The CoVisualisers – Project Report

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Project Background

Motivation:

We have found as a group that all the data surrounding covid can become overwhelming and it is difficult to find the information you need to make informed decisions about your exposure risks. The pace of hotspot notifications can mean essential information gets lost in the noise.

The Team:

Matthew Ahearn

Student Number: 3884661
Student Email Address: s3884661@student.rmit.edu.au
Locale: Melbourne, Australia

Role in the Project:

I have acted as the leader in this project and have been responsible for organising and running meetings. I have also helped keep notes and assign tasks to keep the project moving. I have taken an active role building and coding the project as well.

Personal Background and Skills Relevant to the Project:

My passion for IT started with gaming, it grew to trying to understand how the systems behind the games work and really went from there. Before covid I was an airline pilot and have been trying to use this time to switch careers to IT. I work at a data analytics company and have recently become more interested in data visualisation and analysis.

The company I work for uses a Jira board and stories to organise our projects and maintains an agile posture to ensure the best result for our clients. I have been able to lean on this experience in my role as group leader.

William Prebendarcik

Student Number 3912780
Student Email Address: s3912780@student.rmit.edu.au
Your Locale: Newcastle, Australia

Role in the Project:

William had been an active member of the group through to week 9. William provided input on ideas for the project's design and developed user design models and project concepts. William also created our group logo. Post week 9 William has not participated in group meetings and group project activities.

Personal Background and Skills Relevant to the Project:

Refer above.

Paul Bedward
Student Number 3338811
Student Email Address: s3338811@student.rmit.edu.au
Your Locale: Gosford, NSW

Role in the Project:

I have primarily acted as an idea's type team member. Initially suggesting the primary focus for the team's project and then helping to refine the primary focus to individual MVF's and EVF's. I have contributed to the overall project coding by developing functionality for MVF 5 (warning the user when data for their searched location is out of date). I have also assisted in administration and presentation activities.

Personal Background and Skills Relevant to the Project:

By profession I am an avionics / electronics engineer. For the last 6 years, I have been involved in satellite communications systems for aeronautical cockpit and passenger use. My focus of recent has thus been on data networking. Having worked on sales and post sales project delivery activities with government and commercial organisations. My primary relevant skill is understanding what type of visual data representation application would currently be seen as relative and thus attractive to Australian state governments.

Brian Paul Cusack
Student Number 3407813
Student Email Address: s3407813@student.rmit.edu.au
Your Locale: Melbourne, Australia

Role in the Project:

For this project I took on the role of technical lead due to my experience working with data in multiple development environments. I was also actively working on MVF1 – Daily case data chart.

Personal Background and Skills Relevant to the Project:

Through my working career I have had many roles, from Horticulturalist, Taxi driver, courier, Fixed plant operator, Lab Technician, Fintech Entrepreneur to Project Manager. Currently I have been working as a freelance algo Trading developer mostly in C++ and some Python. My real passion is for working with the fast-evolving area of Web application development.

Daniel Scarfe
Student Number: 3872217
Student Email Address: s3872217@student.rmit.edu.au
Your Locale: Perth, Australia

Role in the Project:

I have been an active team member, attending all team meetings and contributing to coding and development. I was responsible for the coding of MVF4 – implementing the google map API into the project and working on the traffic light system for markers.

Personal Background and Skills Relevant to the Project:

My passion for IT started from an early age when I dismantled an old 386 PC. My first real job out of high school was at a local computer store where I did a traineeship and completed Certificate's III and IV in Information Technology. I worked there for three and half years gaining experience in computer building, servicing and sales for consumer, business, and government clients.

My skills relevant to the project were mainly general computer and IT skills, familiarity with the functionality of Windows and general software and the ability to learn new applications and processes.

Avrohom Rosenfeld

Student Number 3866648
Student Email Address: s3866648@student.rmit.edu.au
Locale: Melbourne, Australia

Role in the Project:

Problem solving/learning role.

Personal Background and Skills Relevant to the Project:

Personally I think I am good at problem solving, and creative solutions, although it would have to be tested practically. I'm interested in logical conclusions, and coding something to appear smart and intuitive for users.

Project Aim:

Covidify is a risk assessment data visualization web application that allows users to quantify their potential risk based on location and time of day. The web application contains a database of covid hotspots and uses data visualisation and time series data to present risk factors to the user based on the location they have nominated.

The user is presented with a time series bar graph showing their likelihood of encountering covid positive member of the public at their chosen location during different times of the day with their preferred time highlighted. The user can also see when the most recent covid event was announced at the selected location. Risk categories are presented visually in a map for an at a glance overview and more detailed information on a location is provided in the side bar.

Through this we aim to empower people to assess covid risks quickly and accurately in their daily lives and make the safest decisions they can.

Project Goals:

As a team we have achieved the following goals in our project:

- Integration of map with traffic light codes displayed to give at a glance information of risk levels at various locations.
- Dynamic time series data graph that shows covid cases at a selected location sorted by the time of day that they occur.
- More detailed information on a location in the side bar including total cases and time since last case. Also includes initialisation and error messages.
- Database recency information display
- Log in system with search export feature

Project Progress

Description:

Our project began with ideation meetings over Teams to get to know each other and to come up with an idea for our project. We had selected data visualisation as our project prompt and after some discussion decided that we wanted to work with covid data, as it was very topical and there was a lot of data available. After further discussion we decided to focus on hotspot data as we had all found that the information was presented in a confusing way, and it was hard to keep track of new health information. Based on this we reasoned there was a market gap here that we could fill.

During these initial meetings we assigned some group roles with Matthew as team leader, Daniel as scribe and Brian as tech lead.

Our team then began to focus on defining our minimum viable features and extended features to help us further define our project. We decided on the following MVF’s

- Time Series Data Graphs
- Location/Time Search Feature
- Saved Searches/Login
- Trip Scheduling Feature
- Live Data Feature

And the following extended features:

- Google Sign in

- Export and print reports, history, and schedule
- Push notifications for data update

Our intended user was an individual concerned about covid risks but overwhelmed by the pace of information and unclear on local hotspots. Based on this we decided to present our information in a web application with the possibility to provide a similar phone app later.

At this time Daniel took charge of our groups Trello board and began to create cards for each MVF and assign them to the relevant team members.

After further discussion we decided that push notifications for data update would be a nuisance alert, so we redefined the extended feature as push notification on database update failure.

After the group brainstormed different resource and tools options Brian as tech lead suggested we base our project primarily on Angular and Firebase for scalability and ease of integration.

At this point we moved into the design phase and began collecting inspiration from Pinterest and other sites. At Pauls suggestion we spent some time interviewing people we knew about their preferences and what design choices would help them using the web app. We collated the results of these interviews and created a design document to refer to.

