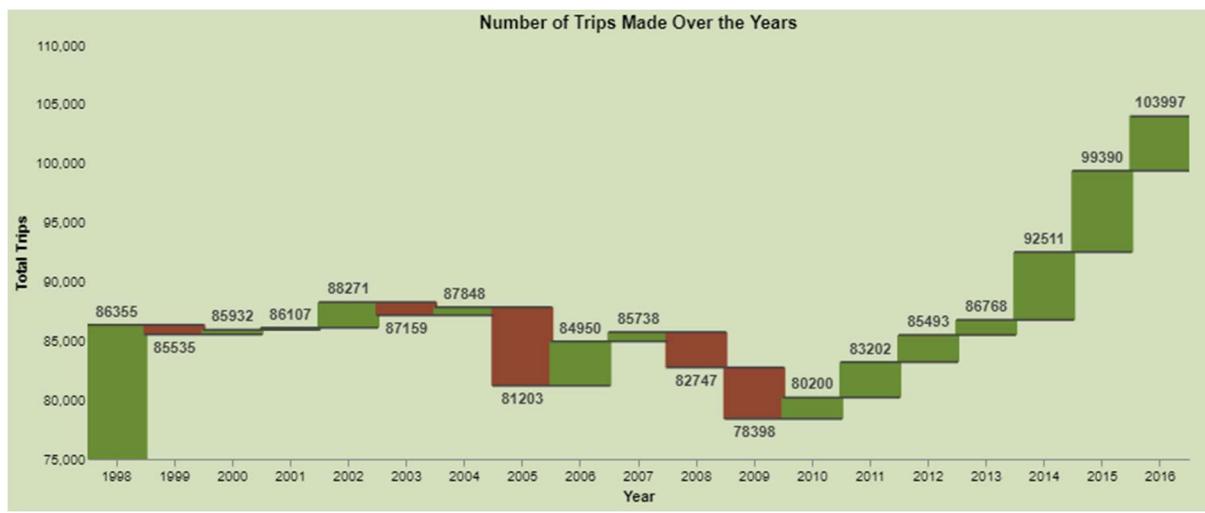


Figure 3: Waterfall Chart

Lastly, to keep the individuality of the states a grouped bar chart was used to define the number of trips by state by purpose. This graph consists of three attributes, purpose, trips, and state and effectively shows the most toured to state as well as the reason why. The colour channel hue effectively differentiates between the states while using the mark bar. For more user interaction, a legend selection (shown in figure 5) can be used to compare between the number of trips by the purpose.

