



## Higher education cover sheet for submission of work assessment

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Program code \_\_\_\_\_

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Course/unit code COS2196

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Campus OUA

Office use only

Date stamp

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4 Alexis Satre

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3 Ayub Khayre

6 \_\_\_\_\_

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## COSC2196

### Introduction to Information Technology

#### Assessment 3: Our IT Project



#### Report document

Alexis Satre  
Jarrad Elvey  
David Egan  
Ayub Khayre  
Jonathan Seah

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## Team Profile

### Jarrad Elvey (s3884930)

Jarrad was born in Western Australia in 1987 and is currently in the process of designing and building a micro-house, office and human powered vehicle. Jarrad has many hobbies such as reading, writing and creating/inventing. His IT interests include analysing systems and making them better. Regarding Information technology experience Jarrad has worked in an IT store, he has also worked with Linux operating systems and has many certifications including CompTIA (Linux+, A+, and Systems support specialist).



Figure 1 Jarrad Elvey by Elvey2020

### David Egan (s3874093)

David was born in Australia and has been working since he was 14. He has some experience within the IT industry having worked as a computer repair technician for a number of years before moving to Melbourne to work for Australia Post. David's hobbies include taking care of his pet chickens, reading fantasy novels and setting up Christmas lights. His interests in IT involve gaming, VR and generally finding out how different technologies work.



Figure 2 David Egan by Egan



### Alexis Satre (s3889429) – Team leader of SEEKS

Alexis is from Australia and Canada, he has a Bachelor of Technology in Aeronautical Engineering and was previously a Pilot. Alexis enjoys surfing, reading, Latin dance and watching Movies. His IT interest include cryptography, security data and Integrity. Alexis has knowledge of programming languages such as Python, JavaScript and Swift. Using the languages Swift and Python he has created an iOS application to automate fuel planning.

Figure 3 Alexis Satre by Satre 2020

### Jonathan Seah (S3740073)

Jonathan has grown up with his “hands on a keyboard” and has been using computers from a very young age. His hobbies include playing computer games and reading/writing novels. Jonathan is interested in Cloud technologies, machine learning and game development. Jonathan has worked as a PACS administrator at a major hospital, he has also worked in several other roles where he was required to do project planning, website maintenance and debugging.



Figure 4 Jonathan Seah by Seah 2020

### Ayub Khayre (s3686323)

Ayub was born and raised in Australia, however his cultural background is Somali. He briefly studied a Bachelor of Bioscience and has a Certificate III in Telecommunications. His hobbies include reading, playing sports and watching movies. Ayub's IT interests include Cloud computing and database storage. He has previously worked as a Telecommunications technician and as Level 1 helpdesk technician at a software company.



Figure 5 Ayub  
Khayre by Khayre  
2020

### Group Processes

From Assignment 2 we believe that our group worked at a high standard. From the beginning of the assignment tasks were assigned to each group member, Git hub repositories were shared, and action documents were created. Group chats were used, and meetings were attended by team members where we worked in an Agile manner. This was done by adapting to changes or issues that team members brought up. Additionally, our team used Microsoft Teams comments and colour coding in our documents to discuss points. All work was reviewed by all team members to ensure that we were happy with our content. For Assignment three we would change the method that we use to create our final document this will be done by utilising separate documents for each part of our assignment and then bringing them together on one final document.

### Career Plans

#### Jarrad Elvey

Ideal Job: VR/AR Software Developer/Engineer

Career Plan:

#### 3 – 6 Months

- Successfully switch to Bachelor of Arts (Creative Writing) degree
- Complete the Academic and Professional Communication unit/course
- Complete Psychology I

#### 6-12 Months

- Continue completing units for Bachelor of Arts (Creative Writing) as well as Bachelor of Arts (Psychology)

*12 Months +*

- Finish units for both degrees

*Long-term goals*

- Find a long term career goal based on experimentation in different interests such as teaching, instructing, creative writing
- Source incidental income through passion of creative writing or other qualification
- Masters degree in Creative Writing if that become the main career

*David Egan*

Ideal Job: VR/AR Software Engineer

Career Plan:

*3 – 6 Months*

- Continue into Introduction to Programming with RMIT after completing Introduction to IT.
- Once Introduction subjects are complete, apply for Bachelor of IT
- Continue to educate self via other online means discovered during introduction subjects

*6-12 Months*

- Have enrolled in Bachelor of IT or be working towards meeting entry requirements if application not accepted
- Continuing to self-learn online in addition to any courses
- Look for part time work in industry to gain further experience (limited due to current location, concentrating on work from home positions)
- Networking within course and career
- Research and begin to learn different IT languages. Look into TAFE courses for VR and AR technologies to supplement other studies

*12 Months +*

- Be enrolled in Bachelor of IT and continuing studies
- Working part time to gain further experience
- Have network of professional contacts regularly communicating with for advice
- Be looking to potentially move to Melbourne for more opportunities
- Continuing TAFE and/or online self-paced learning for extra experience
- Looking to be in a more senior position within career to gain further experience leading teams

## *Long-term goals*

- To gain employment within the IT industry in the next 5-10 years, working from home or in Melbourne by continuing education with university (Bachelor degree), TAFE and online whilst networking within a part time job in the IT industry
- Keep a log of actions and set 3 monthly ‘check-ins’ to re-evaluate each step and make changes as needed

## Alexis Satre

Ideal Job: Product Manager (Blockchain)

Career Plan:

### *3 – 6 Months*

- Enrol in Introduction to Programming with RMIT and Introduction to Computer Systems
- Continue to educate self via online short courses

### *6-12 Months*

- Continue Bachelor of IT subjects as full-time student
- Take subjects that give more direct product management skills such as technical requirements, A/B testing, data analysis and business analysis
- Continue to take online short-courses in addition to any courses with a focus on blockchain short courses and algorithms
- Look for part time work or internship in industry to gain further experience particularly in medium scale financial technology and under product management or developer leadership
- Networking within course and career via social events and slack channels for Brisbane and various coding technologies

### *12 Months +*

- Be enrolled in Bachelor of IT and continuing studies
- At this stage, also take subjects that give more knowledge of the business side of IT such as marketing and business strategy or analysis
- Cultivate mentors and peers in financial technology and business analysis to regularly communicate with for advice and social engagement
- Continue pursuing two personal development projects with colleagues
- Work as a developer in small programming companies to get more exposure to product management and progressively take on more product management responsibilities under mentorship

## *Long-term goals*

- To gain employment within the IT industry in a product management or developer role in preferably a blockchain or financial technology company

- Build enough IT skills to be able to bring to market self-built products from personal projects and be open to IT or business opportunities that have strong potential to be profitable and helpful to people

Jonathon Seah

Ideal Job: Software Engineer (Prediction & Insights)

Career Plan:

*3 – 6 months:*

- Continue programming / IT short courses
- Self-study machine learning techniques
- Look into Harrison AI (company working with current employer)
- Read recent machine learning papers

*6 – 12 months:*

- Seek potential machine learning tools / gain experience via mini projects
- Find competitions / public tasks that can serve as test bed for ML programming skills and create portfolio of past work in the field
- Observe how hospital systems work in current role to understand how AI might fit in, gain experience through the Harrison AI trial

*12+ months:*

- Complete an IT degree
- Maintain knowledge of cutting-edge machine learning research
- Observe job market on machine learning research and where opportunities for advancement might be

*Long-term goals*

- Complete an IT degree to gain some qualification in the field while creating a portfolio of data science / machine learning work that can be useful to show understanding in the field
- Maintaining a knowledge base of contemporary machine learning techniques is essential as the field moves extremely quickly and advances even a single year in the past can be obsoleted
- Leverage current experience with Level 1 IT helpdesk, PACS administrator and seek education / certification for network / systems administrator role before seeking potential openings with data science companies

## Ayub Khayre

Ideal Job: Senior Engineer (L3) - IT Service Desk

Career Plan:

### *3-6 Month:*

- Enrol in Software Engineering Project Management subject
- Select an elective subject
- Look into certification for example (ITIL, Microsoft Certifications)

### *6-12 Months:*

- Finish two subjects, and think about my next two subjects for the year
- Sit the ITIL V4 exam and receive certification
- Take up a team lead role at my current place of employment
- Look into networking certification such as the CCNA, start gathering materials and cultivating information about this Certification
- Developing my programming skills (Mainly in the .NET framework)

### *12 + Months:*

- Completion of my Bachelor of Information Technology degree
- Working as a Senior Help Desk technician
- Completion of the CCNA and other Certifications (for example compTIA Security Plus)

### *Long-term goal:*

- Become a Senior Team member (in strong position to)
- Become a Senior Engineer (L3) by cultivating skills and working towards degree and certifications

## Ideal Jobs

The Ideal Jobs for each of our group members has not changed throughout our assignments, each group member has stuck with their ideal job since assignment one. Additionally, the feedback from assignment two did not change our ideal jobs, this is because we've received positive feedback.

*Table 1 Team member ideal jobs (SEEKS n.d.)*

Team Member	Ideal Job Title	Skills Required
Jarrad Elvey	VR/AR, Software Developer/Engineer	Experience working in the IT industry as a software developer Programming Experience Experience writing software for existing hardware Linux experience Exposure to VR/AR headsets Teamwork
David Egan	Virtual Reality (VR) and Augmented Reality (AR) Engineer	BA or BSc degree 2+ Years working in the IT industry as a software developer Understanding of AR and VR technologies, hardware and software platforms Understanding several programming languages and be able to interpret data effectively. Ability to work well in a team environment
Alexis Satre	Product Manager	2 years of experience in product management of integrated software/hardware/service products Knowledge of blockchain technology and experience with data analysis software Teamwork - working in a team
Jonathan Seah	Software Engineer (Predication & Insights)	Computer programming and coding Software development experience Software testing and debugging Problem solving and logical thinking Teamwork
Ayub Khayre	Senior Engineer (L3) - IT Service Desk	Prior Helpdesk support Experience in management of windows operating systems Office 365 experience Active directory experience Customer Service and teamwork experience

Like assignment two, three of our group members wish to work as Software Developers/Engineers (Jarrad, David, and Jonathan). While Jonathan wished to become a Software engineer (Predication & Insights), two of our team members Jarrad and David wish to specialise in VR/AR which builds on the basic skills of a Software Developer. These skills include Programming/Coding in several languages/frameworks, analysing and debugging code, logical thinking and Problem Solving and the most important skill of all the ability to work in a team.

As displayed in the table above our group member Alexis wishes to work as a Project Manager (Blockchain), this role heavily relies on teamwork and influences all the steps in the System Development Life cycle. The role of a Project Manager is highly transferrable across many industries however Alexis would like to specialise in Blockchain technology which has risen in popularity in todays' culture and society.

Our last team member Ayub wishes to work as Senior Service Desk Engineer (L3), like all the other roles this job contains teamwork which is essential to this role. Because this Job is in the networking field it is vastly different to the roles of the other group members. Other skills required include knowledge of networks and operating systems as well as customer service.

### **Compare and Contrast Career Plans:**

To contrast our career plans team SEEKS split up our Career Plan into 3 – 6 Months, 6-12 Months, 12+ Months and Long term.