Interestingly in these meetings we had several people express confusion about our trip scheduling feature minimum viable feature, so we decided to swap that out. Our interviews also showed a strong preference for visual and simple data from our interviewees, so we decided to add a map with locations colour coded for risk using a traffic light system.

Matthew then assigned each team member a feature as their area of responsibility and the team moved on to create design artifacts for each feature. William also created our logo at this stage.

The team then progressed to the build stage and began coding. Unfortunately, absences in the team and difficulty getting the less experienced team members up to speed with Git and Angular made progress here slower than expected.

To ensure that we had something tangible to present to a hypothetical client we used our remaining time and manpower to create the front-end display for the web application using test data. In place of our intended live data feature, we added a warning to show if the database was out of date. We have also reduced our scope for saved searches to a log in system to show the initial log in functionality If we had more time to continue the project the next step to focus on would be database integration and data updates.

Outcomes to date:

Our final list of MVF's is the following:

MVF1 - Time Series Data Graph

The user opens the dashboard and views the local daily case numbers for their local government area based on geolocation in a bar chart to the bottom left of the panel.

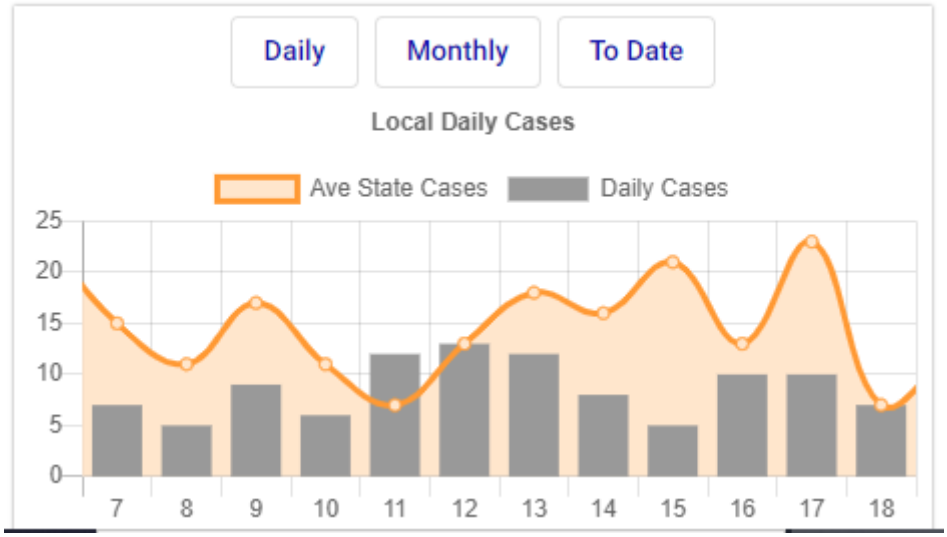

Figure 1: Time Series Data Graph (Daily)

They can than select from Monthly or to date which changes chart display data.

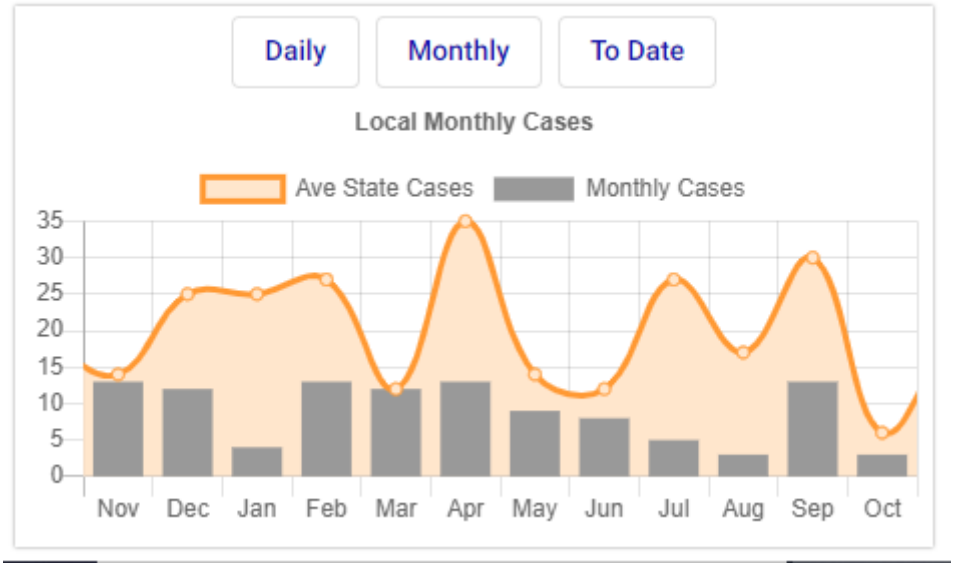

Figure 2: Time Series Data Graph (Monthly)

MVF2 - Location / Time Search

The location time search feature shows an initialisation message to the user when they first open the web app.

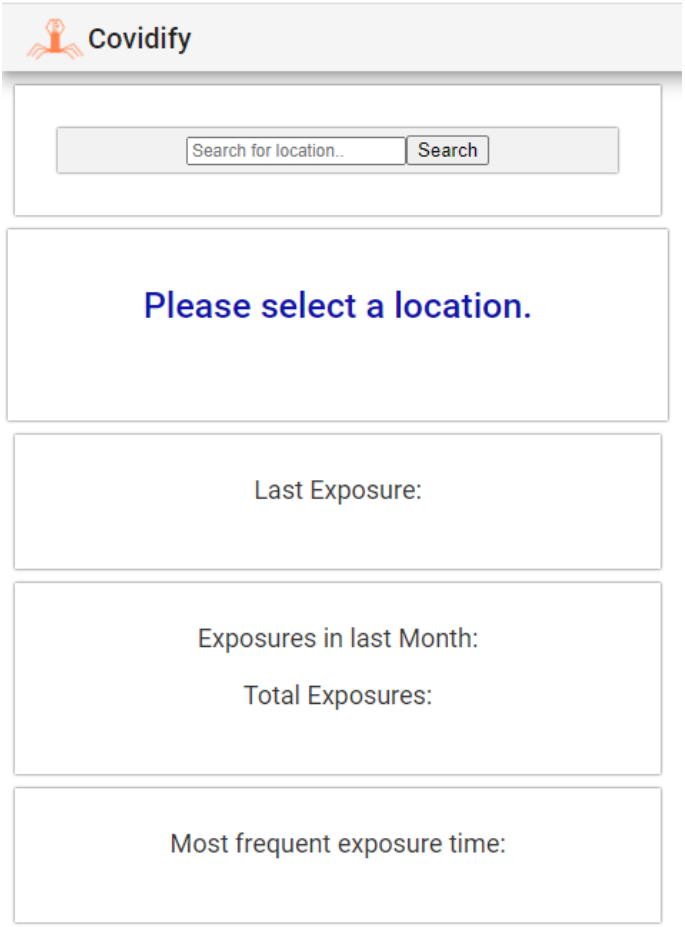

Figure 3: Location Initialisation Message

When the user enters a location in the database the receive the requested information.

