Information Visualisation Assignment 3

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I. DESIGN SUMMARY

A. Page 1 Interface: Melbourne Map Guide(Design by Yucheng Peng)

The "Melbourne Map Guide" interface was crafted with a strong user-centric approach, focusing on the diverse needs of tourists navigating a new city. By allowing users to select from three different datasets (Landmarks, Toilets, and Top 50 Restaurants), it provides immediate, context-sensitive information, addressing the common challenges tourists face in terms of finding attractions, amenities, and dining. The inclusion of specific filters caters to individual preferences or needs, such as the type of landmark or toilet gender specificity. The interface transcends traditional static maps by integrating a "Go There" feature, which actively assists users in reaching their destinations via Google Maps, thus solving the fundamental problem of unfamiliarity with the city layout and transportation options.

B. Page 2 Interface: Airbnb Map Guide(Design by Renfei Yu)

This interface is a specific section in Melbourne Travel Guid app which focus on "Tableau Airbnb Map Integration with Shiny". It allows users to visualize Airbnb data for different states of Melbourne. Users can view Airbnb listings on a map, sorted by various categories like price (from low to high or high to low), the most reviewed, and minimum nights to stay. Users select a preferred sorting method from the dropdown menu labeled "Choose a Tableau worksheet". Upon selection, the map will display the corresponding Airbnb data points. Each point on the map represents an individual Airbnb listing. Hovering over a point provides additional details about the listing, such as the name, price, room type, minimum nights, and the number of reviews.

C. Page 3 Interface: Travel Suggestion(Design by Yucheng Peng)

The "Travel Suggestion" interface streamlines personalized travel planning by inviting users to input key parameters: interests, budget (in AUD), and travel dates. Upon submission, the system leverages the ChatGPT API to generate tailored travel recommendations, synthesizing user preferences with intelligent, conversational AI insights. Credit is particularly due for the seamless API integration, offering dynamic, real-time travel advice, a feature that stands out in the digital tourism sector. The decision to utilize a conversational AI approach, rather than static data retrieval, personalized each user's experience, accommodating diverse preferences and schedules, thus revolutionizing the approach to digital travel consultancy.

D. Page 4 Interface: Weather (Design by Zheng HU)

This weather interface is primarily designed for tourists either planning to visit or currently in Melbourne, aiming to offer real-time weather information to assist them in planning their trips effectively. The interface utilizes the capabilities of R shiny and fetches future weather data via the openweather API. Specifically, on the top left corner of the weather page, the current time alongside a weather icon is displayed. Right beneath the icon, essential weather details such as the current weather description, temperature, and wind speed are provided. These three details were chosen as they are often the most crucial pieces of information for users, especially temperature and the weather description. Adjacent to this, on the right, a line graph depicting the day's weather fluctuations is presented, with time on the x-axis and temperature (in Celsius) on the y-axis. This feature is crafted keeping tourists in Melbourne in mind, enabling them to get insights into the day's weather trends. Hovering over any data point on the graph reveals detailed information for that specific time, enhancing the interactivity of the interface. The choice of a line graph was to offer a clear representation of temperature variations. Additionally, the bottom right corner of the page displays a table outlining the weather forecast for the next five days. This is specially crafted for tourists planning to come to Melbourne, primarily showing the weather description and temperature (including both highs and lows).

E. Page 5 Interface: Transport(Design by Yichu Xu)

The recently unveiled interface serves as a thorough interactive mapping system that has been painstakingly created to provide customers an unmatched perspective into the intricate Victorian train and tram network. The platform easily connects the gap between unprocessed data and useful insights by combining the strength of Tableau visualizations with user-friendly interface components. Selecting the suitable option allows users to make a simple and obvious decision between exploring the tram lines or the rail network. Once a decision is made, the Tableau visualization starts, displaying a colorful and in-depth map of the selected station. This interface stands out due to its focus on minute details. The interface contains zoomable graphics since it is aware of the difficulties some users have understanding huge maps. Users may easily hover over select areas of the map to magnify them in order to better comprehend relationships and landmarks. The UI even goes a step further by providing useful alerts, taking into account the sporadic technological difficulties. These user-experience-focused instructions suggest actions like refreshing the page or matching stations with nearby street names to ensure easy navigation even in unexpected circumstances.

