RMIT UNIVERSITY

Programming Studio 1
COSC2803 | Semester 1 2021
Studio Project | Homeless Social Challenge Requirements Document

1 Overview

This document outlines the tasks of websites that addresses the "Homelessness in Australia" challenge.

1.1 Challenge A: Homelessness in Australia

Develop a web-application to **raise awareness and understanding of the scale and scope of homelessness in Australia**. You will need to cater for different types of users, from those who are completely unaware of this social phenomenon to those who are data savvy and wish to perform a more in-depth data-driven analysis of this problem. Your final web-application will need to consider how to balance the needs of these different types of users in creating a cohesive data-driven web application.

To help you in creating your web application, below we have outlined the required tasks for each level for each social challenge.

> **LEVEL 1 (GREEN)**: Capture the attention of people who are unfamiliar with the social challenge and present the "big picture" issues of the social challenge.
> **LEVEL 2 (ORANGE):** Provide a method for users to explore a "shallow glance" of the key issues of the social challenge. Users have a simple exploration of the data set.
> **LEVEL 3 (RED):** Provide a method for users to "deep dive" into the detailed data of the social challenge. Users can conduct an in-depth examination of data.
> **LEVEL 4 (PURPLE):** Optional extension tasks that you may choose to complete to make your final project impressive and stand-out from other submissions! (These will be described in later milestones and are only mentioned here for completeness).

Each level increases in complexity. Successfully completing each level by the end of the project roughly corresponds to a final grade as below. Your final grade will also depend on your initial design, your group work, and the quality of your usability testing. You can check the marking criteria of each Milestone below to see how marks are allocated.

- **LEVEL 1 (GREEN):** PA

- **LEVEL 2 (ORANGE):** CR - DI
- **LEVEL 3 (RED):** DI - HD
- **LEVEL 4 (PURPLE):** Top HD

2 Project Level Details

The tasks for each level are outlined in this section.

2.1 Level 1 (GREEN) "Big Picture" Static Content

Level 1 pages have static content and focus on the user perspective. The sets of level 1 pages are:

1. Landing Page
   - This is the first page users see when they visit your website.
   - This should capture the attention of all users of your website.
   - It should direct users how to use the rest of your site.
2. Big Picture Page
   - This page presents the big 3 facts that you have identified from the dataset about homelessness in Australia.
   - It should grab the attention of users unfamiliar with the scale of homelessness in Australia and the scale of key homeless issues, such as the impact of homelessness on women, children or the elderly.
   - It should encourage users to find out more about the scale of homelessness in Australia.

It is up to you to design and decide the best way to:

- Show the users the above information, that is, complete the UX/UI design.
- Store the information that you will show to the user.

2.2 Level 2 (ORANGE) "Shallow Glance" of the data

Level 2 pages use a subset of the data to explore, at a shallow level, the issue of homelessness across regions of Australia. The two sets of level 2 pages are:

1. Homelessness by area (local government area *and* by state). You should:
   - Allow the user to examine an overview of the number of recorded homeless people in each *Local Government Area (LGA).* For each LGA provide:
     i. The total number of homeless people
     ii. The number of homeless people by *gender*
     iii. The number of homeless people by *age*
   - Allow the user to examine an overview of the number of recorded homeless people in each *State,* using similar metrics as above for each LGA.
   - Provide a way for the user to sort the information for the "best" and "worst" LGAs and/or States for each matric.
2. People 'At Risk' of homelessness by area (local government area *and* by state). You should:
   - Allow the user to examine an overview of the number of people 'at risk' of being homeless in each *Local Government Area (LGA).* For each LGA provide:
     i. The total number of people 'at risk' of being homeless
     ii. The number of homeless people 'at risk' of being homeless by *gender*

iii. The number of homeless people 'at risk' of being homeless by *age*

- Allow the user to examine an overview of the number of people 'at risk' of being homeless in each *State,* using similar metrics as above for each LGA.
- Provide a way for the user to sort the information for the "best" and "worst" LGAs and/or States for each metric.

To show the user information about each state you will need to determine the state from an LGA code. You should read the data set description document for hints!

It is up to you to decide the best way to:

- Allow the user to find out the above information. You could use drop-downs, tables, lists or other ways for the user to see this information.
- Allow the user to sort the information.
- Store information in your database.
- Query your database to provide the user with the desired information.

2.3   Level 3 (RED) "Deep-dive" of the data

Level 3 pages enable the user to explore a deeper view of the issues of homelessness in Australia. This exploration considers if there are other factors (such as income) that impact homeless, and how the rate(s) of homelessness are changing over time. The two sets of level 3 pages are:

1. Compare the rate of homelessness to other factors. You should:
    - Enable a user to see how other factors might impact homelessness in each LGA. For each LGA a user should be able to find the:
        i.   Ratio of homeless people to the total number of people
        ii. Ratio of homeless people by age and gender to the total number of people
        iii. Median age, median mortgage repayments, weekly rent and weekly income for households in the LGA
    - Enable the user to filter the above information by *region, gender* and *numeric ranges*. For example, find the homeless ratio for women in Victorian LGAs with an average weekly income under $500 and a median age of over 50.
    - Enable a user to answer questions such as:
        i.   What is the homeless rate in the LGA with the highest/lowest weekly income?
        ii. What is the homeless rate in the LGA with the highest/lowest median age?
        iii. What is the homeless rate in the LGA with the highest/lowest rent?
        iv. What is the LGA with the highest/lowest ratio of homeless gender?
    - Enable a user to see if there are any trends of the number of homeless people based on the average weekly income in each LGA. For example, showing how the *homeless ratio* (as calculated above) changes as the weekly income increases or decreases
2. Compare the change in homelessness over time. You should:
    - Enable a user to study how the rate of homelessness has changed between 2016 and 2018 in all LGAs compared to changes in the population. For each LGA a user should be able to find the:
        i.   Total (or percentage) change in the number of homeless people
        ii. Total (or percentage) change in the number of 'at risk' people

      iii.   Total (or percentage) change in the total population

      iv.   Ratio of the change in the number of homeless people to the change in the number of people at risk of being homeless

- Enable the user to filter the information by *region*, *gender* and *age group*. For example, find the ratio in the changes of homeless women in Victorian LGAs where the total population of the LGA has increased.
- Enable a user to answer questions such as:
    i.   What is the change in homelessness in the LGA with the largest change in total population?
    ii.   Which LGA has seen the largest increase of homeless women?
    iii.   Which LGA has seen the largest decrease of homeless children?
    iv.   Which LGA has seen the largest shift of people from being 'at risk' to actually being homeless?
- Enable a user to see if there are any trends of the number of homeless people based on how the *percentage change in homeless people* (as calculated above) changes as the total population of a LGA changes

It is up to you to decide the best way to:

- Allow a user to filter various aspects of the information.
- Allow a user to see trends in the data, such as by using sorted tables.
- Store the necessary information in your database.
- Query your database to provide the user with the desired information.