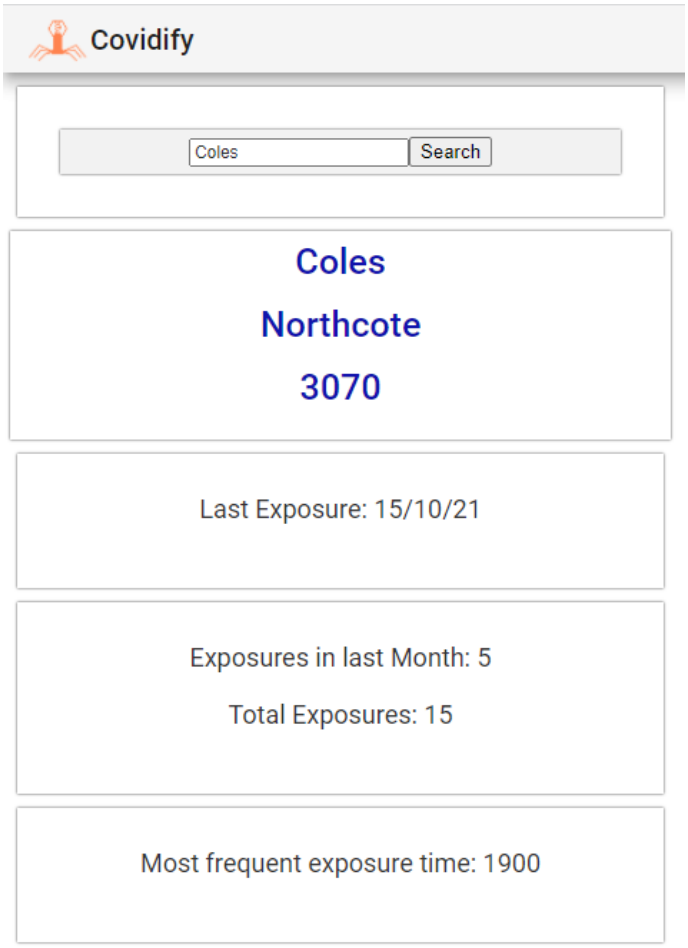

Figure 4: Location Result Message

If the entered location is not in the database an error message is presented.

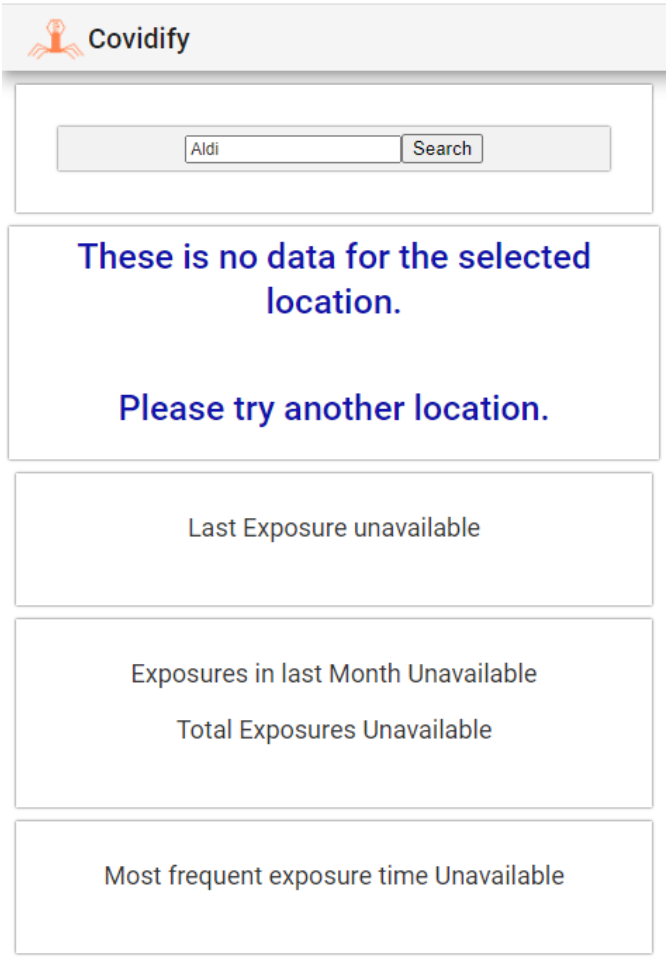

Figure 5: Location Error Message

MVF3 - Login / Saved Searches

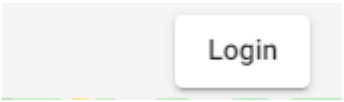

Figure 6: Login Button

The user has the option to login to the app through email password authentication handled by Firebase OAuth2.0 authentication.

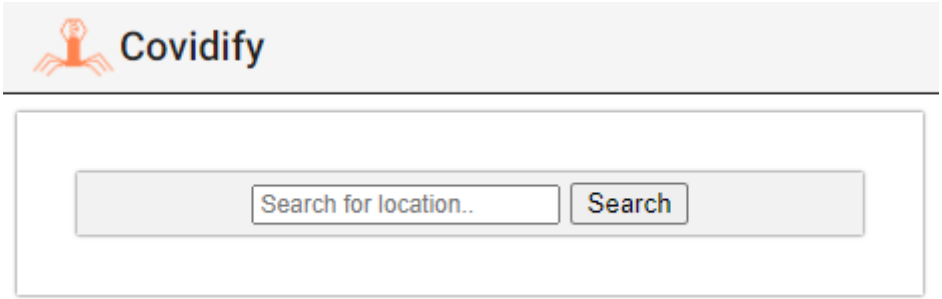

Figure 7: Location Search (Without Button)

Once signed in the user can access the saved search system of the app.