#### ***3-6 Months:***

Each of our group members wishes to proceed with their education and enrol into subjects, all team members wish to continue in the Information Technology field except for Jarrad who wishes to switch to Bachelor of Arts (Creative Writing) degree. In addition to our university endeavours, many team members have also stated they would like to do their own self learning or investigate certifications. For example, Jonathan would like to read recent machine learning papers and learn about machine learning techniques.

#### ***6-12 Months***

For our six to twelve months career plans the main focus for team SEEKS is to continue with our education, this includes enrolling into our courses and taking subjects that are specific to our interests and Ideal Jobs. In this segment of our career plan there is an emphasis on networking and Self-learning. Like our 3-6 Month goals, most of our team members were aligned with their goals, except for Jarrad who will be switching his degree.

#### ***12+ Months***

The 12 Months goals for team SEEKS are also aligned, the main goal for each of our team members are to either continue or complete our studies. This goal also extends our goals as many team members wish to find a job/internship or would like to upskill in 12 months' time. Team members also wish to continue networking and self-learning, for example Alexis would like to continue pursuing two personal development projects with colleagues.

#### ***Long Term Goals***

The main long-term goals for all of team SEEKS are to complete our degrees, gain employment in our respective fields (Ideal jobs), continuation of our education in certifications and self-learning. Much of our long-term goals and self-learning is directed to our Ideal Jobs, however, upon reflection Jarrad selected his Ideal Job because it is interesting and related to information technology. As previously mentioned, he has changed his career trajectory towards a Bachelor of Arts (Creative Writing)

degree. With this degree he will be able to work as a teacher, author or he can further his studies to gain a psychology degree.

## Tools

Team Website: [https://ayubkhayre.github.io/A3\\_Seeks/](https://ayubkhayre.github.io/A3_Seeks/)

Git repository: [https://github.com/AyubKhayre/A3\\_Seeks](https://github.com/AyubKhayre/A3_Seeks)

Comments

Like in assignment two, a GitHub repository was used to create the group website. The audit trail for the repository is not a good indicator of our group contribution. This is because the programming role was only assigned to a few of our group members (Jarrad & Alexis for the team project, Ayub for the report website) while other group members worked on the project report and video. A better representation of our group work would be our agenda documentation as Microsoft Teams was our primary platform for collaboration.

For the website portion of the assignment, as there wasn't any description of what it was meant to be, we used the PDF.js library to load the report PDF so that both documents had identical content. The only other tools used directly for the assignment were Microsoft Word and Sharepoint/Onedrive. For tools used in artifact creation see the relevant sub-section in the Project Plan section of this document.

Artifact repository 1: <https://github.com/Lxstr/robowrite-classic.git> ([private link](#)) (git log in appendix)

Artifact repository 2: <https://github.com/Chameleon-rmit/RoboWrite.git> ([private link](#)) (git log in appendix)

Group SEEKS Assignment 1 websites:

David Egan: <https://dpegan81.github.io/dpegan81/>

Ayub Khayre: [https://AyubKhayre.github.io/A1\\_Website/](https://AyubKhayre.github.io/A1_Website/)

Jarrad Elvey: <https://chameleon-rmit.github.io/IT-Profile/>

Jonathan Seah: <https://s3740073.github.io/s3740073.github.io/>

Alexis Satre: <https://lxstr.github.io>

MS Teams Link

[Click here](#) to access group SEEKS MS Teams profile

Alternatively, you can use the following MS Teams Invite Code: **tz3njxj**

Meeting Links

20/01/21 [Agenda Recording Actions](#)

23/01/21 [Agenda Recording Actions](#)

27/01/21 [Agenda Recording Actions](#)

30/01/21 [Agenda Recording Actions](#)

03/02/21 [Agenda Recording Actions](#)

06/02/21 [Agenda Recording Actions](#)

10/02/21 [Agenda Recording Actions](#)

13/02/21 [Agenda Recording Actions](#)

## Project Plan

### Overview

RoboWrite is a cross-platform application (app) that will create full sentences based on selections from a user-defined form. The user can type keywords to finish a sentence or even choose entire sentences. Each template is fully customisable.

RoboWrite aims to be similar to predictive text suggestions, aiming to replace repetitive text entry. Such a program is part of the class of language models, although not AI enabled. Completing this project aims to show that we can plan and progress a simple IT project from idea to prototype stage.

### Motivations

Health professionals, psychologists and physiotherapists write reports on patients daily. These often follow the same structure, resulting in hours of wasted writing time. Repeat sentences are usually about the symptoms, appearance and progress of a patient. Often only one or two words will change in these types of sentences over the different patients.

The application aims to allow users to save time when entering repetitive data with little difference between them. Cross-platform support and intuitive user interface is key as the primary draw of the application is ease of use.

### Landscape

One userbase is health professionals who write reports on patients daily. These reports often follow the same structure, resulting in hours of wasted writing time. Repeat sentences are usually about the symptoms, appearance and progress of a patient, long structured sentences with only a few variable words.

### Detailed Description

#### Aims

*Create a demonstration product*

A prototype should be done by the end of the 5<sup>th</sup> week, with feedback from alpha testing. This prototype will be used for the project's initial round of investment seeking as well as a proof of concept that the product idea is possible to do as well as fulfilling a necessary niche for users.

### *Alpha Testing*

Alpha testing should be performed alongside the development and refinement of the prototype. This initial testing will inform future design decisions as well as the feasibility / scope of the project.

### *Market research*

Initial market research into competing products and their drawbacks should be complete before the prototype is ready to allow for changes to the concept.

Once the prototype is complete and later sponsorship is sought, the concept and overall direction of the project should be finalized.

### *Seeking funding / sponsors*

Past the prototype's finalization, an effort will be made to gain funding for further development into an actual saleable product.

This is required to expand the prototype to something that the users would be comfortable paying for rather than simply testing.

### *Finalize sales structure*

Based on the findings of the market research and funding requirements, by the time the final product is complete, a decision will have to be made as to how the product should be sold (subscription, initial payment plus support contract, etc.)

## **Plans and Progress**

### *Initial Project Design*

RoboWrite is the app being developed for this project. This Project Plan outlines the process by which the current prototype has reached the current stage along with the decisions made during development.

The five team members created competing ideas for the project's concept:

- secure inmate to family messaging system
- vertical scrolling shooter RPG video game
- mind palace training app
- raspberry pi virtual assistant
- reconstructing 3D models from security camera footage
- document template system for repetitive text

These six ideas were evaluated by the team as a whole and a ranked voting system was used to decide on the final concept to be developed. This was the document template system, which became RoboWrite.

The initial concept for this project was created by Alexis Satre when having a conversation with a friend and practicing psychologist, she mentioned that a lot of time used for reporting was spent writing repetitive text with only minor changes, an app to automate the writing of said repetitive sections would be useful (Evan 2020). This concept was then expanded to be an app that would create fragments of pre-set text, interspersed with fields for variable text. Once a user had filled in the relevant area, the full text could be copied from the app to paste into any document necessary. The practicalities of the project were explored with the team. A SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) was made, along with deciding the Minimum Viable Product features as well as preliminary visual prototypes. Possible tools and skills required for developing the application were also explored with consideration to:

- skills of the available team
- learning curves
- the size of the community and learning resources available
- maintainability
- security (this was less a concern at the early stages)
- testing and auditing

Several approaches to the problem statement were considered, from a pure Javascript web app, to using one of several dedicated frameworks, or even an iOS exclusive app with XCode and Swift.

- Javascript web app
- IOS and MacOS app using XCode and Swift
- Ionic with React
- React and React Native
- Ionic with Stencil JS
- Web app with ionic components

A final decision was made through discussion, to use Javascript with Ionic as a UI design template, not least because it allowed swift prototyping and freedom to switch to other technologies if required at a later stage.

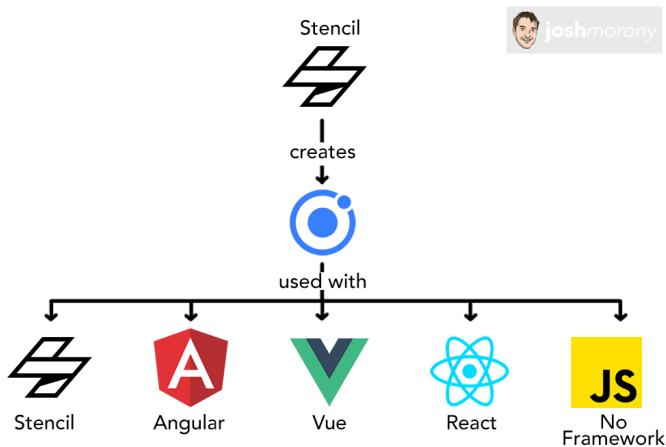


Figure 6: An Overview of the Ionic Ecosystem by Joshua Moroney, 2021b, digital image. Copyright 2021 by Joshua Moroney. Used with permission.

*“You can use StencilJS mainly for two distinct purposes:*

- *To build reusable web components that work with any framework (or none at all) just like Ionic itself*
- *To use it as the basis for building your entire application in place of a traditional framework like Angular, React, or Vue” (Moroney 2021, p. 16)*

### Prototyping

During visual prototyping, Alexis, as the source of the project idea, used Figma to create a mock-up for the team to evaluate and suggest refinements. Some consideration was made to use other tools but Figma offered the best free collaboration tools. Jarrad at the same time, also developed a functional draft using Javascript, HTML and CSS because he also had his own ideas to implement the interface in order to achieve the design goals.

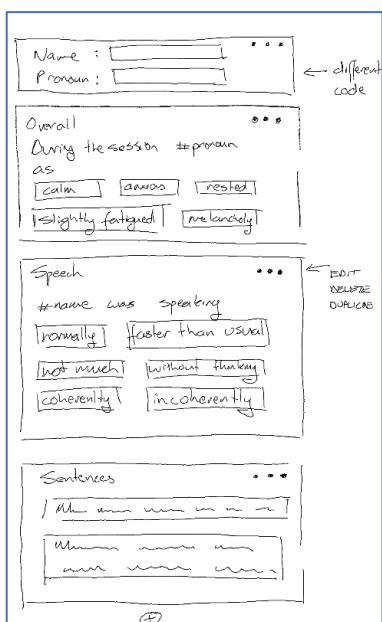


Figure 7 First wireframe sketch, visual prototype and alpha web application by Satre 2021