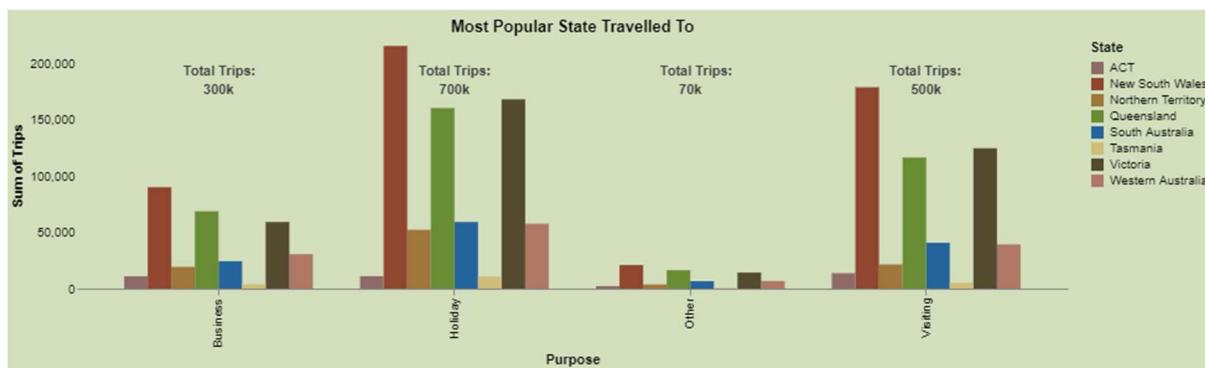


Figure 4: Grouped Bar Chart

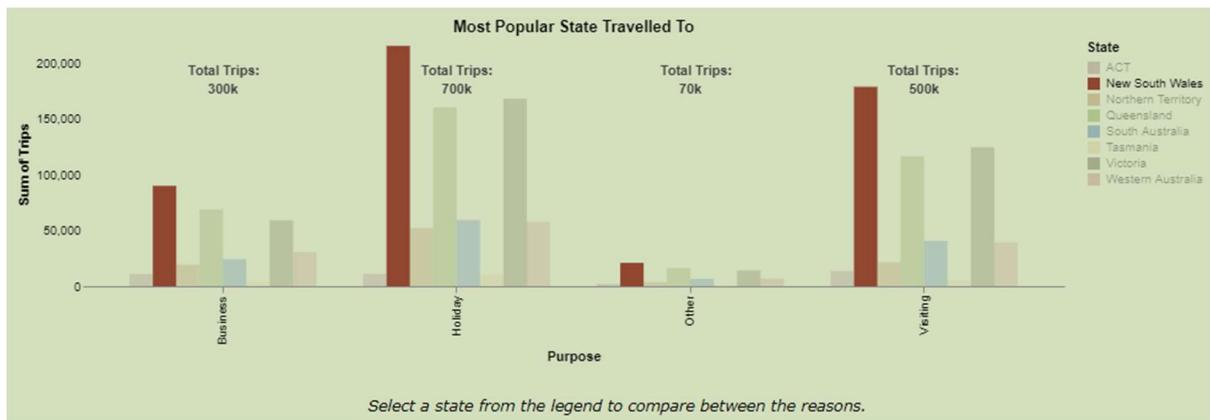


Figure 5: Legend Selection

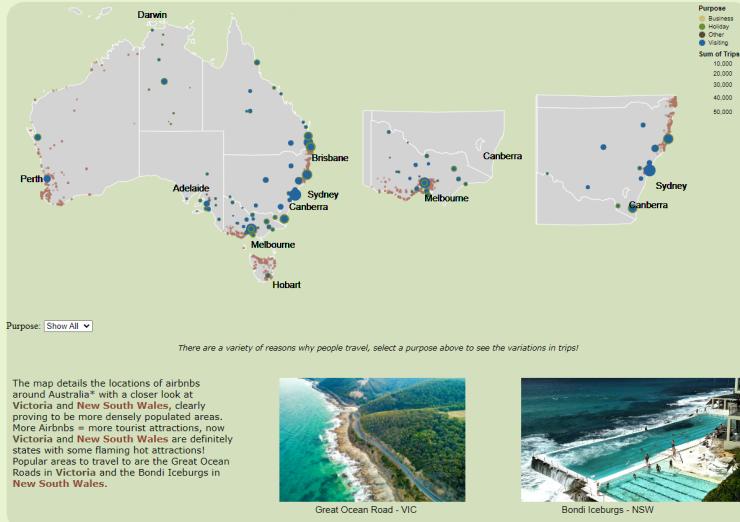
Touring Around Australia with Airbnb

Australia's diverse landscapes, unique wildlife, and vibrant culture have made it a popular destination for travelers from around the world. In recent years, the tourism landscape in the country has been reshaped by the rise of Airbnb, the home-sharing platform that has offered alternatives to traditional hotel accommodation. The intersection of Airbnb and Australia's tourism industry presents an intriguing dynamic, one that is influenced by several key factors.

First and foremost, the popularity of Airbnb in Australia is due to the breathtaking diversity of tourist hotspots across the continent. From the iconic Sydney Opera House to the ancient wonders of the Great Barrier Reef and the rugged beauty of the Outback, there's something for every traveler. These unique destinations often complemented by Airbnb's offerings, have played a significant role in shaping the modern Australian travel experience.