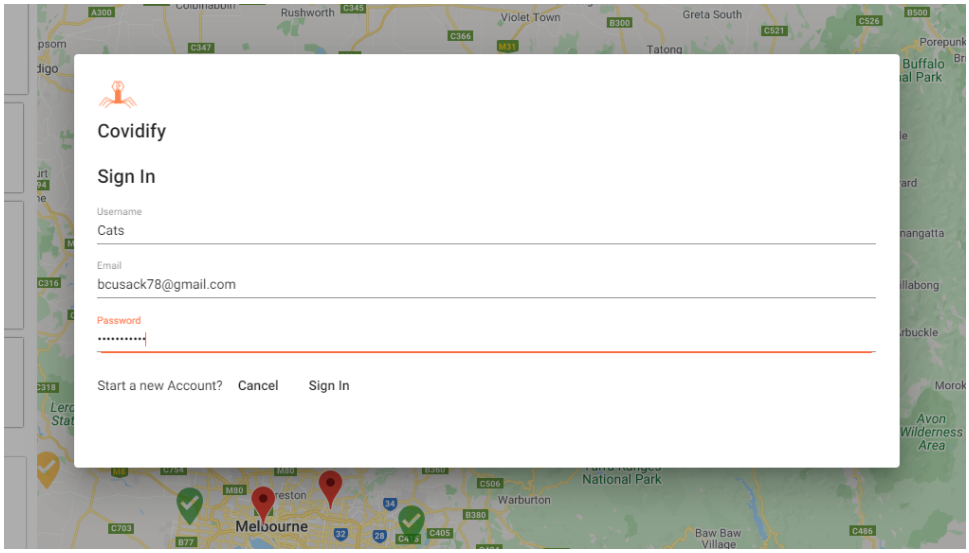

Figure 8: Sign in Form

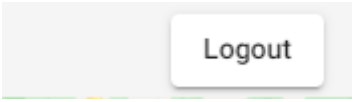

Figure 9: Logout Button

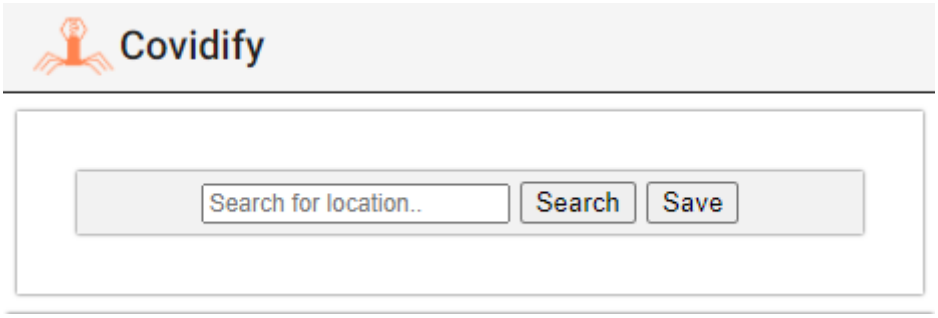

Figure 10: Location Search (With Save Button)

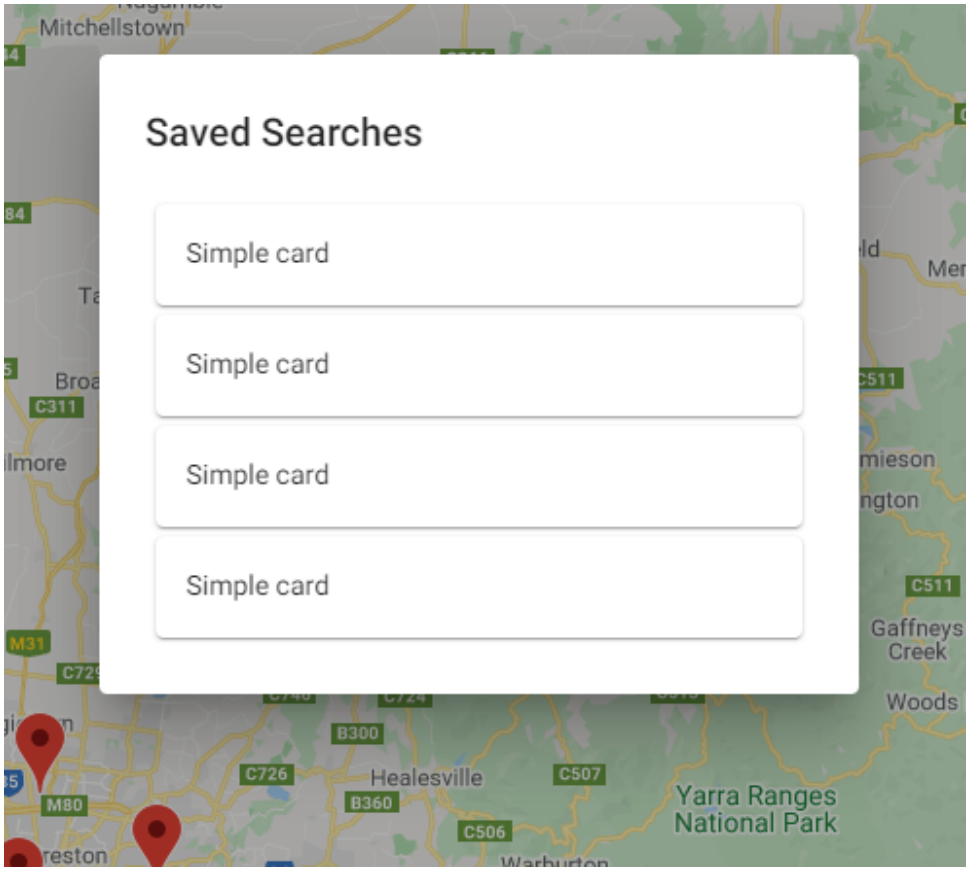

Figure 11: Saved searches dialog box

MVF4 - Map with Traffic Light Codes

Upon opening the web application, the google map is loaded in the main portion of the dashboard. Markers are present over various locations with their colour indicating the risk level of contracting COVID in that area. The user can hover their cursor over a marker to have a popup with an explanation of the risk level appear, either ‘Safe’ for green coloured markers, ‘Caution’ for yellow or ‘High Risk’ for red. The user is able zoom in and out on the map using the mouse scroll and move the map around by holding the left mouse button while moving the mouse.