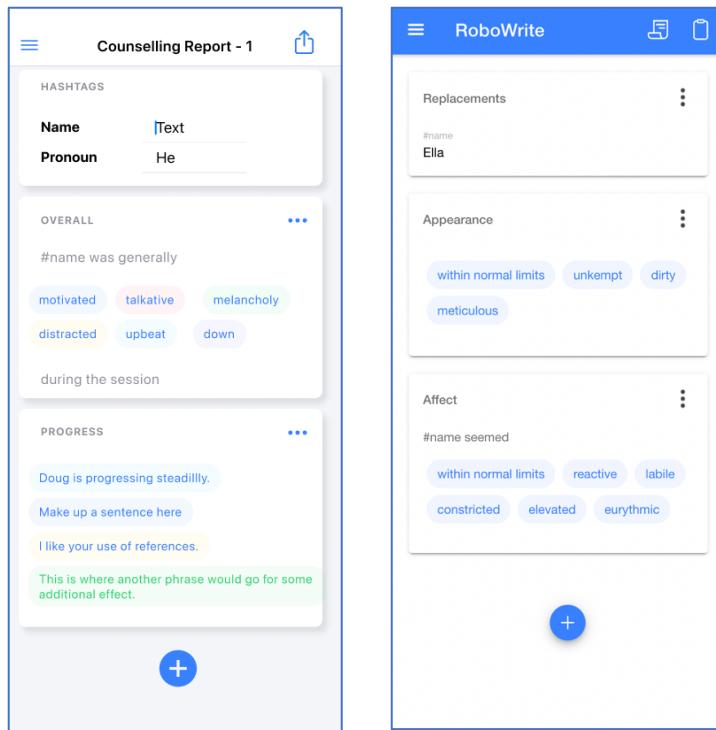


Figure 8 First javascript prototype, alpha web app by Elvey 2021

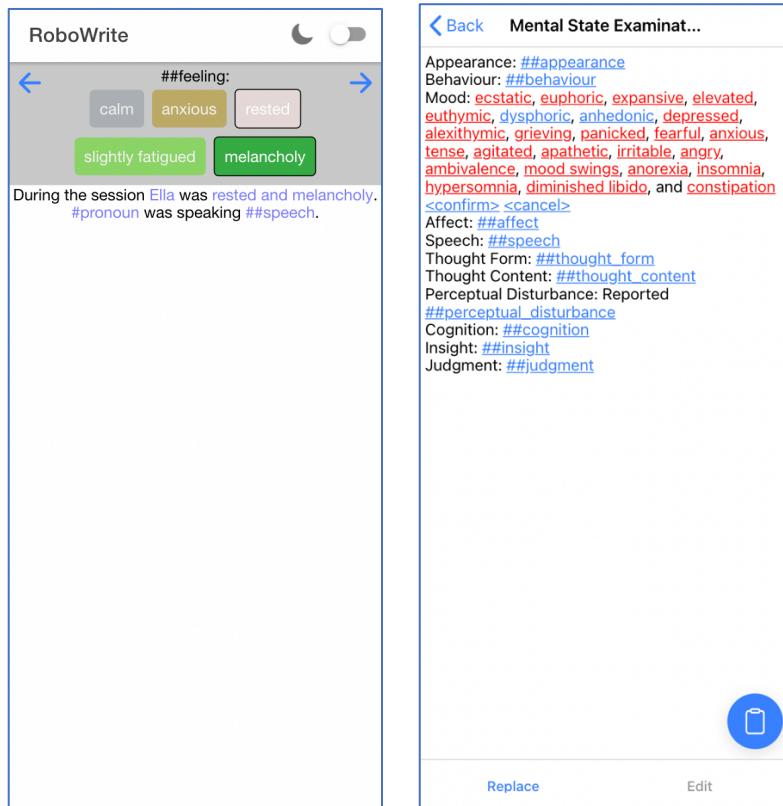


Figure 9 First javascript prototype, alpha web app by Elvey 2021

Alexis as Project Lead was challenged by the difficulty of assessing the validity of Jarrad's draft without a visual mock-up or visual prototype to present to the team. With approval from the group, Jarrad was allowed to continue working on his vision of the application.

This difference in opinion ended in an unexpected decision for both Jarrad and Alexis to develop a prototype. To minimize duplicate work and to allow more time for developing the overall direction of the application, an early deadline of one week from the initial group meeting was decided on for creating a functional Minimum Viable Product. This would allow sufficient time to consolidate the two prototypes, perform bug fixing, seek feedback from a surveyed user base and for further optimizations on the final prototype.

Alexis made the decision to use StencilJS style with Ionic web components, both of which were new to Alexis and Jarrad. Both would develop their prototype according to their vision and the prototype would be evaluated before development efforts would be made to merge their designs. Some miscommunications occurred in the different understandings of what a "prototype" should contain, the term "Minimum Viable Product" being used almost interchangeably with "prototype" in group discussions.

The main advantage of this approach was maximising feedback and allowing the two coders to learn independently but collaborate on learnings and help each other where possible. Jarrad contributed to a significant number of bug fixes in Alexis's code, drawing on his significant JavaScript and web development experience. Alexis was able to point Jarrad in the direction of coding more towards StencilJS style and mobile-like structure. For example, utilising Capacitor API's and StencilJS data passing methods. Both coders learned from the single source, which was Joshua Moroney's book on StencilJS for Ionic, so both Alexis and Jarrad were working from the same perspective.

The state management of StencilJS was challenging but the UI design was pre-set by the Ionic team, making it easily approachable. This allowed the application to utilize design conventions for mobile applications while requiring very little customization of CSS colours and styling as well as minimal coding. This consideration was important for allowing the application look and operate in a familiar fashion to as wide an audience as possible.

Following the suggestion of Joshua Moroney's book, the description of rapid Progressive Web Application development suggested Netlify as a service to allow the coders to rapidly deploy prototypes for evaluation by the team. This would also serve to host the prototype for the user testing phase. Heroku, a similar product, was also considered but required a separate repository that made it less than ideal. Deploying prototypes to Netlify was very quick and with no errors or bugs encountered, validating the choice to use Ionic and StencilJS.

### *Design*

Jarrad created a design with a landing page with a list of separate templates to choose from. This prototype is referred to as the "Full Template" version. A live version of this prototype can be viewed at <https://robowrite-advanced.netlify.app/>.

Selecting a template would allow the user to either modify the template's variable fields, edit the template or copy the final text to clipboard.

An edit view of the template allowed direct editing of the template text with a simple syntax for the two Inline replacement functions to modify the variable sections of text. Escape characters were used to denote the tokens where text would be replaced.

The variable fields came in two functions:

- A named free text field that allowed for a user-entered block of text to replace all instances of that field in the template
- A multiple choice field that had a fixed list of options defined in the Edit mode that the user could choose from when using the template

Alexis created a design with individual cards along with a global text replacement field as well as a copy to clipboard function. This prototype is referred to as the “Fragment” or “Card” user interface version. It is referred to as the Classic app to help alpha users differentiate it. A live version of this prototype can be viewed at <https://robowrite-classic.netlify.app/>.

Each card would contain two sets of fixed text and one of a pre-set list of phrases between them. The user would fill in the text as necessary, pick the choices required and once finalized, use the copy to clipboard function to copy ALL the text from every card into a single text output. The global replacement would search for a given phrase in the final output and replace it with the given value before the output reached the clipboard.

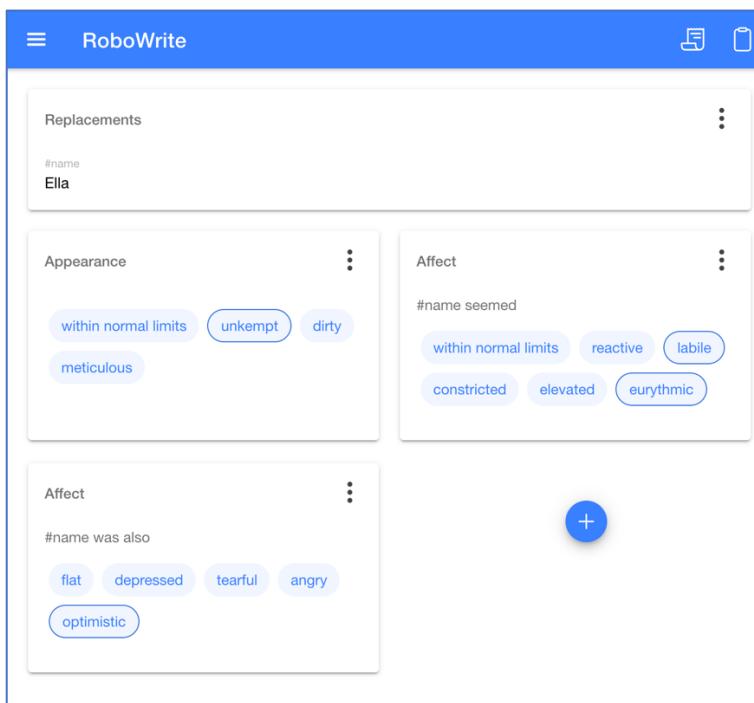


Figure 10 Screenshot of Fragment design with user selections by Satre 2021

### Prototype Evaluation

The team evaluated both prototypes and feedback was collated in two separate documents for each prototype. While bugs were found and later fixed, the list of proposed features was collated and placed in the Scope and Limits section below.

Of note was the tendency towards scope creep now that suggestions had actual prototypes to build on. Alexis and Jarrad evaluated the suggestions provided and classified each into basic features and extra features, with some suggestions only applicable to one or the other version of the prototype.

At this point, further work was allowed to finalize the prototype for user testing. This consisted of finishing the basic features required. Jarrad proposed that he continue work on the prototype while user testing was ongoing, which was agreed to by the team. A separate branch of the prototype on Github was created to avoid his changes from affecting the prototype the users were evaluating. A live version of where he developed to can be viewed at <https://robowrite-dev.netlify.app/>.

### *User Testing*

User testing required a method to contact potential users, collect their responses as well as host a landing page to present the application for their use.

Mailchimp was decided on for emailing a link to the prototype to the user list and feedback would be collected through a Google Forms survey. A landing page was created for the application. The details and design of each of these elements are present in the Testing section.

### **Roles**

Based on IT project management roles suggested from various sources (Kazban n.d.) (Sherrie Rose 2017) and selecting applicable roles, a short list of roles was identified as necessary to the project:

- Project Lead
- Programming Lead
- UI Design / Art
- Quality Assurance
- Business Development

The Project Lead maintains overall direction of the project, allowing a coherent vision to lead the outcomes of each role. This is necessary to coordinate the efforts of each of the other roles and possibly their team, if expansion is feasible and deemed necessary. This role is responsible for the overall direction of the project.

The Programming Lead is responsible for the majority of the coding and debugging work for the prototypes. This role is required to ensure a functional product is created.

UI Designer should be responsible for sourcing and evaluating design choices for accessibility, user friendliness and other metrics; this role might be shared by the Programming Lead or other people as necessary and likely gains more importance later in the product creation than at the prototype stage.

Quality Assurance should be responsible for testing the developing application against the features and aims. In-house testing and designing the user testing programs is required to ensure the application is usable and meets the design goals.

The Business Development role is primarily focused on the promotion and feedback side of the project. As sponsors are sought and user feedback is collected from testers, those activities might

pose requirements upon the rest of the team (e.g., a sponsor might want their logo displayed prominently in the app). It is the responsibility of Business Development to collate this information and work with the Project Lead to pitch the vision of the project.

## Scope and Limits

RoboWrite is intended to be an assistant in creating structured text that is to be used with only a few changes.

One of the aspects of the twin prototype approach that Lex did not anticipate was scope creep within the prototypes being created. Jarrad often wanted to progress his code further than the MVP requirements specified. The initial intent was to show prototypes that just give an idea of how the application might work, not provide a full MVP feature set. However, Lex did emphasize that he considered it important that both prototypes went no further than MVP Cloud Sync so that users would not be tempted to prefer one prototype over the other based on the features available rather than the fundamental differences between them, which is different user workflows.