Understanding the impact of Airbnb on Australia's tourism requires looking at the numbers. Annually, millions of trips are made to Australia, reflecting the country's global appeal. These trips are not evenly distributed, as different states boast their own unique attractions, drawing in millions of visitors. These distinctions often extend to the cost of accommodations, with average Airbnb prices fluctuating from state to state. These factors collectively influence the choices made by travelers, altering the tourism landscape in Australia and providing both visitors and locals with unique, personalized travel experiences.

Airbnb and Hot Tourism Spots



Average Airbnb Prices By State

The average Airbnb prices in various Australian states vary, reflecting the diverse and dynamic nature of the country's tourism landscape. Here are the average Airbnb prices for select states:

New South Wales (NSW): The average Airbnb price in NSW is \$136.60. This state is known for its stunning beaches, vibrant cities like Sydney, and iconic landmarks, making it a popular destination for both domestic and international travelers.

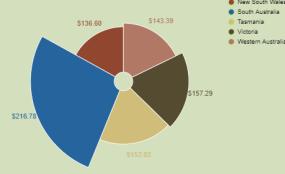
South Australia (SA): In South Australia, the average Airbnb price is \$216.78. SA offers a mix of cultural experiences, natural beauty, and fine wine regions, attracting tourists looking for a unique and relaxed atmosphere.

Tasmania (TAS): Tasmania's average Airbnb price is \$157.02. This island state is famous for its pristine wilderness, rugged coastlines, and charming historical towns, making it an attractive destination for nature enthusiasts and history buffs.

Victoria (VIC): Victoria has an average Airbnb price of \$157.29. With the cultural mecca of Melbourne and a wide range of natural attractions, this state offers a diverse travel experience, catering to city explorers and nature enthusiasts alike.

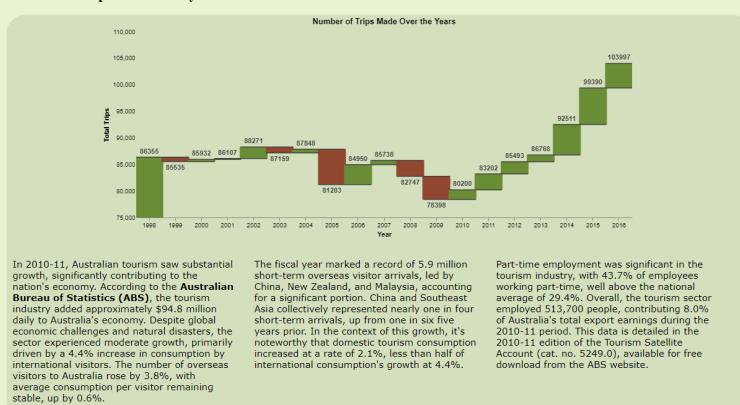
Western Australia (WA): The average Airbnb price in Western Australia is \$143.39. This state is known for its vast landscapes, stunning beaches, and unique wildlife, making it a magnet for travelers seeking adventure and natural beauty.

Average Airbnb Prices Across the States



These varying price points reflect the different attractions, experiences, and demand for accommodations in each state. Travelers can choose from a range of options to suit their preferences and budget when exploring the diverse and captivating destinations that Australia has to offer.

Number of Trips Made Yearly



Competition of the States

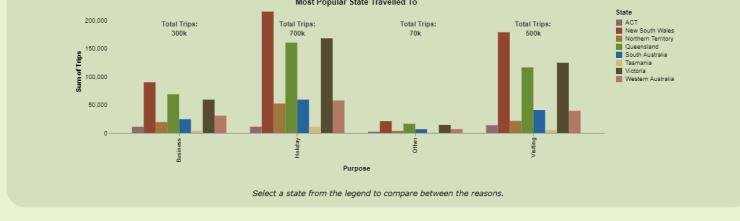
New South Wales emerged as the most frequented state in Australia, attracting travelers for a multitude of purposes. Whether it's for business, holidays, general visits, or other reasons, New South Wales consistently held the top spot in terms of visitor numbers. The vibrant city of Sydney, with its iconic landmarks, served as a magnet for tourists seeking leisure and cultural experiences.