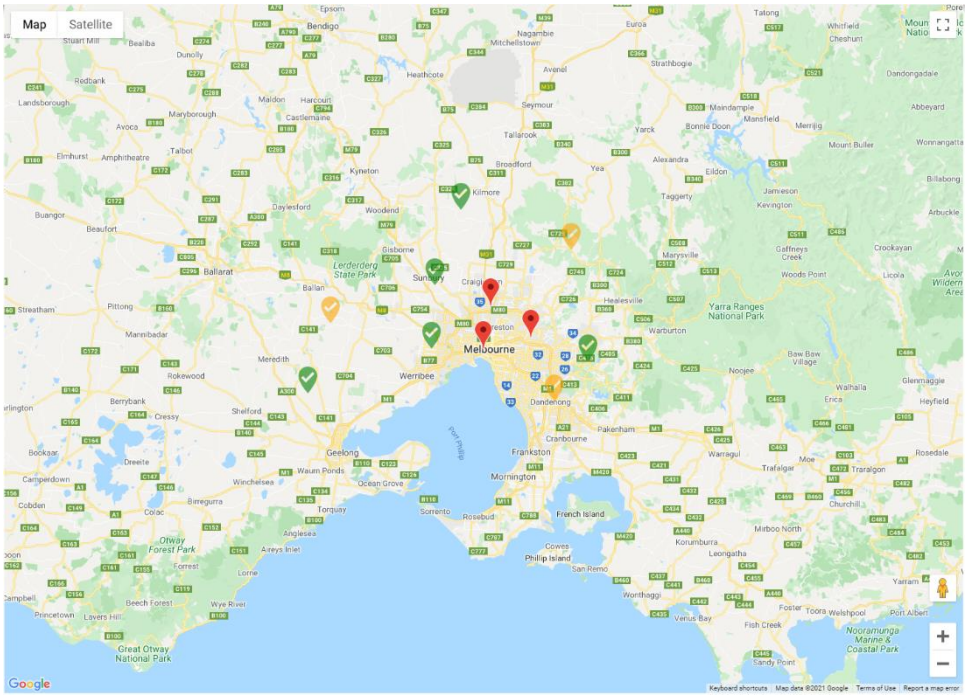

Figure 12: Screenshot of Google map in application

MVF5 – Database warning

The code for the database warning was implemented into the project's development branch on the team's GitHub. As the overall project implementation had not implemented an interface to a remote database. The implementation of the coded Angular service (message) associated with querying an Australian states' database age, was not fully implemented. The current status of the Angular service is it has the state Covid-19 database age set in code. Once a database service is implemented the latter Angular service (message) would be used to query the state database age and trigger a warning if the database age is older than 48 hours.

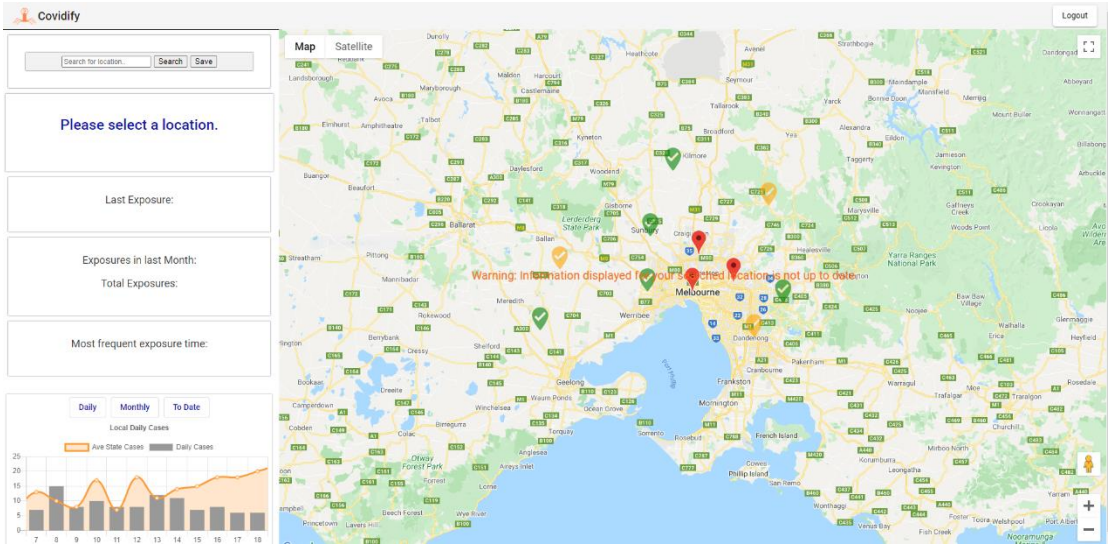

Figure 13: Database warning – Out of date

Scope Creep:

During the course of this project, we made several gradual changes to our scope. During our design interviews we observed multiple participants expressing confusion about the trip scheduling feature and a strong preference for visual data, so we replaced the trip scheduling feature with the map with traffic light codes.

Difficulties in the later stages of the project relating to absent group members and more time needing to invest in upskilling less experience team members than expected required as to contract our scope. We replaced the live data feature with the database warning and the saved searches with the login system. The goal here was to ensure we had a front end to present to a possible client and make a start on the functionality of systems we did not have time to finish. Unfortunately, due to these time and manpower constraints we were unable to implement database integration and updates and have instead used test data.

Progress:

We based our project timeline on the Trello cards shown below

Table 1: Sequential Schedule

Title	Planned Start	Planned Due	Notes
Week 3			
Team Building Link: https://trello.com/c/PRDY9u8e	13/9	19/9	Finished on time
Kick Off Meeting Link: https://trello.com/c/mXmnYKWu	13/9	19/9	Finished on time
Brain Storming Link: https://trello.com/c/ucTflnjC	13/9	19/9	Finished on time
Week 4			
Proposal Writing Link: https://trello.com/c/47V1FwfZ	20/9	26/9	Finished on time
Initiating Link: https://trello.com/c/f5FEWbsk	20/9	26/9	Finished on time, should have tested Git commits here
Task Scheduling Link: https://trello.com/c/iNX7RCE4	20/9	26/9	Finished on time
Week 5			
MVF1 - Analysis Link: https://trello.com/c/kCGqb8bC	27/9	3/10	Finished on time

MVF1 - Planning Link: https://trello.com/c/CDm1pXqq	27/9	3/10	Finished on time
MVF1 - Design Link: https://trello.com/c/6tmOp3yJ	27/9	3/10	Finished on time
MVF1 - Development Link: https://trello.com/c/gSJfmVM0	27/9	3/10	Finished on time
Week 6			
MVF1 - Deliverables Link: https://trello.com/c/YmA101DO	4/10	10/10	Not finished
MVF1 - QA & Testing Link: https://trello.com/c/abz9cZQz	4/10	10/10	Finished late
MVF2 - Analysis Link: https://trello.com/c/70JzQf1n	4/10	10/10	Finished on time
MVF2 - Planning Link: https://trello.com/c/iyRXPYWP	4/10	10/10	Finished on time
Week 7			
MVF2 - Design Link: https://trello.com/c/eya4DQyb	11/10	17/10	Finished on time
MVF2 - Development Link: https://trello.com/c/IwLfeuJB	11/10	17/10	Finished late
MVF2 - Deliverables Link: https://trello.com/c/woK69jSW	11/10	17/10	Not finished
MVF2 - QA & Testing Link: https://trello.com/c/DVyr0vf8	11/10	17/10	Not finished
Week 8			
MVF3 - Analysis Link: https://trello.com/c/igxquQSE	18/10	24/10	Finished on time
MVF3 - Planning Link: https://trello.com/c/Oi9L3IyL	18/10	24/10	Finished on time
MVF3 - Design Link: https://trello.com/c/PElbt5sJ	18/10	24/10	Finished on time
Week 9			
MVF3 - Development Link: https://trello.com/c/OdbsIDKj	25/10	31/10	Not finished
MVF3 - Deliverables Link: https://trello.com/c/70RpM4sv	25/10	31/10	Not finished
MVF3 - QA & Testing Link: https://trello.com/c/SGCd2fQ0	25/10	31/10	Not finished