II. Summary Showcasing

A. Page 1 Interface: Melbourne Map Guide(Design by Yucheng Peng)

The "Melbourne Map Guide" interface was crafted with a strong user-centric approach, focusing on the diverse needs of tourists navigating a new city. By allowing users to select from three different datasets (Landmarks, Toilets, and Top 50 Restaurants), it provides immediate, context-sensitive information, addressing the common challenges tourists face in terms of finding attractions, amenities, and dining. The inclusion of specific filters caters to individual preferences or needs, such as the type of landmark or toilet gender specificity. The interface transcends traditional static maps by integrating a "Go There" feature, which actively assists users in reaching their destinations via Google Maps, thus solving the fundamental problem of unfamiliarity with the city layout and transportation options.

B. Page 2 Interface: Airbnb map(Design by Renfei Yu)

Geographical Distribution: The map enables users to instantly see where the majority of Airbnb listings are concentrated in Melbourne. This can be useful for tourists deciding where to book or for hosts determining where competition is most intense. Price Distribution: By sorting listings from low to high or high to low, users can quickly identify areas that tend to be more affordable or expensive. Popularity Insights: By viewing the most reviewed listings, users can gauge where popular or highly-rated accommodations are located.

C. Page 3 Interface: Travel Suggestion(Design by Yucheng Peng)

"Travel Suggestion" is designed from a ground-up philosophy of personalizing travel experiences. Recognizing that each tourist has unique interests, budget constraints, and available travel dates, this interface removes the one-size-fits-all approach often found in travel suggestions. By integrating the ChatGPT API, it goes a step further than standard form-based queries, offering users intelligent, conversationally-generated travel recommendations that feel more human and tailored. This method significantly enhances user engagement and satisfaction, as recommendations are not just based on broad categories but are finely tuned to individual user inputs, effectively resolving the dilemma of impersonal and irrelevant travel advice often encountered in pre-existing platforms.

D. Page 4 Interface: Weather (Design by Zheng HU)

Our interface aims not merely to display fundamental weather data. One of the fascinating features is our embedding of a CSS file within R shiny, resulting in some straightforward yet dynamic animations such as raindrops or snowflakes, which change corresponding to various weather conditions. For instance, under a "clear sky" condition, the background is blue, symbolizing a clear sky, accompanied by a golden circle representing the sun. In a "few clouds" scenario, two clouds can be seen drifting from the bottom of the screen. The intent behind this design was to offer users an intuitive feel of the current weather, preparing them accordingly. Furthermore, a small tip is provided in the bottom right corner of the page. Upon clicking, users are offered weather advice based on the current conditions, adding another layer of interactivity to the page.

E. Page 5 Interface: Transport(Design by Yichu Xu)

Every aspect of the design highlights the values of simplicity and easy navigation and embodies the user-centric design philosophy. The design makes every interaction simple in recognition of the varied user base, which includes both residents and tourists from other countries. Tourists are given with an interface that seems both familiar and educational, as they are frequently confused by new transit systems. By acting as a guiding hand and preventing consumers from being overloaded with information unrelated to their preferred method of transportation, the checkbox system is considerably more than just a function. Zoomable photos, a feature of the design, were created with the concept that travelers need in-depth knowledge of station connections and nearby landmarks while making plans for their day or determining the shortest route. This guarantees effective trip preparation and lowers the possibility of getting lost or skipping crucial connections. The aesthetics—including the typeface and color schemes—have been carefully picked. Bold typefaces and distinctive colors are carefully used to ensure that important messages are understood as well as seen, thereby lowering the possibility of misinterpretation. This design's guiding principle is to deliver a simple, user-centric tool that gives locals and visitors alike the assurance and information they need to navigate the Victorian transit maze with ease.

F. Contribution Table

Name	Contribution to project (max 50 words)	Percentage contribution
Renfei Yu	Setup theme and modified text formatting. Design the Airbnb Map and integrate Tableau Visualization in R project.	25%
Yichu Xu	Design the transport map and merging Tableau visualizations with user-focused elements, enhancing the navigation experience of the Victorian train and tram network.	25%
Yucheng Peng	Design the Melbourne Map Guide interface. Design the Travel Suggestion interface.	25%
Zheng HU	Design the weather page on R shiny; Integrated the Google Maps navigation feature into the Leaflet map.	25%