Victoria closely followed, ranking second overall, and proving particularly popular for holidaymakers and general visitors.

Melbourne's cosmopolitan appeal, combined with the state's diverse natural attractions, drew in a diverse range of travelers.

Queensland, on the other hand, secured the third spot for all purposes, including business, holiday, general visits, and other reasons. The state's stunning coastlines, tropical destinations, and vibrant cities, like Brisbane and the Gold Coast, made it an attractive choice for tourists seeking a mix of relaxation and adventure.

In summary, New South Wales dominated as the most traveled-to state across various purposes, with Victoria and Queensland also enjoying their share of visitor traffic, each offering unique experiences and attractions.



*Note: Airbnb locations are unavailable for Northern Territory and Queensland.

Design

Layout

The layout is strongly influenced by Gestalt's principles of enclosure and proximity. Focusing on horizontal sightlines made by the coloured boxes that differentiate between topics, and vertical sightlines to make columns of text that support the graph.

Colour

Colour's chosen in this visualisation are earthy tones, relative to an Australian theme. Starting with the background colour, light and darker green, the darker green encloses the information in each topic following Gestalt's principle of enclosure. Meaning the objects within this box are grouped together. (Harley, 2020) The colours within the visualisation are kept to 5-8 colours which differentiate between the states as to not to overwhelm the viewer. Colour hues are used to show a nominal attribute such as purposes seen in the symbol map and states seen in the radial plot and bar chart.

Figure-Ground

As mentioned before the visualisation mainly uses Gestalt's principle of enclosure where the white space around the graphs separates each topic. The hierarchy is focused upon the larger/bolder text first, so the title before going downwards to the headings and then the content.

Typography

There are two typefaces used in the visualisation – Playfair and Verdana. Playfair was used as the title and headings of each section as the serif font is more legible in a larger scale and differentiates it from the sans-serif body text. Verdana is a lot simpler and easier to the eyes, so more suitable to be used in larger masses. Certain texts in the body paragraphs were bolded in either colour or black, this highlights the main point of these paragraphs. If it was also in colour, it is a linkage between the text and colours within the graphs.

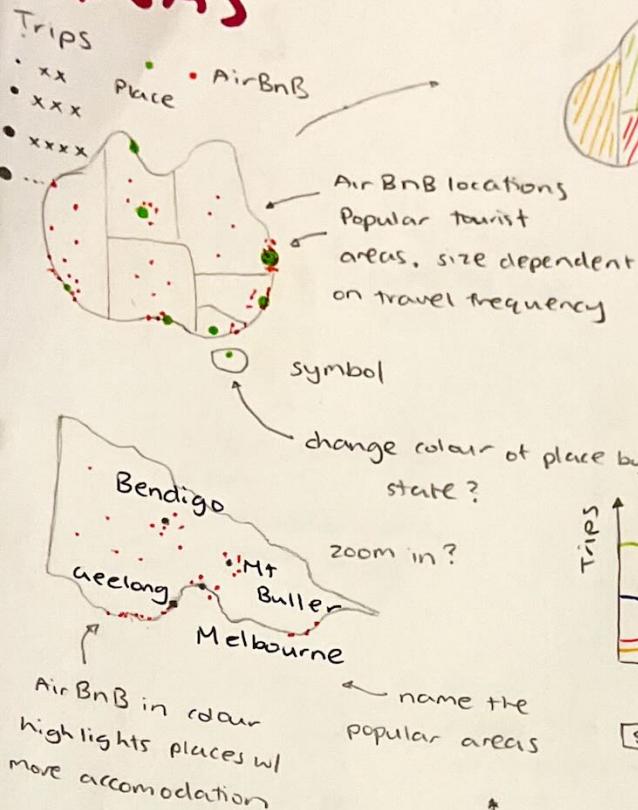
Story Telling

The narrative genre used in this visualisation is a magazine format where the storytelling is focused upon the text in the visualisation and is promoted by the graphs and images provided. Textual annotations across the graphs are used to enhance the fluidity of the connections between graphs and text. While the parameters provide user interaction which increases user experience.

