



Programming Studio 1

COSC2803 | Semester 1 2021

Studio Project Milestone 1: Design

Assessment Type	Design Group Assessment (pairs)
Due Date	11.59pm, Sunday 16 May 2021 (End of Week 4)
Silence Period	From 5.00pm, Friday 14 May 2021
Weight	15% of the final course grade
Submission	Online, via Canvas. Submission instructions are provided on Canvas.
Learning Outcomes	This assignment contributes to CLOs: 1 - 6.

1 Overview

The objective of the studio project is to develop a web-based application to address a **Social Challenge** of your choice. The work that we do in Computer Science and Software Engineering is more than just coding. We use software tools to design solutions to challenging problems. In this project we endeavour to explore **Computing for Good**. That is, using our skills to achieve positive impacts with our communities and beyond.

For the competitive analysis most students embraced the open-ended investigation and found their own unique perspective on what it means to “address a social challenge”. This was great to see. For the studio project we are going to put a few more constraints on the project, but you will still be able take your studio project in your own unique direction. Most importantly, if your competitive analysis does not fully fit into the scope we have defined in this document, that isn’t a problem. Firstly, your analysis can still be completely valid (just because you came up with a different idea doesn’t mean it’s “wrong”). Secondly, you can still use your investigation to **help inform** your design choices. Finally, the extension activity may still allow you to explore your own unique ideas.

In Milestone 1 you will commence creating your web application with the **design stage**. You will:

- Be provided with the dataset that will power your website
- Need to study this dataset.
- Design the **User Interface** and **Database Model** for your web application.
- Need to apply the skills and knowledge that you have gained in Weeks 1 to 4.

1.1 Group Work (Pairs / Groups of 2)

You should work with the same the group that you formed for your competitive analysis. If there are any problems with this, you should inform your lab demonstrator as soon as possible.

1.2 Group Work Assessment & Tools

You will continue to use the **team collaboration tools** that you setup in the Competitive Analysis. You will also be required to evaluate the contributions of your group partner.

1.3 Social Challenge Selection

You should complete this your studio project using the same social challenge that your group selected for the competitive analysis. If there are any problems with continuing with the same social challenge you should discuss the matter with your lab demonstrator as soon as possible.

2 Social Challenges

Review these descriptions when designing your user interface and database model.

2.1 Challenge A: Homeless 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.

2.2 Challenge B: Impact of COVID-19

Develop a web-application to **help various authorities make policy decision for combating the COVID-19 global pandemic**. You will need to provide statistics about the number of cases in different regions and countries so that authorities can make informed decisions about how to effectively distribute the COVID-19 vaccine to areas where it will have the most significant impact. You will need to come up with appropriate means of presenting the information and results to help make sense of the large volume of COVID data that is being collected from around the world on an ongoing basis.

3 Assessment Details

For Milestone 1, you will complete the following tasks:

- Investigate the data that will be powering your website
- Produce an initial Design of the User Experience and User Interface of your web pages
- Produce an initial Design of the Database Model to store the information for your website

For this Milestone you will compile a design document that includes:

- User Interface design diagrams
- Database design diagram and database model
- Supporting description on why you have chosen your design(s)

*Your design document should be no more than 10 pages. However, it **can be shorter!** Only use as much space as you need. Any information beyond 10 pages will not be read or count towards your marks.*

3.1 Reconsidering How to “Address the Social Challenge”

In the competitive analysis we asked you to consider what it means to “address a social challenge”. You needed to investigate this yourself and gather your own unique perspective. For the studio project, we are going to constrain the definition of “addressing a social challenge”. This is for the purposes of grading your projects and making the project feasible for everyone to complete.

We will target two types of users (although you may address more types of users that you determined through your Personas for your competitive analysis):

- People who are completely unfamiliar with the social challenge
- People who are familiar with the social challenge but need more in-depth information.

We will also divide the tasks that your websites need to satisfy into “levels”:

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.

In later milestones you will have the option to complete additional **LEVEL 4 (PURPLE)** extension tasks. However, you don't need to worry about this in Milestone 1.