The MVP and extension features listed below were developed in Assignment 2 and referred to in order to limit scope creep.

*The app will be a basic three-page application that consists of:*

### *Minimum Viable Product (MVP) features*

- *Setup page:* A page where a user can set up the tick-boxes and the sentences to go with them. The user will type in the leading text for each tick-box series. It will also allow you to save the template or open others.
- *Tick-box page:* A page which allows the user to tick the relevant boxes in an easy-to-use format and clear the tick-boxes when done. It may be more user-friendly and attractive to use boxes, labels or buttons that can be selected or deselected, which also reduces the number of on-screen elements.
- *Output page:* A popup or page where the output text is displayed, and the user can save, share or export the text quickly to add elsewhere.

### *Further features*

- *Save and open:* Being able to save different templates would be a landmark feature in the development process. It would be highly desirable for a user as long as they can easily export results in the meantime. Being able to save to device or server would mean it would be a much more attractive product because users could have templates and organisations such as hospitals or centres could store the data and provide standardised templates
- *Cloud sync:* The user could easily swap between devices. For example, making the selections on an iPad and then changing to the desktop app to export the results. Alternatively, a user might want to use different devices at different workplaces.
- *Adaptive layout:* In the event the user chooses to create whole sentences to select, the Setup page will need to allow these sentences to stack clearly on top of each

other and the Tick-box page will need to allow at least a few of the words of each sentence to be visible, possibly the whole sentence. The team will need to put effort into an adaptive layout to account for the variety of possible setups and also different device sizes.

- **Sentence logic:** Saving files may allow users to create different templates for different situations. However, the app may also need to display certain sentences based on the selections made in earlier sentences by creating an additional input area on the Setup page. It would be a simple input where the user writes the keyword(s) that the sentence is contingent upon. It would remain hidden until those words are used in the Tick-box page.
- **Hotkeys and Background Operation:** Making the program work in the background (or with a floating window) that intercepts user-defined hotkeys before pasting the text into the current text field of the user's active window. This would allow the user to make use of templates in other programs without having to switch between our application and the target programs. This function would be very beneficial in highly repetitive tasks.

#### *Other design notes*

*The use of modal navigation was considered in advance and was used in one of the Alpha prototypes to maximise simplicity and the ‘single page feeling’ of the app. On the other hand, the nature of the other prototype favoured a tab bar navigation.*

During this development the team realised that this definition needed to be further refined and thought of even more extension features that would be desirable while summarising those already established. These clarifications are listed below. In particular, it seemed essential to develop a Save/Load function and both mobile and web deployment before we would consider RoboWrite to be at MVP stage.

#### *Basic Features (MVP)*

- Users must be able to create templates to be used
- Templates must have appointed areas of flexibility to allow user input to modify the content for a single use before reverting to the original template
- UI allowing selection, editing, saving, loading and usage of templates

#### *Extra Features (monetisation)*

- Professional graphics design for UI elements & application logo
- (Fragment version) Templates need to be saved for later use between sessions
- (Full template version) Shared templates between multiple users/workstations/devices
- Template preview of output
- Rich Text features in templates (multiple fonts, paragraphing, tables)
- Automatically filled data variables (time, usernames, etc.)
- Custom UI design for mobile and desktop use cases
- Accessibility considerations in UI design
- Keyboard only operation

- (Fragment version) Allow free text entry for options
- (Full template version) More user-friendly edit view
- Dropbox integration / Cloud integration for saving
- Enterprise management (administration of templates, user accounts & permissions, audit trail)

These extra features would give the team the opportunity to monetise the app by allowing access to them in freemium in-app purchases and possibly pre-charging them via a crowdfunding campaign. Licensing and direct app sales for full versions are also possible. Further sales and funding sources are discussed in the budget section.

This was briefly assessed but the team focus was on producing an Alpha Prototype for user feedback, which would then allow the team to assess the value of these extra features.

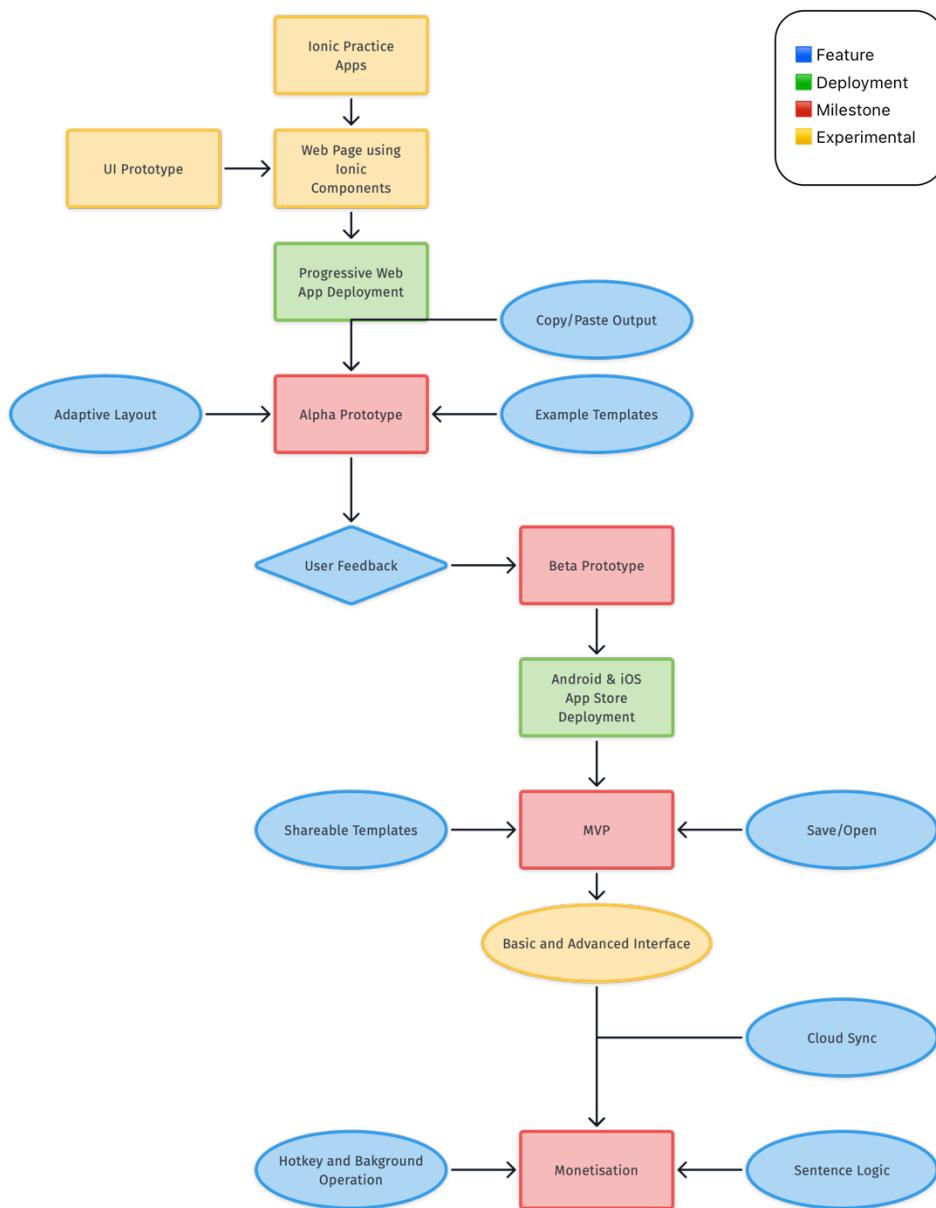


Figure 11 Feature Map by Satre 2021

## Tools and Technologies

### *Software & Services:*

- GitHub (<https://github.com/Chameleon-rmit/RoboWrite>)
- Git Kraken (Version 7.5.1) – Visual version control (“Free Git GUI for Windows, Mac, Linux | GitKraken” 2021)
- Github Pages – Landing page and subscriber signup (<https://robowrite.github.io/>)
- Stencil JS – stencil/core 2.4.0 (“Stencil” 2020)
  - NPM version: "@stencil/core": "^2.4.0"
- Ionic – ionic/core 5.5.3 (Ionic 2020)
  - NPM version: "@ionic/core": "^5.5.3"
- Capacitor – Programming tool for native API usage (“Capacitor: Universal Web Applications” 2020)
- Netlify – Progressive Web Application deployment (“Netlify: Develop & deploy the best web experiences in record time” 2021)
- Mailchimp – Automated emails to subscribers (“Marketing smarts for big ideas | Mailchimp” 2020)
- Google Forms – Product feedback (“Google Forms: Free Online Surveys for Personal Use” 2021)
- VSCode (Version 1.53.0) – Integrated Development Environment (“Visual Studio Code” 2016)
- Rotato (Version 117) – Presentation video (“Phone Mockup From 1 Million Angles - Rotato” 2021)

Two group members have had some experience with JavaScript and Web technologies, but not Stencil JS or the Ionic framework.

## Testing

An initial prototype with alpha testing is expected to be complete by the 5<sup>th</sup> week. The initial round of testing will evaluate if the users find the function provided useful, any specific inconveniences that might suggest future features and observe user interaction with the prototype to identify design issues.

Alpha testing will rely on making contact with potential users, delivering the product to them and generating useful feedback from them. Team members Ayub and Alexis have individual contacts who will be sent links to evaluate the prototypes.

The team will create a Pre-launch Landing Page where potential users can subscribe to our mailing list. This will describe the app and what we are trying to achieve, including some screenshots and images of our Alpha to build social proof. As McKeown suggests (McKeown 2013), we will answer –

*What is your product?*

A repetitive writing tool that used a completely customisable set of sentence builders and phrase selections.

*What problem does it solve?*

Stop spending your time writing repetitive sentences and feel liberated to focus on the unique needs of your clients.

*What are the benefits?*

- Time savings that accumulate every time you use RoboWrite. It's devoted to speed.
- Fits into your workflow on any device. Web, iOS, MacOS and Android.
- A completely customisable template of sentence builders and phrase selections. Make one for yourself or your organisation.

*A 'hook' or reason for signing up (i.e. pre-order discount, VIP access, exclusive freebies, etc)?*  
Sign-up for a 50% pre-sale discount, early access and the chance to shape the product.

*Emailing List*

To those who sign up, we will deliver an email with hyperlinks to our two Alpha products and a request to provide feedback. There will be a feedback google form hyperlink directly in each prototype menu for users to give feedback. There will also be a reminder email sent three days after signing up to the mailing list with the feedback again hyperlinked.

The image displays the RoboWrite landing page, which includes:

- Homepage:** Features a large image of a person typing on a laptop, with the text "Cut repetitive writing time" and "Focus on clients instead". It includes a "Get Started" button and a "Subscribe" form.
- App Prototype:** Shows a "Web App Prototype Available" section with icons for a computer monitor, smartphone, and tablet, indicating responsive design across multiple devices.
- Team Section:** Titled "Our Team", it shows five team members with their names and roles: Ayub (Documentation and support), Lex (Product), David (Marketing), Jarrad (Code), and Jonathon (Financial).
- Start Page:** A dark-themed page titled "Ready to get started? Try it here" with "Classic App" and "Advanced App" buttons, and a "Send Feedback" button.