MVF4 - Analysis Link: https://trello.com/c/6BZZxRhM	25/10	31/10	Finished on time
Week 10			
MVF4 - Planning Link: https://trello.com/c/dD2yggcd	1/11	7/11	Finished on time
MVF4 - Design Link: https://trello.com/c/AEKWwAgf	1/11	7/11	Finished on time
MVF4 - Development Link: https://trello.com/c/twJpHI2t	1/11	7/11	Finished late
MVF4 - Deliverables Link: https://trello.com/c/e6IzLwLh	1/11	7/11	Not finished
Week 11			
MVF4 - QA & Testing Link: https://trello.com/c/KsicDHam	8/11	14/11	Not finished
MVF5 - Analysis Link: https://trello.com/c/OjxyyvJs	8/11	14/11	Finished on time
MVF5 - Planning Link: https://trello.com/c/HRJnS7ye	8/11	14/11	Finished on time
MVF5 - Design Link: https://trello.com/c/5RayqQCm	8/11	14/11	Finished on time
Week 12			
MVF5 - Development Link: https://trello.com/c/eL180VR2	01/11	19/11	Finished on time
MVF5 - Deliverables Link: https://trello.com/c/LvSY1eRK	01/11	19/11	Finished on time
MVF5 - QA & Testing Link: https://trello.com/c/BWuM3dnr	01/11	19/11	Finished on time

Broadly speaking Trello cards related to design and research were completed on schedule while Trello cards related to development or deliverables were completed late or not completed. This schedule could have benefitted from an integration of smaller units of deliverables earlier in the process to help identify pain points earlier. This would have also better reflected agile methodology. In hindsight it may have been helpful to give more explicit instruction on development cards for less experienced members and helped to beak the MVF's into more manageable chunks to help get people programming earlier.

This schedule was based around the team working through each MVF sequentially, however we moved to a system where each group member was working on a different MVF in parallel to try and maximise our productivity as shown in the Trello cards below.

Table 2: Parallel Schedule

Title	Planned Start	Planned Due	Notes
MVF1			
MVF1 Coding and Development https://trello.com/c/gSJfmVM0	27/9	1/11	Finished on time
MVF1 - Plan for graph types https://trello.com/c/opzLgY23	n/a	n/a	Finished
MVF1 - Prototype Design - Time series chart https://trello.com/c/dPXyZSff	n/a	17/10	Finished on time
MVF1 - Coding and Development https://trello.com/c/gSJfmVM0	n/a	1/11	Finished on time
MVF2			
MVF2 Coding and Development https://trello.com/c/IwLfeuJB	11/10	20/11	Finished on time
MVF2 - Testing and QA https://trello.com/c/DVyr0vf8	11/10	22/11	Finished on time
MVF3			
MVF3 - Saved Searches / login https://trello.com/c/caIXXXTz	n/a	n/a	Finished
MVF3 - Coding and Development https://trello.com/c/OdbsIDKj	15/11	19/11	Finished on time
MVF4			
MVF4 - Coding and Development https://trello.com/c/twJpHI2t	1/11	15/11	Finished on time
MVF5			
MVF5 - Coding and Development https://trello.com/c/eL180VR2	01/11	19/11	Finished on time
MVF5 - Testing and QA https://trello.com/c/BWuM3dnr	01/11	19/11	Finished on time
QA Paul https://trello.com/c/fLwYK5cL	01/11	21/11	Finished on time
Misc			
Technical Project Set Up https://trello.com/c/zBHynWdD	n/a	n/a	Finished

These new Trello cards include our scope contraction and show a higher completion rate that the earlier sequential schedule.

Testing:

We conducted our testing as per the validation testing requirements determined during our design phase.

Time Series Data Graph:

Test Case 1: Chart renders on the Dashboard in the assigned position

Test Case 2: Chart has navigational aspects for moving between time periods

Test Case 3: Chart navigated cleanly and with animation

Location Search:

Test Case 1: User inputs location and receives requested information - Passed

Test Case 2: User inputs location not in database and receives appropriate error message – Passed

Test Case 3: User presented with initialisation message when first opening the web app.

Login and Saved Searches:

Test Case 1: User can login with email and password to the application and become authenticated

Test Case 2: Save search button appears only when the user is authenticated

Test Case 3: Save search dialog overlay appears when the save button in clicked

Map with Traffic Light Codes:

Test Case 1: Upon opening application map displays in correct location of the screen – Passed

Test Case 2: The ability to zoom in and out of map functions correctly – Passed

Test Case 3: Map is cantered on correct preassigned location on launch - Passed

Test Case 4: Markers are displayed on map correctly – Passed

Test Case 5: Markers are appropriate colour based on risk assessment – Passed

Test Case 6: Markers risk assessment meaning are displayed in pop up when hovered over with cursor – Passed

Database warning:

Test Case 1: Set value of state Covid-19 database age to values 1,2 and 3. Ensure no warning message is displayed on the user's map screen – Passed.

Test Case 2: Set value of state Covid-19 database age to values of 4,5,6,7,8,9,10,14,30,100, 101. Ensure that the warning message is displayed on the user's map screen – Passed.

Tools and Technologies:

For this group project our team chose to build with Angular 12 due to the frameworks modular build nature, meaning individuals could work on their MVF mostly independent of the rest of the team. The framework's use of the MVVM pattern and Typescript making development quite simple to plan and execute.
As the Angular ecosystem relies on Node dependency injection, initialising the application file system and packages can be done with the command line with 'ng new <project-name>' command.
Once the file structure was setup, we required a google-maps Api key for the map to function - which was obtained from the Google Cloud API's.
For the Authentication, the database and hosting, we chose Google Firebase and the Angular library from Google AngularFire as a dependency with the 'npm install @angular/fire' which installed the dependency to the package.json file of our project.
The Angular Material component library was used for fast and clean scaffolding aspects of the application. Components needed are simply added to the 'MatModule.ts' file as imports for the application, making the components they support available globally for other components to consume.
For styling the project we used (Cascading Style Sheets) CSS Grid and Sassy Cascading Style Sheets (SCSS), or though not fully implemented due to time constraints SCSS made it easy to incorporate many aspects of Material design in the application.
The project file version control has been hosted GitHub and to create a local version a clone can be made and with Node installed the command 'npm install' once run will generate the node module file required. From there the 'ng serve –o' command will compile the application and serve on localhost:4200.