We have expanded upon these levels with more information in a *separate document* for each social challenge. You should note that each level has two “sets”. This is because each member of the group will *individually design and implement one set for each level*, to share the project work.¹ Specifically:

- Each person must *design* one **LEVEL 1 (GREEN)** set of pages.
- Each person must *design* one **LEVEL 2 (ORANGE)** set of pages.
- Each person must *design* one **LEVEL 3 (RED)** set of pages.

3.2 Investigating the Data Set

For each social challenge we have provided you with a data set that will be used to power your web application. You will incorporate this data into a database of your own design.

To begin the process of understanding this data, you will need to **find three important facts that you will use to capture the attention of users of your web application**. That is, these three key facts should draw in the attention of people visiting your website. You should find your own facts to present. Below are *suggestions* to help you get started.

- For the homeless social challenge:
 - What proportion of homeless people are Women?
 - What proportion of homeless people are over the age of 50?

¹ If you are one of the few students in a group of 3 (due to odd numbers in each cohort), please speak with the staff member that is managing your group to discuss how to best divide up the work.

- Which state in Australia has the most homeless people?
- For the COVID social challenge:
 - What is the total number of confirmed cases world-wide?
 - How many people have died from COVID-19 world-wide?
 - What are the top 3 countries affected by COVID-19?

You can also find your own facts. For example, you might find facts specifically related to your own unique perspective of “addressing the social challenge”.

3.3 User Interface Design

You must design the User Experience and User Interface for a web application that is *well suited* to addressing your chosen social challenge. That is, your design can be informed by:

- Gaps that you have identified with current websites that should be fixed
- Strengths of current websites that should be kept
- What you have learnt based on some of the user Personas that you previously devised

Create a layout of the design of the UI for each page of your website using either hand-drawn images, Figma, or another tool of your choice. Your design should use **wireframe sketches** similar to what you have done in Week 2 classes. That is, they don’t need to be “photoshopped images”, but instead are wireframes to show the approximate layout.

Your design should also satisfy:

- Nielsen’s design principles that we have discussed in the course
- The needs of at least one of the Personas from your competitive analysis

Your group should design at least 6 pages in total (with 2 pages for each level – green, orange, and red). Each group member must design one *at least one page* for each of the three task levels.

At this stage keep your designs simple, and don’t worry if your designs are not perfect. The purpose of milestone 1 is to complete an *initial design* by applying the skills that you have learnt so far in the studio and using your own inventiveness. You will have the opportunity to revise your design in later milestones. In fact, this review and revision is a crucial part of your overall studio project!

In your design document, include:

- Your wireframe designs.
- An explanation of how your designs satisfy Nielsen’s design principles
- An explanation of how your design satisfies the needs of at least one of the Personas from your competitive analysis

3.4 Database Design

You must complete an initial design of the database that will power your website. This database will give information to users of your website. You will need to:

- Design a conceptual model of your data requirements using an Entity-Relationship Model
- Represent your design using an Entity-Relationship Diagram
- Map the ER diagram into a Relational Database Schema

Your database design diagram should be presented using UML notation. To complete this diagram, you could use a diagramming tool such as LucidChart, hand drawn images, or another tool of your choice. Additionally, your final relations will need to provide the SQL schema (create table statements) that can build your database design in SQLite.

You will also need to explain why your database design meets the needs of your website. That is, why your design is suitable for storing all of the data your website will need to display.

In your design document, include:

- Your Entity-Relationship diagram
- Your Relational Database Schema
- An explanation of why your design is suitable for storing data your website requires

4 Project Level Details

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

The details for each social challenge are separate into individual documents, so that you can focus on your own social challenge.

5 Teamwork Skills & Assessment of Teamwork

An important professional skill that you will be continuing to develop during the studio is teamwork. You will continue to use the team collaboration tools that you began to use in the competitive analysis.

Unlike the previous task, this time you will also be *assessed* on your teamwork. You will also be asked to evaluate the teamwork and contribution of your other team member.

5.1 Teamwork Tools

You should continue to use the teamwork tools that you setup up for the competitive analysis:

1. MS Teams for group discussions
2. Task Planner for tracking the tasks of Milestone 1

In milestone 1, you will be required to make use of these teamwork elements. In particular, you are required to use the Task Planner to:

- Allocate tasks to each person individually. These tasks should be sub-divided into the various pages, user interface and database design tasks listed above
- Allocate tasks that both people must complete together, such as putting together the combined design document
- Set a date that each task is due. You should pick reasonable dates so that this milestone can be completed and submitted on time.