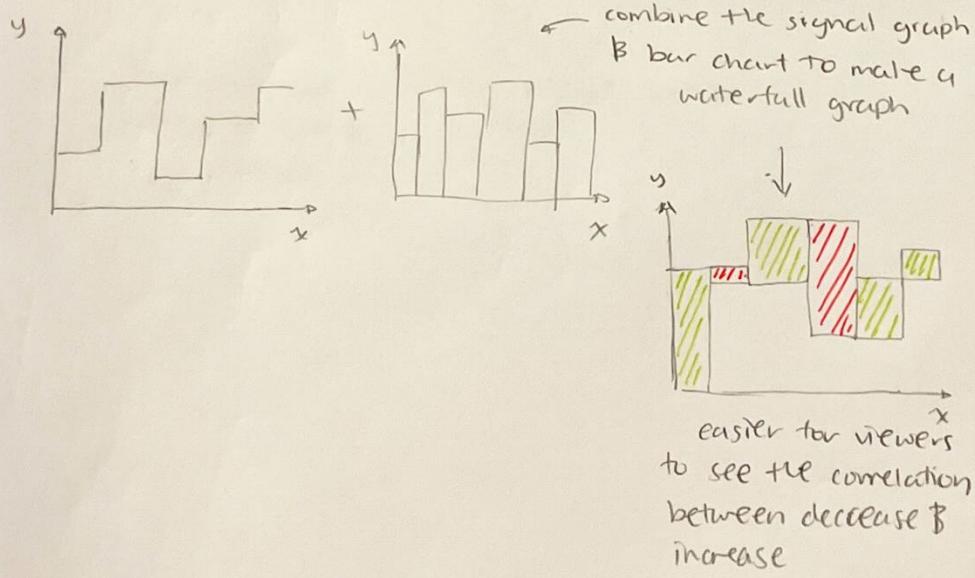
References

- Blanche, L. (2020). Quarterly Tourism in Australia. Retrieved from
<https://www.kaggle.com/datasets/luisblanche/quarterly-tourism-in-australia>
- (2023). Retrieved from <http://insideairbnb.com/get-the-data/>
- GIJN Staff. (2019). Retrieved from <https://gijn.org/document-of-the-day-visual-vocabulary/>
- Harley, A. (2020). Retrieved from <https://www.nngroup.com/articles/gestalt-proximity/>

IDEAS



COMBINE & REFINED

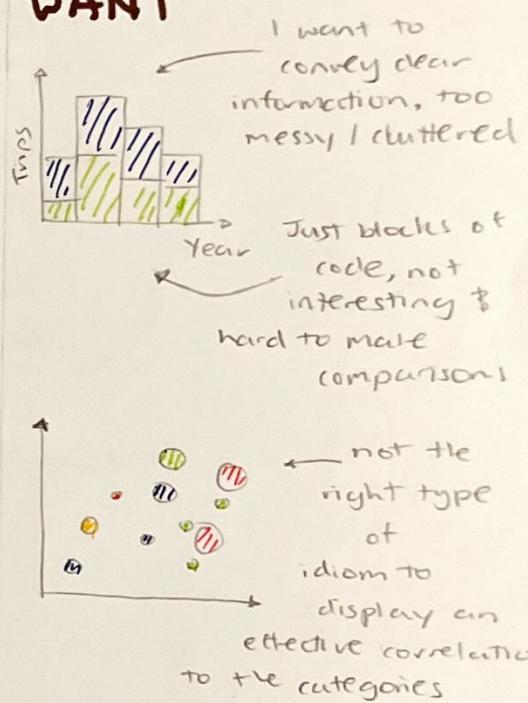


CATEGORIES

- Location - latitude & longitude attributes
- Costs - price attribute
- Purpose - purpose attribute
- Timeline - year attribute

FILTER - DON'T

WANT



QUESTIONS

- ① Can these graphs convey the categories effectively?
- ② What storytelling method/principles will be effective to link these graphs together?
- ③ How can I relate the graphs to each other?
- ④ Will I need to expand on any of these graphs?
- ⑤ What interactive actions can I use to enhance the information conveyed?