Challenges and Learning

Group Challenges:

Our group encountered several challenges during this project. Our first challenge was the late addition of a group member which required us to explain our current

vision and accommodate new input. Our second challenge was a lack of cohesive vision for the project which required us to expand and refine our features as well as build design artefacts. Our third challenge was feedback from user interviews which revealed different user needs which required a rethink of elements of our project. The fourth challenge was absenteeism from some group members which significantly affected our available manpower. The final challenge was difficulty getting the less experienced members of the team up to speed with Git, Angular and VSCode. We had difficulty ensuring everyone had the system installed and operative on their computer. We also experienced difficulty branching the project and creating commits and, in some cases, attempting to merge or commit caused compilation errors on the users IDE. There was confusion among several team members with Angular particularly with components, module integration and routing. In some cases, we saw team members attempting to use solutions from JavaScript tutorials rather than Typescript.

How the challenges were addressed:

We addressed the challenge of a team member joining late by repeating our introductory meeting and ideation session and making adjustments to our features based on their input to help integrate them into the team.

The issue with lack of cohesive vision was responded to by having further meetings about the project and our features, and building a series of design artifacts to better communicate our vision to each other.

The feedback from user interviews showing confusion about trip scheduling and requesting more visual information was accommodated by adjusting our MVF's. We removed the trip scheduling feature and replaced it with the map with traffic light codes for location risk levels.

We responded to absenteeism by reallocating work to different team members. Daniel in particular took the responsibility for the map with traffic light codes feature and Brian as tech lead assisted on many features. We also had to reduce the scope of our project to account for the lack of participation. We replaced the live data feature with the database warning and the saved searches with the login system as these were similar but smaller in scope. We also had to delay database integration in favour of test data to get the front end working for presentation.

The technical issues we encountered were addressed firstly by walking the team through set up of Git, Angular and VSCode and recording the meeting for other team members to use later. Several meetings after this were dedicated to troubleshooting compilation errors caused by module integration, branch merging and version compatibility. We also worked as a group in Teams meetings to problem solve miscellaneous coding issues as they came up. Brian in his role as tech lead did an excellent job getting the team back on track. The lost time in these troubleshooting meetings were also part of the reason we elected to contract our scope on some features in an effort to have a presentable front end by the deadline.

Learning from the challenges:

Our team learned many new skills through this challenge. We all became more familiar with Trello and Daniel in particular did very well managing Trello as our groups scribe. Matthew had a good opportunity to hone his soft skills as team leader organising and running the meetings and delegating tasks. Several team members become proficient with InVision and gained experience using mock-ups to communicate ideas. William was able to develop his design skills and create our logo. Paul was able to learn more about user-focused design and lead our user interview process.

Many of us learned a great deal about collaborative coding and GitHub and made substantial progress on our technical skills by working on our features. Brian stepped up at this stage and developed his teaching and leadership skills as tech lead.

We all learned a great deal about the importance of agile methodology and communication in teams.

Changes:

Our primary changes were in our chosen features and our scope. We initially changed our MVF of trip scheduling to map with traffic light codes due to user interview feedback. We later changed our live data feature to database validity warning and our saved search feature to log in system due to time constraints bought about by absent team members and technical difficulty. We also adjusted our schedule from sequential MVF development to parallel to maximise our chances of finishing the project.

Project plan refinements:

Possible changes to our project plan we could have made would be to choose a smaller scope and simpler features to help keep the project completion realistic in the given timeframe - we did end up deciding to contract our scope as the project went on. We may also have benefitted from using a simpler set of technologies such as HTML, JavaScript and PHP as the benefits offered by Angular in scalability and responsiveness come at a cost of complexity and a steeper learning curve. Another change would be to limit changes to our feature list mid project and to start the team coding earlier.

Having learned more about working as a team with GitHub we would recommend each team member regularly pull from the dev branch to their branch to prevent compatibility issues later. We also could have added the required modules to the dev branch at the start before we started creating our own branches to help minimise issues and save time.

Timeline refinements:

One change that could benefit us would be to shorten the ideation/design phase and increase the build phase of the project. We could also add smaller deliverables for each feature through the timeline so that we could share progress and see any pain points developing earlier. This could be accomplished by giving more explicit instructions on how to achieve each feature on the Trello cards in smaller steps, particularly for less experienced team members. Earlier adoption of parallel rather than sequential feature development would have helped keep the project on track.

Risks and unexpected events:

One of the risks identified in assessment 1 was technical learning curve where time could be lost to learning new tools. We did experience this issue and managed it by holding several troubleshooting meetings and recording set up and use guides for the team.

Another risk we previously identified was absenteeism causing tasks to fall between the cracks. We managed this by recognising the lack of participation, redistributing work, and reducing scope to accommodate the lost time and resources.

The other issues of late joining members, confusion about the overall vision and user feedback were not anticipated in assignment 1. These issues were dealt with by holding further meetings to clarify the problem and discuss it as a team, as well as adjusting our feature list based on feedback.

Marketing Pitch

As Australian states move from lockdowns to staged reopening. Regardless of vaccination status, members of the general public will continue to want to minimise their interaction with Covid-19 positive people. Australian states have done an exemplary job in building databases focussed on Covid-19 data. Publicly available smart phone applications allowing easy check in and check out of user location have permitted rapid contact tracing. But the same data that states gather for contact tracing can be analysed to determine risk. Specifically, the risk of a user visiting the location.

Some Australian states have used their Covid-19 data to provide basic Covid-19 location warnings to their residents. At Covidify, we took the concept further. We noted that Covid-19 cases appeared to follow regular time related occurrences. People are creatures of habits, thus visits to retail outlets, leisure facilities and service outlets are often related to people’s weekday and weekend routines. The Covidify team noted that when time-series analysis is applied to Covid-19 location Vs

case number data, regular peaks and troughs in Covid-19 positive visitor activity are observed. The Covidify team performed extensive user design analysis with a wide cross section of the general public. The result is an easy to deploy and use PC and mobile device application that members of general public can use to determine their potential risk of encountering a Covid-19 positive person at a public location such as a shop, leisure facility or public space.