**Figure 12:** RoboWrite landing page by Satre, 2021.

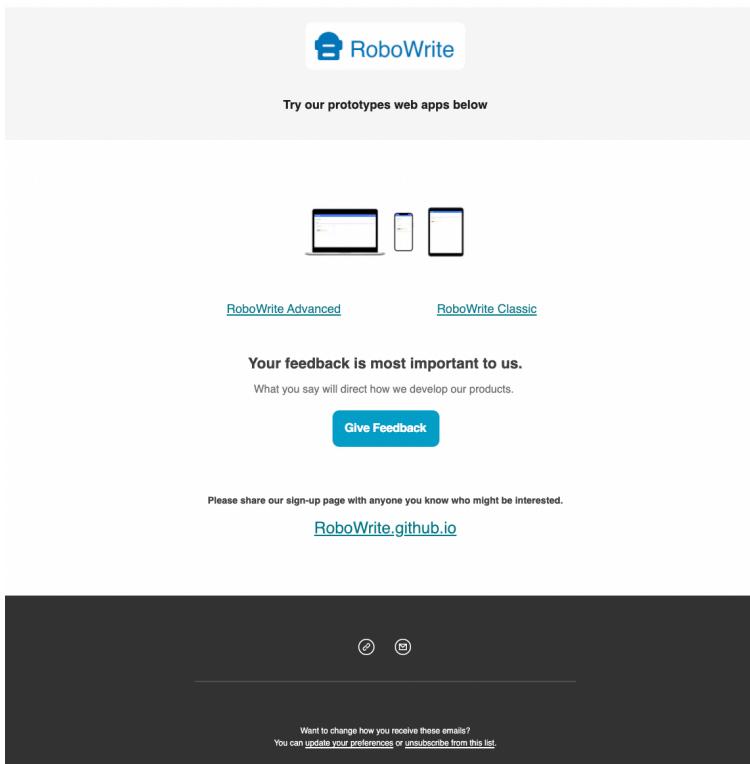


Figure 13: RoboWrite subscriber email by Satre 2021

The contacts will be divided into professions so we can gather data on our different target audiences. We may also be able to divide feedback according to how much repetitive writing is done per day.

The benefit of gathering an email list is that the team can provide updates and build hype about the product while spreading awareness (McKeown 2013). The advantage over only providing the app hyperlinks on the landing page is that in future we can deliver iOS and Android beta apps directly to interested people. It also allows us to show potential investors how much interest there is in the product and reach out if we opt to run a crowdfunding campaign.

The form consists of two columns of questions. The left column contains questions with radio button options, while the right column contains text input fields or questions with dropdown options.

<b>RoboWrite Alpha</b>	In the basic mode, would you prefer to have input directly onto the home screen?
Thanks for trying RoboWrite. Your feedback will help us make the product as useful as possible. All answers are optional including the file upload.	Your answer
What is your professional area?	Can you give us an example of what you would use this for? Please email us separately if you have form documents to share.
<input type="radio"/> Psychology <input type="radio"/> Academics <input type="radio"/> Physiotherapy <input type="radio"/> Real Estate <input type="radio"/> Optometry <input type="radio"/> Other: _____	Your answer
Which prototype did you prefer using?	How can we make this the best product for your needs?
<input type="radio"/> Basic <input type="radio"/> Advanced <input type="radio"/> Other: _____	Your answer
Why was that?	How much would it be worth to you to be able to save and load templates and have dropbox/cloud support?
Your answer	<input type="radio"/> \$ <input type="radio"/> \$10 <input type="radio"/> \$20 <input type="radio"/> \$30
Was there anything that slowed you down or confused you?	Any other feedback
Your answer	Your answer
<input type="button" value="Submit"/> <span style="float: right;">Page 1 of 1</span>	
Never submit passwords through Google Forms.	

Figure 14 Feedback form on Google Forms by Google 2021

We attempted to reach psychology friends of the team to get the product out to them for testing by sending the website link with the description but found this was not as successful as we wanted because the user was reluctant to sign up to a mailing list or didn't open the email if it was received. We quickly changed the landing page to include links to both apps and a link to the google forms feedback.

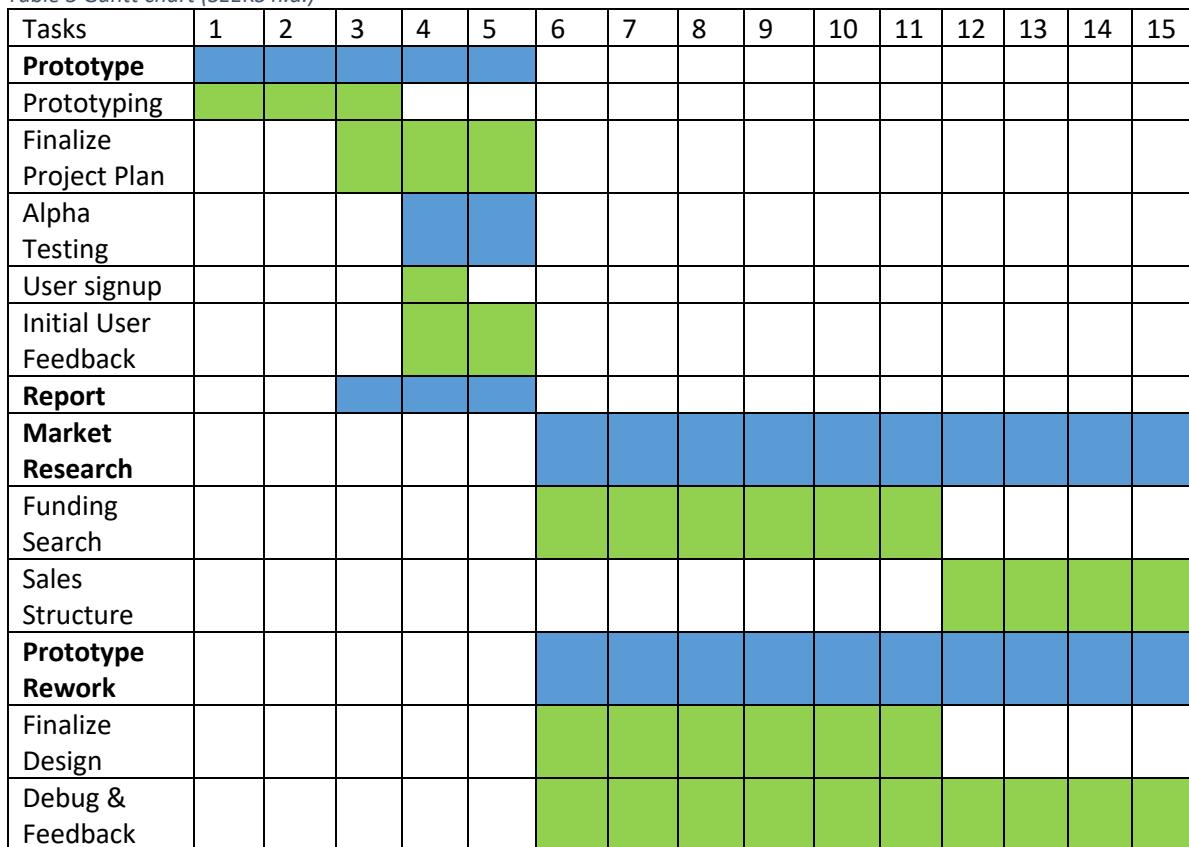
Lex attempted to reach out to the Australian Psychology Society via email but was rebuffed likely due to the conditioning of the organisation that receives many research requests from psychology students or practitioners. We were unable to significantly differentiate ourselves and so will attempt to get members we know to make posts on discussion boards of the Australian Psychology Society and social media groups.

## Timeframe

*Table 2 Time Frame (SEEKS n.d.)*

Timeline (Weeks)	Project Lead	Programming Lead	UI Design	Business Development
1		Prototyping	Prototyping	
2		Prototyping	Prototyping	
3		Prototyping	Prototyping	User Feedback
4	Finalize Project Plan	Prototyping	Prototyping	User Feedback
5	Finalize Project Plan	Prototyping	Product Design	Sponsor Presentation
6		Product Refining	Product Design	Sponsor Presentation
7		Product Refining	Product Design	Sponsor Presentation
8		Product Refining	Product Design	Sponsor Presentation
9		Product Refining	Product Design	Sponsor Presentation
10		Product Refining	Product Design	Sponsor Presentation
11		Product Refining	Product Design	Sponsor Presentation
12	Finalize Sales Plan	Product Refining	Product Design	Finalize Sales Plan
13	Finalize Sales Plan	Extra Features	Product Design	Finalize Sales Plan
14	Finalize Sales Plan	Extra Features	Product Design	Finalize Sales Plan
15	Finalize Sales Plan	Extra Features	Product Design	Finalize Sales Plan

*Table 3 Gantt chart (SEEKS n.d.)*



Though Gantt charts are not in the stated rubric for this section, we have included one as it is standard for project management of this type (Patrick Weaver 2012).

### *Budget*

Although not part of the rubric, this section is dedicated to the explanation of how this project idea might gain funding for further development as well as potential monetization avenues.

Funding sources could be explored once the initial prototype is ready for presentation. Sponsors and Kickstarter are potential avenues for funding, to which the project plan and a good presentation is required to convince supporters.

This funding could be used to purchase assets for the application development. Software licenses for development platforms used, e.g., Github, to pay for commercial internet hosting to run the application as well as for commissioning professional artwork and UI design for the application. Further development costs might also be incurred if the application needs to be developed to meet app store requirements.

Once developed, a sales model also needs to be considered, with in-app purchases, subscription access or a licence followed by a support contract. These considerations would be influenced by the requirements of the sponsors and funding sources.

### Risks

#### *Platform limitations*

As a web application, RoboWrite may face issues implementing greater integration with OS functions. As a browser app, RoboWrite is inherently limited by the sandbox of the browser, which makes running the app intrusively in the background difficult.

#### *User requested features*

It is always a risk that certain user requested features are hard or impossible to implement. Sometimes requested features arise out of ambiguous user requirements or unanticipated use cases that can be hard to support in the already developed framework of the application.

#### *Cross-platform compatibility*

As a web app, the prototype is unlikely to meet issues being deployed across differing platforms, yet the risk remains where clients could seek to use the app on a wide range of platforms, from phones and tablets to desktop computers, as well as operating systems from Windows, MacOS and Linux. Quality assurance testing is required to mitigate this risk.

### *Group processes and communications*

The group coordinates using MS Teams with bi-weekly video meetings on Wednesdays and Saturdays to report on progress, discuss issues and assign work. Additional communication happens

through the MS Teams chat function. These meetings were recorded through MS Teams functionality and links are present in the Tools section of the report.

Application code is placed on Github and references for the report are coordinated through MyBib.

## Skills and Jobs

As a team leader I would hire the following roles to deliver and take Project RoboWrite to the next level, these roles were created as they are minimum roles required to get a product to market.