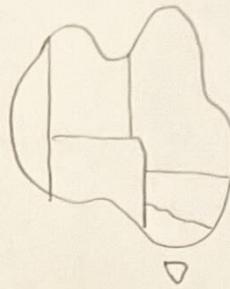
IDEAS



AirBnB represented w/ dots

- contrast color so easier to see?

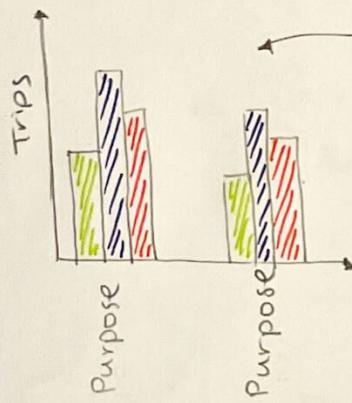
The "darker" the colour the more trips



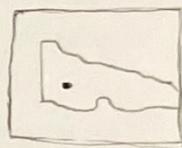
colour is dependent on state

size dependent on price

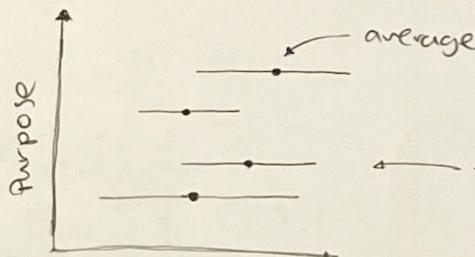
- top 10 cheapest airbnbs



cleverer than the stacked bar chart

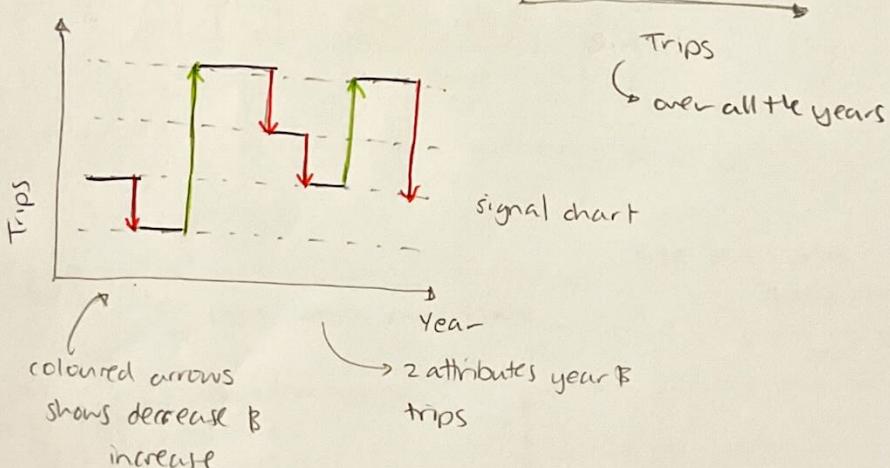


toolbox shows where airbnbs is



average

too thin?



coloured arrows shows decrease & increase

signal chart

Year

2 attributes year & trips

Trips
over all the years

AYOUT

touring around Australia

FOCUS

Text within each state

announcements to increase interest
eg.

HITSPOT OF 2023!

size shows price
best price the bigger the cheaper

toolbox shows region / location plus price

colours depict state

Tourist Destinations

Around Australia

Date:

Sheet: 2

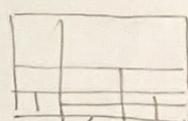
Task: FIT 3179 Assignment 2

Author: Garyi (Gracee) Liao

OPERATION

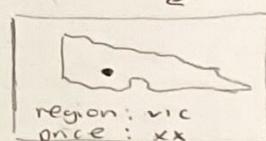
Highlight

choose a state
To highlight, will
lighten/grey out the other
states — applies to all
graphs



Toolbox

→ add detail about pricing



DISCUSSION

Adv

- Focus on the graphs
- Is there enough space for textual description on the graphs?
- Clear horizontal sections

Discadv

- Column alignment is inconsistent
- Storytelling isn't as effective
- No apparent hierarchy — where do the headings go?