Part of your teamwork assessment will be based on your use of MS Teams and the Task Planner.

5.2 Teamwork Peer Assessment

As part of your teamwork, you will need to complete a peer review of the teamwork of the other member(s) of your team. The link to this review form will be placed on the Canvas in Week 4. This should be a fair and honest assessment of their contribution to the studio project, and how they collaborated with you over the course of the studio project.

5.3 Issues with Teamwork and Individual Grades

In an ideal world, your teamwork will progress smoothly. Thus, the final grade that you will receive will reflect the quality of the entire studio project to which both team members contributed equally.

However, if one member of the team doesn't sufficiently contribute, we may instead award individual grades for the components of the rubric. The studio project has been structured so that each member of the team has a set of pages on which they will individually work. You are expected to work on *your individual pages*. Therefore, if there are problems with teamwork, we (the assessors) may choose to assess just your individual work. Therefore, it is important that, even if your team member does not do their work, *you* are expected to complete *your allocated pages* to the best of your ability.

If you have concerns about your studio project and your teamwork, you should make sure you discuss these with your tutor as soon as issues arise. Do not leave this to the last minute.

6 Submission

Follow the instructions on Canvas to complete your submission for Milestone 1. You will need to submit the following items:

- A PDF containing:
 - Your investigation of the data set.
 - Your completed design of your web page(s).
 - Your complete database design.
 - Descriptions and justifications for your designs.

- A file containing your database model

You will also need complete a form for your teamwork peer evaluation. This is linked from Canvas.

6.1 Assessment Declaration

When you submit work electronically, you agree to the [RMIT assessment declaration](#).

6.2 Silence Period

A silence period will take effect from 5.00pm, Friday 14 May 2021.

This means questions about this assignment will be not answered, whether they are asked on MS Teams, by email, or in person. The silence period is in place because staff members are generally unavailable over the weekend.

Make sure to ask your questions with plenty of time for them to be answered. We may not have time to answer all questions asked close to the start of the silence period.

6.3 Late Submissions & Extensions

A penalty of 10% per day is applied to late submissions up to 5 business days, after which you will receive zero marks.

Short extensions may be granted by the course coordinator up to 1 day before the due date in accordance with RMIT Assessment Adjustment process. However, extensions are not guaranteed and require suitable documentation. The course coordinator may refer requests to Special Considerations.

Special Considerations that have been granted *may result in an equivalent assessment*, which may take the form of a timed assessment, assessing the same knowledge and skills of the assignment. For more information refer to the [RMIT Special Consideration process](#).

7 Marking Guidelines

The marks are divided into the following categories:

1. Investigation of the Data set 2/15
2. UX/UI Design 5/15
3. Database Design 5/15
4. Teamwork & peer assessment 3/15

Note that for categories 1-3, generally all students in the group will be awarded the same grade. Category 4 is awarded to each student individually based on their teamwork and contributions.

The detailed breakdown of the marking guideline is provided on the rubric available on Canvas.

8 Academic Integrity and Plagiarism (Standard Warning)

Academic integrity is about the honest presentation of your academic work. It means acknowledging the work of others while developing your own insights, knowledge and ideas. You should take extreme care that you have:

RMIT Classification: Trusted

- Acknowledged words, data, diagrams, models, frameworks and/or ideas of others you have quoted (i.e. directly copied), summarised, paraphrased, discussed or mentioned in your assessment through the appropriate referencing methods
- Provided a reference list of the publication details so your reader can locate the source if necessary. This includes material taken from Internet sites. If you do not acknowledge the sources of your material, you may be accused of plagiarism because you have passed off the work and ideas of another person without appropriate referencing, as if they were your own.

RMIT University treats plagiarism as a very serious offence constituting misconduct. Plagiarism covers a variety of inappropriate behaviours, including:

- Failure to properly document a source
- Copyright material from the internet or databases
- Collusion between students

For further information on our policies and procedures, please refer to the [RMIT Academic Integrity Website](#).

The penalty for plagiarised assignments includes zero marks for that assignment, or failure for this course. Please keep in mind that RMIT University uses plagiarism detection software.