### Project Coordinator

The individual with the Project Coordinator role will be working closely with myself (the manager) and the Venture Capitalists company to establish an appropriate timeline for the next six months, this will consist of assigning tasks to team members and ensuring that goals and sprints are achieved to a more than satisfactory level. This role is particularly important and a requirement for this project as Team SEEKS found the scheduling of tasks a particularly challenging process. As all our team members don't have experience as a project coordinator we will be hiring for this role. As a part of the project plan the Project Coordinator will need to consider the project budget and plan for any costs. The core skills for the project coordinator would be the ability to Plan, "organise" (Rozier 2019), "problem solve" (Rozier 2019) and communicate with all parties including Team manager for approvals, venture capitalists and team members for assigning tasks and clearly laying out expectations.

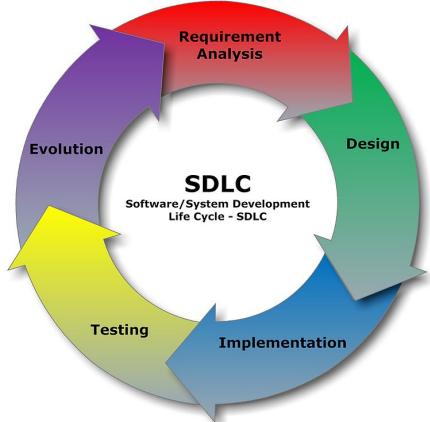


Figure 15 This photo System Development Life Cycle is licensed by CC BY-SA (2021)

### Software Developer

Software Developers "Analyze users needs and then design, test and develop software to meet those needs" ("What Software Developers Do" n.d.). The role of the Software Developer is essential for the technical component of the RoboWrite product, apart from our team members Jarrad and Alexis, other team members have not worked on many projects, in fact none of our team members have worked as developers for an organisation. Therefore, we will need to hire a new developer to maintain professional processes and practises. The individual selected for this role would need to be highly skilled in several programming languages such as Javascript and will need to be able to work

in an agile manner adapting to issues and unexpected requirements. This role will also require the individual to have great communication and team skills as it would be a requirement to be able to report to both technical and non-technical team members such as the Project Coordinator. Therefore, the developer will need to use “diagrams” and flowcharts to communicate with clients (“What Software Developers Do” n.d.). This role will also require collaboration with a QA tester and a Graphic Designer. After the completion of the program the developer will need to stay on for the “maintenance” of the software (“What does a Software Developer do and How to become One.” 2018).



Figure 16 This Photo of a Software Developer is license by CC BY-SA (Software Developer n.d.)

### Quality Assurance tester (QA tester)

QA testers or “Quality Assurance technicians” (“QA Tester Job Description” n.d.), oversee analysing a software product for bugs which are commonly referred to as “defects or issues”. The role of the QA tester will work in conjunction with the Software development to debug programs and “Correct issues” (“QA Tester Job Description” n.d.). Team SEEKS will need to hire a QA tester because none of our team members have extensive experience in this role. The individual selected for this role will need to be highly technical and would require extensive programming knowledge to test the RoboWrite product for any bugs. This individual will be pivotal during the System Development Life Cycle (SDLC) as the goal of this role is to find a “bug as early as possible” (“Roles of QA in SDLC” n.d.). The QA will be active especially during the testing phase of the SDLC. Additional skills required for this role would be communication and teamwork as reporting to the Software developer to arrange patches and the Project Coordinator to re-evaluate the current timeline if required. The information supplied from the QA tester will be used for the reporting of the Project Coordinator which will be passed onto the Team leader and Venture capitalists.



Figure 17 This Photo of computer bug is license by CC BY-SA-NC (2021b)

## Graphics designer/UX designer

The subject of usability refers to “how easy user interfaces are to use” (Nielsen 2012). Usability involves “Hierarchy”, “Consistency”, “Confirmation”, “User Control” and “Accessibility” these are the five principals of User experience design (“The 5 Key UX Design Principles You Need To Know” 2019). Usability has become an essential requirement of all product development. The role of the Graphics/UX designer would need to be a hybrid role due to resource constraints. Without a UI/UX designer our team members Alexis and Jarrad were discovering issues and challenges as the project progressed, this may have been a problem because they were not necessarily always following standard practise but relying on their own judgement. The individual selected would need to create and implement the logo and product design of the final Robo write product. The individual selected for this role will need to be an innovative and creative thinker, he/she will need to ensure that user friendly terminology is used, and that the product is simple to use. Skills required for this role include basic technical skills (must be able to use HTML, CSS and Javascript), ability to use basic design and prototyping tools (e.g., Adobe suite, Figma) and communication skills to ensure that Project coordinator and Developer are aware of any required changes.

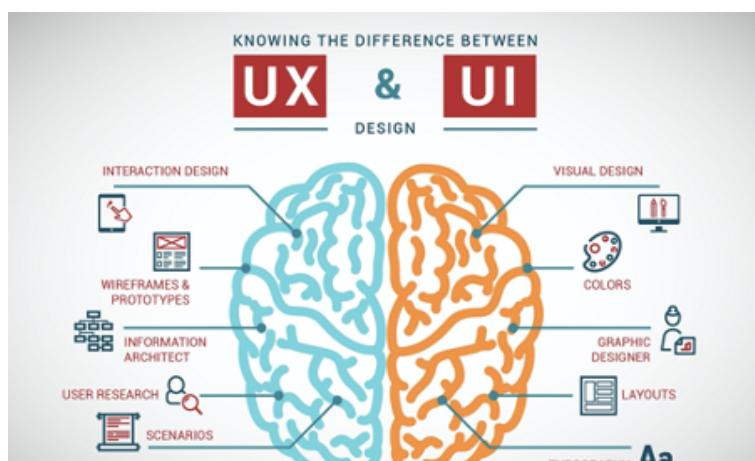


Figure 18 This Photo Knowing the difference between UX & UI Design is license by CC BY-SA (Knowing the difference between UX & UI Design n.d.)

## Group Reflection

Alexis

### *What went well?*

Our team clearly defined our roles and responsibilities early and had a clear objective for the project direction – build something to help repetitive writing. This allowed us to focus on this and spend less time, for example debating different opinions or directions to take. Much of this stemmed from the level of work we put into Assignment 2.

We also played to our various strengths and skills while trying to learn some new skills. For example, David learned video editing techniques and Alexis and Jarrad learned a new framework/library for

app development. Ayub also took over most of the editing and consolidating efforts that David had made in the last assignment.

*What could be improved?*

As a leader I probably would have broken the tasks down into even smaller more well-defined items that could be easier to put runs on the board and assess how much progress was being made. Especially with the development, we had a good definition of what we were building but could have broken the tasks down further and then spread them over a longer period of time. Perhaps there was some anxiety about how much could be achieved so we actually over delivered in the development early in the project and likely overstressed ourselves somewhat.

*At least one thing that was surprising?*

We did expect to get more of a result in user feedback from our initial contacts among psychologists. This is something that we did not pursue strongly enough early in the project as it seems to be quite challenging to build up a user testing base.

*At least one thing that you have learned about groups?*

Groups tend to function more efficiently when there is more opportunity to collaborate on the work of other team members. I found that collaboration increase as soon as there was a consolidated document of the report that everyone could feel ownership for. Group efficiency was also greater when tasks are concurrent.

**Jarrad**

*What went well/what could be improved*

This time around, for me, it will come down to what the final mark for the paired assignments will be. That I got to do tasks that I found interesting (artefact creation, bug fixing, and some story telling) I would consider “went well”, unless we lose marks because the necessary but less interesting parts could have used more input.

From my perspective there was less “group” work in this assignment, I did a lot of the programming for my part in the artefacts independently. I did get some feedback on the completed prototype/app that I would incorporate and helped Alexis with some of the bugs that he was having with his, but it didn’t feel very interactive.

I would have benefited from our group approaching this as an IT Project rather than as an assignment about an IT Project, I think. After reading the Project Plan (at the end of the assignment), it is apparent that I wanted to make the app, which wasn’t what the assignment required.

*At least one thing that was surprising?*

The high quality of the work that resulted, despite not being convinced of group work being the most effective way of working.

*At least one thing that you have learned about groups?*

I found the group experience to be different from when I was the leader in assessment two to not being one in assessment three it was a lot less stressful. So, what I learned about groups for this assignment specifically was how the different levels of responsibility can affect the view of the group work process.

**Jonathan**

*What went well?*

Coordination between team members was good and action was decisive under Alexis's leadership. At times it seemed like the programming work was performed so quickly that most of the key portions of the prototype was completed within a span of a single week!

*What could be improved?*

MS Teams might not have been the best platform to work on due to the limitations on document management, but other solutions might have similar drawbacks and/or other challenges. While it could have been improved, I doubt there are realistic options.

*At least one thing that was surprising?*

I was not aware that rapidly developed apps could be deployed so rapidly. While ad hoc tools at work could be developed very quickly, we built on an existing code base, website host and software. Having no experience with developing a web app from scratch, it was surprising how polished the prototype was (bugs and all).

*At least one thing that you have learned about groups?*

Coordination in the team continued to work well throughout Assignment 3 and cohesive group work is a matter of clear objectives and team members contributing to a common goal. Coordination is much easier when everyone knows what they need to do!

**Ayub**

*What went well?*

They overall group cohesion worked well, team SEEKS was very decisive in our actions, we worked in an agile manner. We were quick to assign tasks to one another and adapt to changes. Our members showed up to all our meetings (except for special circumstances) and we were often on the same page when it came to our agenda items and documentation. Additionally, I believe that we've learnt to manage our expectation and reflect on our previous assignment.

*What could have been improved?*

At least one thing that could be improved could be our task management I found that MS team may not be the best software to assign task to individuals in the future I would suggest that we utilise another tool for example Trello.

*At least one thing that was surprising?*

At first, I was sceptical about the changing of team leaders from Jarrad to Alexis, however I was really surprised to find that this did not affect our team dynamic. Our group structure and processes remained the same. I commend Alexis and Jarrad for this flawless transition.

Working at a software company I was surprised by the amount of work done by our team members assuming that there aren't any major bugs discovered later.

*At least one thing that you have learned about groups?*

One major thing that I have learnt about groups is that Personalities matter. I believe that this was a teachable part of all three assignments. It is important to not only understand personalities but also to take them into account when working in a group. I will take this lesson with me into other situations and environments.

David

*What went well?*

I believe that changing out Team Leader worked well for A3-A5. This was mostly because the project idea belonged to the new team leader (Alexis) who had a better knowledge of what was trying to be achieved and enabled us to meet the assignment requirements more efficiently.

*What could be improved?*

As a team we could improve our task management so that there was more accountability and transparency. This is also a limitation of the task app within Microsoft Teams and whilst we did try other apps, there was not one that provided a high level of transparency.

*At least one thing that was surprising?*

I was surprised how Jarrad and Alexis were able to work together to create a working app in such a short time. Having little experience with programming I was not aware of the ability to do this so quickly and I look forward to Introduction to Programming next study period to learn more in this space.

*At least one thing that you have learned about groups?*

I have learnt that no matter the different experiences or backgrounds of team members, with the right attitude and leader, things thought to be difficult to achieve can become easy to accomplish.