Qs

- Are the interactions too intricate? Can I make this more apparent than hidden?

LAYOUT

Touring Around Australia

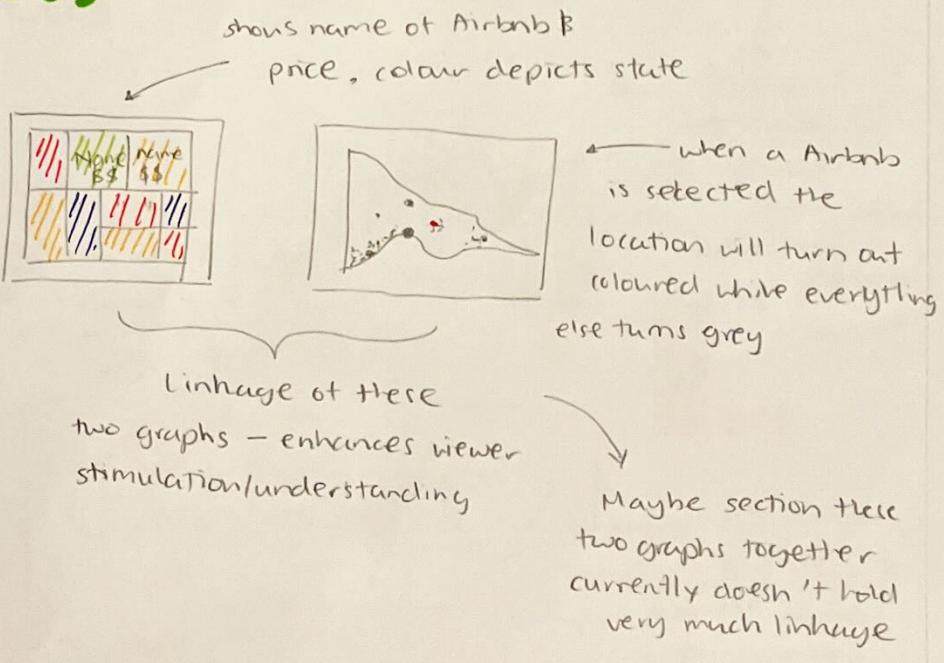


Tourist Destinations
 Around Australia
 Date:
 sheet : 3
 Task: FIT3179 Assignment
 2
 Author: Gayi Curacev
 Liao

OPERATION



FOCUS



DISCUSSION

Adv

- strong layout - magazine storytelling, clear rows & columns
- column centered
- grouped together by boxes - related content

Disadv

- Sections aren't quite clear
- 2nd Row seems very devised from each other - graph & text don't quite relate to each other
- Try some of Gestalt's principles?
- Not very visually appealing

AYOUT

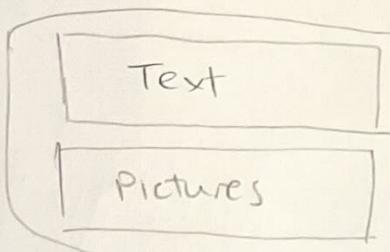
Touring Around Australia



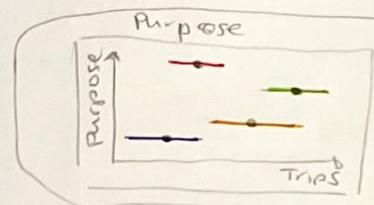
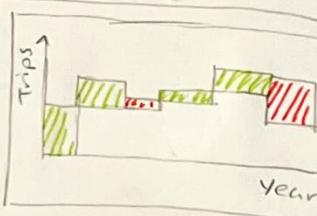
VIC

