IA2 Technical Proposal Stimulus

Technical Proposal for a New Web Application Tool

Identification

The REIQ (Real Estate Institute of Queensland) is a professional association that was established to support the Real Estate Industry in Queensland (https://www.reiq.com/about/). They exist to provide information, products and resources to their Real Estate Practitioner members, who are then able to pass this on to the general public through the delivery of high quality property services. These resources and products include reports that enable monitoring, analysis and insights into real-estate markets across the state.

They require tools for their members that allow effective and efficient property comparison for their clients. REIQ have identified that schools and transportation are both important criteria when making real estate property decisions. https://www.reiq.com/articles/eight-steps-for-buying-property/

You are required to **develop a new Property Comparison web application** that:

- Provides an intuitive and responsive interface
- allows exploration and comparison of the property market using school locations and transportation services criteria data.
- allow users to search for properties based on these criteria (schools and transportation)
- contains an information page that provides appropriate explanations of the data, the source of the data and how the data is used.
- Provide an administrative tool that allows editing and updating of the database set
- appropriate validation checks on new data before it can be uploaded to the database

The overall design of the web application must:

- apply accessibility principles and usability principles
- include appropriate attribution to data and images used
- comply with copyright law

Interactions

Personas have been developed for potential users and clients of the website (see Figure 1):

Helen



- An experienced real estate agent in a busy office on the northside of Brisbane
- Predominantly deals with families and couples looking to buy property
- Interested a way to quickly identify properties for her clients that have good commuting links and close to schools

David



- A young real-estate agent working in a Brisbane suburban office
- Has been working in the profession for only 6 months and still on probationary training
- Interested in tools that will help him learn more about the Brisbane real-estate market and his clients

Brad



- is a 40-something year old successful salesman looking to buy a family home.
- He is looking for a property that can accommodate his elderly mother-in-law, within proximity to a high school for his eldest son, and room for his wife who runs a business from home.
- Brad dislikes traffic, worries about his family safety, and wants to live near a park where can walk his two Labradors.

Figure 1: User profiles for the new web application

REIQ have specified the following criteria:

- Users must be able to register personal details with the site
- An incorrect user registration will not be stored in the database
- Administrators must be able to upload transport and school information to the website from a .csv file
- Users must be able to enter a keyword to find information about bus stops and schools relevant to the area they are interested in
- The web application complies with Government web design standards
- The web application complies with the Australian *Privacy Act* (1988)

Component Specifications

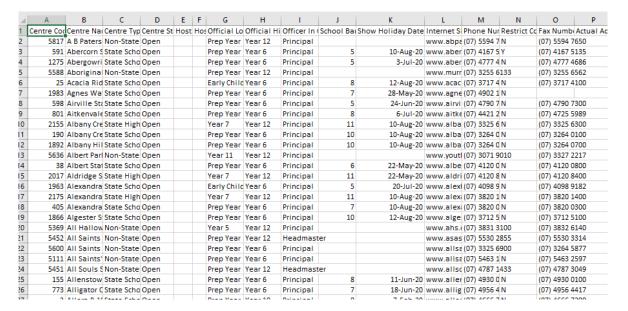
Data

There are a number of data sets that are relevant when researching the property market, but for this solution only two data sets will be incorporated into the structure of the solution. The two data sets to be used are:

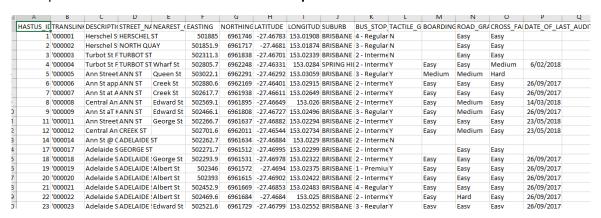
- School locations "CentreDetails_Qld_May_2020.csv" can be found with this URL https://www.data.qld.gov.au/dataset/state-and-non-state-school-details
- Bus stop locations "bus-stop-locations.csv"

 https://www.data.brisbane.qld.gov.au/data/dataset?tags=transport

A sample screenshot of the dataset for "State and non-state school details.csv" is shown below:



A sample screenshot of the dataset for "Bus-stop-locations.csv" is shown below:



User Interface/Experience

The application must provide (for the REIQ and its members):

- A responsive and dynamic web interface
- It must be able to register users and maintain the following details about them
 - First name
 - Last name
 - Occupation
 - Name of real estate agency/business
- An interface that has applied usability principles https://www.interaction-design.org/literature/topics/usability and https://www.interaction-design
 usability-heuristics-for-user-interface-design
- Adherence to Web Content Accessibility Guidelines. Refer https://www.w3.org/WAI/standardsguidelines/wcag/glance/

The web application will need to provide users with an Information page which provides general information such as:

- definition of terms
- source of information and how the information is used
- explanations that help the user understand the data

Code

- algorithms and code to:
 - o read records from a csv file and store them in a database table
 - o search the database based on specified criteria and display the results
 - o record and validate user registration details
 - o ensure the site is being operated by an authenticated user
 - o utilise a "session" variable to manage the user's "login" information
- an algorithm for checking the csv data before loading it into the database.

Accessibility Guidelines

Table 1: Accessibility guidelines adapted from the Australian accessibility standards

Accessibility guidelines

Page titles:

- must appear in the browser tab for all pages
- must be appropriate for the page
- must be different for each page.

Alt text:

- must be used for all content images (except decorative images)
- attribute is set to null for decorative images
- appropriately describes the content of the image to which it relates
- gets larger when pages are zoomed.

Headings:

- are on every page (at least one)
- levels on each page have a meaningful hierarchy.

Zooming of pages:

- results in correct display of the page with no horizontal scrolling
- allows all buttons to remain visible.

Non-mouse navigation (keystrokes or tabs):

- of page is in a logical order
- allows access to all page elements.

Fields:

- in forms and other form controls have a visible label to allow interaction with voice input and increase the clickable area
- that are mandatory are clearly indicated and do not rely on colour alone
- with required formats, such as dates (year, month, day), are clearly indicated.

Error messages (or validation messages):

- are clear and specific
- do not cause the form to be completely reset.

Accessibility options include:

- general instructions for user input at the top of the form or section to which they relate
- text transcripts provided for audio and video elements
- appropriate contrast ratio between text and background (colour contrast)
- a five-second time limit for all moving or flashing content, and the content can be disabled or controlled by the user.

References

1. Queensland Government open data portal - list of schools in Queensland. Accessed July 2020

https://www.data.qld.gov.au/dataset/state-and-non-state-school-details

2. Brisbane City Council open data portal -Bus stop locations (Brisbane)

https://www.data.brisbane.qld.gov.au/data/dataset/brisbane-bus-stops

- 3. Queensland Government Queensland Legislation. 2018. Accessibility. [ONLINE] Available at: https://www.legislation.qld.gov.au/accessibility. [Accessed 25 July 2019].
- 4. Real Estate Institute of Queensland (REIQ), https://www.reig.com/