## Group

### *What went well / What could be improved?*

Contributions for the two assignments, A3 and A5, were analysed at the start so that there was an objective fair contribution that each group member could aim to achieve. To help with this we looked at the different skills that group members possessed, what had been accomplished in A2 and what areas team members were interested in developing. This led to some team members taking on different tasks to gain further skills. One decision that worked well was an agreement that when working we would notify the group that we were online. This meant we were aware of who was available and when as well as assisting with improved communications from A2 and getting tasks completed in a timely manner.

As the assignment is coming to a close the feeling of the group is that we have all contributed well. The areas of responsibility that each team member adopted were done to a high standard that we all appreciated.

Nearly unanimously our group felt that the task management aspect, and particularly the use of MS Teams to manage tasks, could have been improved. As an example, the tasks app within MS Teams, as well as others available in the store do not lend themselves to a clear and transparent method of project work. It was unclear how to set tasks at first, and when set, were not easy to track among team members. This led to our group communicating on other ways additional to the tasks app. In future work, time spent finding the best app to suit the group needs for task management would be beneficial.

### *At least one thing that was surprising?*

As this assignment is being finalised, we were surprised by the great collaborative effort between our team members. Initially we were quick to collectively select our team leaders and distribute tasks amongst ourselves. We were able to create agenda and action items and were able to meet twice a week for 30 to 60 mins. None of our team members missed a meeting unless it was for good reasons (family emergencies). Additionally, team SEEKS were able to create a viable product in the timeframe that was provided, this milestone was a surprising accomplishment.

### *At least one thing that you have learned about groups?*

Cooperation between members of the group requires coordination and strong leadership. Throughout the assignment, the group has communicated decisions clearly, allowing the work to focus on the assignment rather than on administration. Group work necessarily incurs overhead in coordination, thus the ratio of work performed on the product (the assignment) to the work spent on coordination is to be maximized.

## Contributions

As with assignment two we did a breakdown of tasks at the beginning of assignments two and five to find out what would be a fair way of splitting up the contribution. The way worked out was based around what marks the sections were assigned converted to grade marks and then people picking their tasks to get to a fair percentage. As some of the tasks were weighted more heavily than others

the number of tasks assigned to each member looks disproportionate, but it is as close to fair as we could manage.

Ayub: A3 Skills and Jobs, A3 Tools, A3 Team Profile, and the Report

David: The majority of the A5 work

Jarrad: A5 contributions, artifact work, and A3 Project Plan

Jonathan: A3 Project Plan

Lex: Project Management, artifact work, A5 contributions, and A3 Project Plan

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## Appendix

### Git logs

#### Repository 1

<https://github.com/Lxstr/robowrite-classic.git>

```
* 93f606b - Lex Satre, Mon Feb 8 22:08:21 2021 +1000 : fix output bug|
| 3 files changed, 31 insertions(+), 4 deletions(-)

* 726b4c9 - Lex Satre, Thu Feb 4 11:18:23 2021 +1000 : add auto scroll on add fragment and
focus on new option|
| 4 files changed, 51 insertions(+), 50 deletions(-)

* 31c789a - Chameleon, Thu Feb 4 06:10:42 2021 +1000 : Fixed adding focus to the first input
once the add-fragment modal has loaded|
| 1 file changed, 2 insertions(+)

* 7d1c050 - Lex, Thu Feb 4 01:02:27 2021 +1000 : start|
| 1 file changed, 7 insertions(+), 5 deletions(-)

* a5ae354 - Lex, Thu Feb 4 00:58:33 2021 +1000 : exit on left|
| 1 file changed, 3 insertions(+), 3 deletions(-)

* 37cfa21 - Lex, Wed Feb 3 23:59:53 2021 +1000 : home toast dark|
| 1 file changed, 1 insertion(+)

* 0137b98 - Lex, Wed Feb 3 23:48:40 2021 +1000 : toast dark|
| 1 file changed, 1 insertion(+), 1 deletion(-)

* 246d77d - Lex, Wed Feb 3 23:43:20 2021 +1000 : toast color|
| 1 file changed, 1 insertion(+)

* b9e8216 - Lex Satre, Wed Feb 3 23:31:09 2021 +1000 : menu appearance|
| 1 file changed, 5 insertions(+), 5 deletions(-)

* 5594020 - Lex Satre, Wed Feb 3 23:13:04 2021 +1000 : add output padding|
| 1 file changed, 1 insertion(+), 1 deletion(-)

* b70ae89 - Lex Satre, Wed Feb 3 23:04:02 2021 +1000 : better buttons and icons|
| 6 files changed, 5 insertions(+), 6 deletions(-)

* a9eaef3 - Lex Satre, Wed Feb 3 22:30:46 2021 +1000 : perfect card alignment and resizing|
| 6 files changed, 65 insertions(+), 9891 deletions(-)

* a09def4 - Lex Satre, Wed Feb 3 21:28:34 2021 +1000 : input focus with timeouts 500ms|
| 3 files changed, 24 insertions(+), 8 deletions(-)

* cd33adf - Lex Satre, Wed Feb 3 19:38:30 2021 +1000 : improve text output|
| 2 files changed, 33 insertions(+), 33 deletions(-)

* d463406 - Lex Satre, Wed Feb 3 19:09:12 2021 +1000 : remove logs|
| 1 file changed, 4 insertions(+), 6 deletions(-)

* 5c6c692 - Lex Satre, Wed Feb 3 19:08:21 2021 +1000 : fix output bugs|
| 1 file changed, 10 insertions(+), 10 deletions(-)

* a6c7331 - Chameleon, Wed Feb 3 18:48:10 2021 +1000 : Fixed async race condition|
| 1 file changed, 9 insertions(+), 2 deletions(-)

* 4af85cd - Lex Satre, Wed Feb 3 18:15:11 2021 +1000 : bug for loading demo with replacement
data|
| 6 files changed, 59 insertions(+), 55 deletions(-)

* 01f62bb - Lex Satre, Wed Feb 3 15:01:58 2021 +1000 : fixed loading example bug|
| 4 files changed, 47 insertions(+), 21 deletions(-)
```

## GROUP: SEEKS | RMIT | ASSESSMENT 3 – COSC2196 | OUR IT PROJECT|

```
* 6508fba - Lex Satre, Wed Feb 3 14:21:28 2021 +1000 : fix duplicate bug|
| 1 file changed, 1 insertion(+), 1 deletion(-)

* 0ba6bd3 - Lex Satre, Wed Feb 3 14:19:23 2021 +1000 : more result text utility tweaks|
| 3 files changed, 35 insertions(+), 15 deletions(-)

* b6475d3 - Lex Satre, Wed Feb 3 13:44:54 2021 +1000 : additional fix to result text utility|
| 1 file changed, 4 insertions(+), 3 deletions(-)

* 078ffed - Lex Satre, Wed Feb 3 13:41:06 2021 +1000 : output helper additions|
| 3 files changed, 39 insertions(+), 23 deletions(-)

* fbd1110 - Lex Satre, Wed Feb 3 13:10:22 2021 +1000 : major UI changes|
| 4 files changed, 144 insertions(+), 86 deletions(-)

* d71fd74 - Lex Satre, Wed Feb 3 12:08:08 2021 +1000 : add menu|
| 2 files changed, 40 insertions(+), 14 deletions(-)

* 3db436e - Lex Satre, Wed Feb 3 09:30:46 2021 +1000 : add possible FAB button|
| 1 file changed, 9 insertions(+)

* 7fc56b7 - Lex Satre, Tue Feb 2 19:08:58 2021 +1000 : reduce padding on card, fix exit icon|
| 3 files changed, 10 insertions(+), 4 deletions(-)

* 5a22641 - Lex Satre, Tue Feb 2 18:47:20 2021 +1000 : reduce padding via global css|
| 3 files changed, 43 insertions(+), 34 deletions(-)

* 43a8c73 - Lex Satre, Tue Feb 2 17:50:05 2021 +1000 : add autocapitalise and autocorrect|
| 2 files changed, 19 insertions(+), 3 deletions(-)

* 71b00b0 - Lex Satre, Tue Feb 2 17:42:27 2021 +1000 : move exit 'X' icons to left side of
menu bar|
| 2 files changed, 2 insertions(+), 2 deletions(-)

* 78cf3e9 - Lex Satre, Tue Feb 2 17:40:28 2021 +1000 : automatically delete empty options or
replacements in modals|
| 2 files changed, 43 insertions(+), 8 deletions(-)

* ec687b5 - Lex Satre, Tue Feb 2 14:53:32 2021 +1000 : update package json|
| 2 files changed, 9903 insertions(+), 2 deletions(-)

* 9af9db5 - Lex Satre, Tue Feb 2 14:50:53 2021 +1000 : remove console.logs|
| 4 files changed, 4 insertions(+), 50 deletions(-)

* a90ee83 - Lex Satre, Tue Feb 2 14:35:56 2021 +1000 : major cleanup and refactor add-fragment
modal, proper lifecycle use|
| 4 files changed, 26 insertions(+), 5 deletions(-)

* 9b19891 - Lex Satre, Tue Feb 2 13:54:28 2021 +1000 : attempt to cleanup add fragment modal|
| 4 files changed, 40 insertions(+), 90 deletions(-)

* ef33342 - Lex Satre, Tue Feb 2 12:29:04 2021 +1000 : delete replacementDeleted event
options|
| 1 file changed, 1 insertion(+), 6 deletions(-)

* 17bb585 - Chameleon, Tue Feb 2 12:19:29 2021 +1000 : Added a target for replaceCard listener
so that it can hear the app-home event|
| 1 file changed, 1 insertion(+), 1 deletion(-)

* 9dfb6b3 - Lex Satre, Tue Feb 2 11:42:39 2021 +1000 : Merge branch 'chameleon' into main
| \
| * 71d49ee - Lex Satre, Tue Feb 2 11:41:46 2021 +1000 : Auto stash before merge of
"chameleon" and "origin/chameleon"|
| 1 file changed, 13 deletions(-)

| * 4c54c6b - Lex Satre, Tue Feb 2 11:40:14 2021 +1000 : Merge remote-tracking branch
'origin/chameleon' into chameleon
| \
| | * 7046f0c - Lex Satre, Tue Feb 2 11:28:58 2021 +1000 : cleanup listeners and state
managment|
| 4 files changed, 40 insertions(+), 61 deletions(-)

| * | 2902f93 - GitHub, Tue Feb 2 10:00:25 2021 +1000 : Merge pull request #1 from
Lxstr/chameleon
| | \
| | / /
| | _
```