NSW

Purpose A



Timeline



text

text



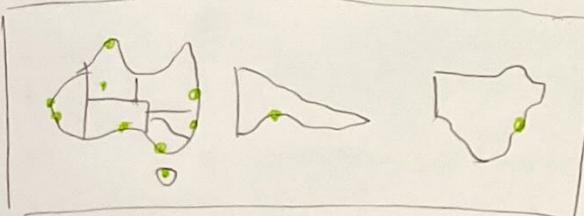
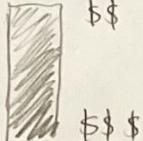
FOCUS

dots that aren't
airborn will change

size of circle
= no. of trips



quantitative
attribute ↗
gradient ↗
colour
saturation ↗
channel ↗



Purpose D

Purpose defined
colour

Tourist Destinations
Around Australia

Date:

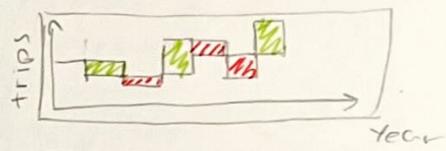
Sheet: 4

Task: FIT3179 Assignment
nr 2

Author: Cayi (Grace) Liao

OPERATION

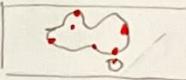
can include interactive
slider to zoom in on
the years



1998 2016

Purpose A

selection parameter



DISCUSSION

Adv

- horizontal sightlines
- clear distinction b/w topics
- Focus on graphs

Disadv

- No text reference for the symbol map
- tend to boring / repetitive format

Qs

Maybe combine sheet 3 & 4's layout?

LAYOUT

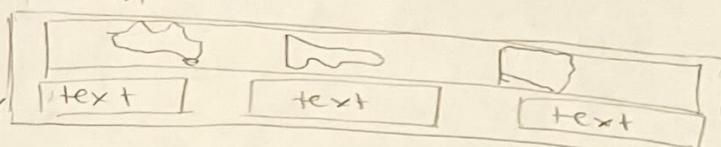
Touring Around Australia

Text

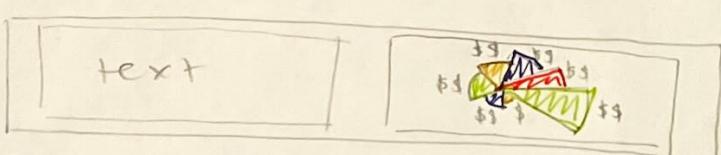
Text

Text

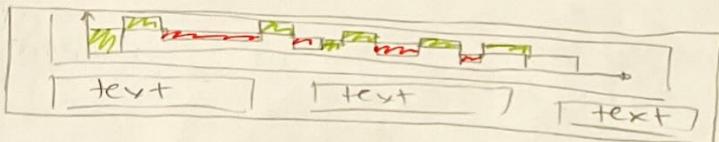
Location



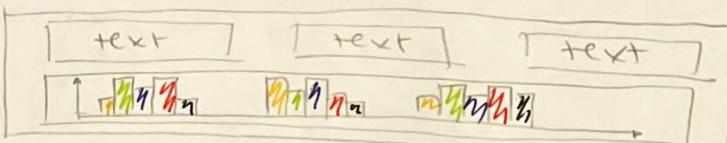
Cost



Timeline



Purpose



FOCUS

size is dependent on
no. of trips
(sum)

zoom in on the
most popular states



Visiting ▾

selection parameter

colour is
dependent on
purpose

Tourist Destinations
Around Australia

Date:

sheet : 5

Task: FIT3179 Assignment

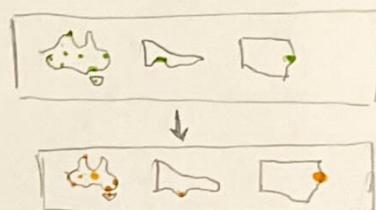
2

Author: Gayi (Gracee)
Liao

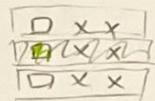
OPERATION

Purpose ▾

selection parameter
to choose purpose across
each map



legend



click on
a legend
content to
highlight it
in the graph



DISCUSSION / DETAIL

Dependencies: Vega-lite - compatible w/ HTML & CSS coding

Time: 40 hrs - creating
visualisation, 2hrs - report &
5 DS