Covidify is what Australian state government's need to deploy as Australian states open up. Currently in its final stages of development and testing, the Covidify team would like to extend an invitation to each states department of health and services. Specifically, an invitation to run controlled trials of the application in the public domain. The Covidify team stand ready to discuss the latter, but we encourage each states' department of health and services to act swiftly in order to ensure public confidence remains high as Australia opens up.

Skills and Jobs

Position 1: Head of Marketing, Sales and Growth

We're a technology start-up based in Australia looking for someone who can meet the following criteria and requirements.

Technical expertise

- Create effective marketing strategies aimed at deploying a digital application to the general public through Australian state government health departments.
- Assist in the development of the design of organisation's website and CRO.
- Well-developed associations with Australian state government health departments deployment of services teams.
- Track record of driving success in fast growth start-up organisation.
- Experience with using marketing and sales tech to enhance engagement with government departments.
- Comprehensive knowledge of best practices for CRO, SEO, SEM, social media, email marketing, marketing automations, PR and events.

Team-work experience

- Assist the companies' small executive team in the development of key marketing and sales strategies that will resonate with our target market of Australian state government health and services departments.
- Oversea and attend sales focussed events and meetings.
- Collaborative and team orientated.
- Strong launch type marketing and associated communication skills.

Leadership and management techniques

- Develop and execute a focussed marketing and sales campaign to generate and nurture leads. Your team will be lean but super keen: you're expected to be hands-on to drive results.
- As our company grows, you'll be invited to manage a high performing marketing and sales team (currently 1 key team member).

Innovative thinking

- Manage a start-up company marketing and sales budget in order to maximise impact Vs investment.
- You're a creative thinker but able to narrow your focus to a strategy that gains results.
- You thrive on the dynamic nature of the start-up environment. More hands-on than delegation.

Benefits:

We are a high-tech start-up. Our team members are a key part of our future success. We are focussed on each start-up team member being rewarded with company equity! On top of that you'll enjoy:

- Meaningful and challenging work.
- A collaborative team and supportive management.
- A fast-paced environment, where innovation is valued.
- Flexible working hours, on site or remote with a $500 home office allowance for all new employees.
- Mental health support and wellness perks.
- Professional development plans and yearly personal professional development allowance.
- Paid study leave and volunteer time.
- A fantastic team environment that wants to include fun into the working week.
- Salary and bonus will be aligned with applicant's experience.

Position 2: Database Engineer

We are looking for a talented database engineer that is passionate about developing our database solution and is enthusiastic about applying bold new ideas to optimize implementation and integration with our existing infrastructure.

Technical expertise

The applicant is required to have technical expertise in engineering databases. Database maintenance expertise will also be required as will database optimisation. Experience in a data engineer role of 5 years or more is desired, with a Graduate degree in Information Systems, Computer Science, Statistics or another quantitative

field. Ideally, they would also have experience in and familiarity with the following tools/software:

- Object-oriented/object functioning scripting languages such as Java, Scala, Python, TypeScript, C++ etc.
- Relational SQL and NoSQL databases, including Cassandra and Postgres.
- Big data tools such as Spark, Kafka, Hadoop etc.
- Data pipeline and workflow management tools such as Luigi, Airflow, Azkaban etc.
- Stream-processing systems such as Spark-Streaming, Storm etc.
- Optionally, AWS cloud services such as RDS, EMR, Redshift, EC2 etc.

Team-work experience

Experience with working in teams is essential. Previous experience in team-work centred project delivery will be highly regarded. Our success can be attributed to our excellent team-work and communication and as such those are important requirements for any new team member.

Leadership and management techniques

Being a positive part of a team is and being able to communicate effectively is a desired trait as well as being able to manage a team and take the lead when necessary. Applicants with experience leading a team and managing project delivery as well as personnel would be welcome.

Innovative thinking

Having skills that allow for agile thinking and a flexible approach to project delivery is what we are after. A dynamic outlook and outcome focused mindset are key qualities we will be looking for. They should have the ability to employ innovative thinking skills affectively throughout the project lifetime.

Position 3: UI/UX Front End Developer

We are looking for a passionate front-end developer who can take the user interactivity to the next stage:

Technical expertise

We need someone creative, which includes proof of an existing portfolio of designs from the web sector, with 5 years of experience. They will need thorough knowledge of wireframe software (InVision and Wireframe.cc). In addition, they need good experience in design software, like Photoshop or Illustrator. Finally, a Bachelor in Design, Computer Science, or a related field.

Team-work experience

It is ideal to have team working skills, since this is an agile project. Therefore, we are looking for someone who has no qualms of collaboration, and the willingness for vulnerability. This project can reach its fullest potential if we work together.

Leadership and management techniques

When it comes to crunch time, it's best if the candidate can take initiative, and lead the group when necessary. This will apply in an even more prevalent way when making sure that the graphic design direction of the UI/UX can work with the practical aspects. Therefore, leadership will be a key quality.

Innovative thinking

It's important to have a flexible approach, to roll with the punches, but to still remain focused and sustained. The candidate must be able to think innovatively and be open to changes and agile outlooks.

Position 4: Test Analyst

Covisualizers are hiring a talented Test Analyst with extensive experience to join our growing organisation. You will be responsible for the creation and management of internal and customer facing test plans for our projects. You will also perform detailed testing and review of documents, content and systems developed using different technologies and delivered across multiple devices. The right candidate will have excellent verbal and written communication skills and be able to work closely with delivery team members, ensuring all issues are documented correctly and clearly communicated to both project managers and developers.

Technical expertise

- Tertiary qualifications in Computer Science or equivalent degree
- ISTQB Advanced Level Test Analyst/Technical Test Analyst (Preferred)
- At least 5 years experience in testing, ensuring processes are well defined, documented and adhered to.
- Solid knowledge of industry testing practices including functionality, usability, and documentation testing
- Solid understanding of development methodologies such as Agile/Scrum and iterative-waterfall, and how the QA process fits into these categories.
- Experience in the creation and management of automated tests
- Solid knowledge of IT infrastructure, Web based and Cloud technologies
- Sound knowledge of SQL and NoSQL databases with the ability to write and execute queries.

Team-work experience

- Strong communication and interpersonal skills
- Establishes trusted relationships with colleagues and stakeholders

- Solution oriented mindset
- Adaptable
- Advanced time management and organisational skills
- Ability to work with limited supervision
- Team player with flexible and supportive approach

Leadership and management techniques

- Self-managed and self-directed
- Able to operate independently and as part of a team
- Prior management experience preferred
- Previous training experience preferred
- Extensive experience writing and developing internal documentation

Innovative thinking

- Outside of the box thinker
- Creativity approach to achieving results who demonstrate value
- Ability to find new solutions to problems
- Experience with the creation and management of automated testing