## GROUP: SEEKS | RMIT | ASSESSMENT 3 – COSC2196 | OUR IT PROJECT|

```
| * 90af686 - Chameleon, Sun Jan 31 11:06:26 2021 +1000 : Fixed Replacements in the same way  
as Fragments|  
| | 1 file changed, 3 insertions(+), 1 deletion(-)  
  
| * 0fb4bbb - Chameleon, Sun Jan 31 10:33:44 2021 +1000 : Fixed fragments not persisting  
between app loads - removed fragments assignment in the constructor of FragmentController|  
| | 1 file changed, 8 insertions(+), 1 deletion(-)  
  
| * 79f62e0 - Chameleon, Sun Jan 31 10:32:27 2021 +1000 : Added spaces before and after  
leading and trailing phrases if they aren't there|  
| | 1 file changed, 7 insertions(+), 1 deletion(-)  
  
| * 498baa3 - Chameleon, Sun Jan 31 10:31:29 2021 +1000 : Changed the meta description from  
the Ionic PWA one to something that fits the RoboWrite app  
| / |  
| | 1 file changed, 1 insertion(+), 1 deletion(-)  
  
* d7b7203 - Lex Satre, Thu Jan 28 22:19:18 2021 +1000 : xl viewport card is larger|  
| 1 file changed, 1 insertion(+), 1 deletion(-)  
  
* 4a70bd2 - Lex Satre, Thu Jan 28 22:15:41 2021 +1000 : package config|  
| 1 file changed, 3 insertions(+), 3 deletions(-)  
  
* 0e87df3 - Lex Satre, Thu Jan 28 22:11:20 2021 +1000 : set dummy reload to once|  
| 1 file changed, 1 insertion(+), 1 deletion(-)  
  
* e71df6b - Lex Satre, Thu Jan 28 22:07:06 2021 +1000 : configure PWA deploy|  
| 4 files changed, 8 insertions(+), 4 deletions(-)  
  
* ecd7517 - Lex Satre, Thu Jan 28 21:44:14 2021 +1000 : Merge branch 'main' into rework  
| \ |  
| * 3779b3f - Lex Satre, Thu Jan 28 15:10:00 2021 +1000 : output amendments|  
| | 3 files changed, 9 insertions(+), 4 deletions(-)  
  
| * a0949c0 - Lex Satre, Thu Jan 28 14:55:01 2021 +1000 : add dummy load data|  
| | 1 file changed, 17 insertions(+), 3 deletions(-)  
  
* | c69a070 - Lex Satre, Thu Jan 28 21:37:19 2021 +1000 : adaptive card widths|  
| | 3 files changed, 9 insertions(+), 4 deletions(-)  
  
* | 79da5eb - Lex Satre, Thu Jan 28 21:12:20 2021 +1000 : appearance improvements|  
| | 3 files changed, 38 insertions(+), 26 deletions(-)  
  
* | 0cac03d - Lex Satre, Thu Jan 28 20:26:06 2021 +1000 : success rework|  
| | 3 files changed, 33 insertions(+), 25 deletions(-)  
  
* | 7cc2513 - Lex Satre, Thu Jan 28 17:57:00 2021 +1000 : errors fixed, add copy  
| / |  
| | 5 files changed, 103 insertions(+), 11 deletions(-)  
  
* b71993c - Lex Satre, Thu Jan 28 14:26:51 2021 +1000 : improve fragment modal appearance|  
| 2 files changed, 12 insertions(+), 10 deletions(-)  
  
* b2531b5 - Lex Satre, Thu Jan 28 14:18:15 2021 +1000 : add output logic|  
| 4 files changed, 140 insertions(+), 62 deletions(-)  
  
* f46a21f - Chameleon, Thu Jan 28 09:37:18 2021 +1000 : output-modal rewrite|  
| 2 files changed, 30 insertions(+), 2 deletions(-)  
  
* 2a2386e - Lex Satre, Thu Jan 28 02:32:32 2021 +1000 : output nearly completed|  
| 4 files changed, 72 insertions(+)  
  
* 8bf0456 - Lex Satre, Thu Jan 28 01:40:04 2021 +1000 : replace main  
| \ |  
| * b068183 - Lex Satre, Thu Jan 28 00:24:53 2021 +1000 : add replace functionality|  
| | 10 files changed, 462 insertions(+), 12 deletions(-)  
  
* | 9ffb104 - Lex Satre, Thu Jan 28 01:09:24 2021 +1000 : sucessful amendment|  
| | 6 files changed, 341 insertions(+), 1 deletion(-)  
  
* | d29be74 - Lex Satre, Thu Jan 28 00:46:45 2021 +1000 : add services and interface for  
replace  
| / |  
| | 2 files changed, 80 insertions(+)  
  
* ac7119f - Lex Satre, Wed Jan 27 18:50:22 2021 +1000 : cleanup modal, add duplicate  
functionality|
```

```
| 2 files changed, 40 insertions(+), 19 deletions(-)

* 4b5c91d - Lex Satre, Wed Jan 27 17:12:27 2021 +1000 : add onclick functionality to chips|
| 3 files changed, 48 insertions(+), 42 deletions(-)

* 41bb075 - Lex Satre, Wed Jan 27 12:23:25 2021 +1000 : add options input|
| 6 files changed, 109 insertions(+), 14 deletions(-)

* 99ae15d - Lex Satre, Tue Jan 26 23:35:22 2021 +1000 : add delete edit add functionality|
| 7 files changed, 255 insertions(+), 83 deletions(-)

* 5dc4e1b - Lex Satre, Tue Jan 26 16:50:14 2021 +1000 : further cleanup|
| 1 file changed, 1 insertion(+), 1 deletion(-)

* f856f62 - Lex Satre, Tue Jan 26 16:49:33 2021 +1000 : cleanup|
| 1 file changed, 1 insertion(+), 1 deletion(-)

* 07f7820 - Lex Satre, Tue Jan 26 16:40:35 2021 +1000 : add data model|
| 15 files changed, 258 insertions(+), 150 deletions(-)

* 60e1224 - Lex Satre, Tue Jan 26 13:49:51 2021 +1000 : cleanup from chip colors|
| 2 files changed, 20 insertions(+), 15 deletions(-)

* 9026b59 - Lex Satre, Tue Jan 26 13:45:19 2021 +1000 : add colors to robo-chip|
| 5 files changed, 104 insertions(+), 147 deletions(-)

* 00dbe1f - Lex Satre, Tue Jan 26 12:12:25 2021 +1000 : add chips|
| 4 files changed, 48 insertions(+), 1 deletion(-)

* 54f5c18 - Lex Satre, Mon Jan 25 21:15:38 2021 +1000 : add adaptive grid layout|
| 3 files changed, 9 insertions(+), 3 deletions(-)

* b740bda - Lex Satre, Mon Jan 25 20:07:25 2021 +1000 : remove robo-checkbox-series, start
data model|
| 4 files changed, 17 insertions(+), 42 deletions(-)

* 3c6c0a8 - Lex Satre, Mon Jan 25 19:27:21 2021 +1000 : add robo-button component|
| 5 files changed, 44 insertions(+), 37 deletions(-)

* 9ae3d4b - Lex Satre, Mon Jan 25 14:56:36 2021 +1000 : initial commit
34 files changed, 871 insertions(+)
```

## Repository 2

<https://github.com/Chameleon-rmit/RoboWrite.git>

```
* 03a9bbd - Chameleon-rmit, Wed Feb 3 09:17:41 2021 +1000 : Changed this version's name from
Full Template to Advanced|
| 2 files changed, 2 insertions(+), 2 deletions(-)

* 4a6b492 - Chameleon-rmit, Sat Jan 30 13:01:00 2021 +1000 : Removed confirm and cancel
buttons, we now update on keyup and save on input blur|
| 1 file changed, 6 insertions(+), 3 deletions(-)

* b81d907 - Chameleon-rmit, Sat Jan 30 12:56:05 2021 +1000 : Removed unused variable|
| 1 file changed, 2 insertions(+), 2 deletions(-)

* cfcf655 - Chameleon-rmit, Sat Jan 30 12:52:02 2021 +1000 : Fixed replacement entries (shh,
it's a bugfix, not a feature implementation)|
| 1 file changed, 45 insertions(+), 8 deletions(-)

* 8810457 - Chameleon-rmit, Fri Jan 29 16:47:52 2021 +1000 : Changed line-through to a red
colour, and added a Toast for when copying either succeeds or fails|
| 1 file changed, 23 insertions(+), 6 deletions(-)

* 85aef3b - Chameleon-rmit, Fri Jan 29 15:29:46 2021 +1000 : Textarea has a scrollheight of
zero on netlify when the tab is loaded, if it's zero make the height 600px|
| 1 file changed, 4 insertions(+), 1 deletion(-)

* 0efa52e - Chameleon-rmit, Fri Jan 29 15:21:33 2021 +1000 : Fixed typo|
| 1 file changed, 1 insertion(+), 1 deletion(-)
```

## GROUP: SEEKS | RMIT | ASSESSMENT 3 – COSC2196 | OUR IT PROJECT|

```
* 4f92042 - Chameleon-rmit, Fri Jan 29 15:19:45 2021 +1000 : Resize the textarea explicitly  
when the edit tab is clicked?  
| 1 file changed, 8 insertions(+), 4 deletions(-)  
  
* a7b6033 - Chameleon-rmit, Fri Jan 29 15:15:38 2021 +1000 : Maybe it's a race condition? Its  
only showing up on netlify!  
| 1 file changed, 5 insertions(+), 3 deletions(-)  
  
* lae5172 - Chameleon-rmit, Fri Jan 29 15:11:33 2021 +1000 : StencilJS/ionic ion-textareas are  
awful, replaced with a normal textarea!  
| 1 file changed, 11 insertions(+), 2 deletions(-)  
  
* d2a284c - Chameleon-rmit, Fri Jan 29 14:50:51 2021 +1000 : And again!  
| 2 files changed, 6 insertions(+), 3 deletions(-)  
  
* ba690b4 - Chameleon-rmit, Fri Jan 29 14:46:20 2021 +1000 : And another cleanup!  
| 2 files changed, 2 insertions(+), 1 deletion(-)  
  
* 163359c - Chameleon-rmit, Fri Jan 29 14:43:17 2021 +1000 : Cleanup for netlify!  
| 14 files changed, 7 insertions(+), 192 deletions(-)  
  
* 27f690c - Chameleon-rmit, Fri Jan 29 14:25:54 2021 +1000 : Functioning MVP of RoboWrite -  
Full Template!  
| 7 files changed, 382 insertions(+), 38 deletions(-)  
  
* b52d4d6 - Chameleon-rmit, Thu Jan 28 15:12:50 2021 +1000 : Progress commit, showing  
templates.ts!  
| 3 files changed, 115 insertions(+), 11 deletions(-)  
  
* 341fea9 - Chameleon-rmit, Thu Jan 28 10:57:13 2021 +1000 : Progress push, showing bug in  
selected-tab!  
| 10 files changed, 229 insertions(+), 25 deletions(-)  
  
* ed6f809 - Chameleon-rmit, Wed Jan 27 15:43:37 2021 +1000 : Progress commit, Prototype  
framework up and running, Full Template prototype still being worked on!  
| 14 files changed, 244 insertions(+), 179 deletions(-)  
  
* 36e7ca7 - Chameleon-rmit, Wed Jan 27 10:19:32 2021 +1000 : And slightly less broken (had to  
rebuild from scratch to fix it)  
| 2 files changed, 2 insertions(+), 2 deletions(-)  
  
* 27126fa - Chameleon-rmit, Wed Jan 27 10:09:59 2021 +1000 : Middle of debugging, push  
requested!  
| 9 files changed, 5168 insertions(+), 34 deletions(-)  
  
* b2f0043 - Chameleon, Tue Jan 26 12:00:16 2021 +1000 : Initial in progress commit  
32 files changed, 715 insertions(+)
```