Final Prototype Documentation

Team Four

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CareerCourse

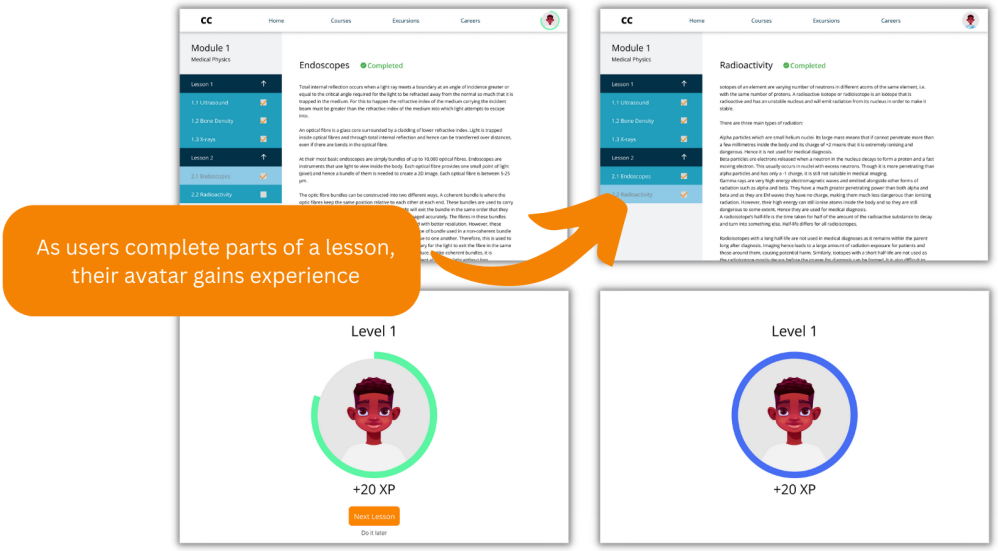
CareerCourse is a learning tool designed to improve STEM education for children from rural areas. It is a learning management system (LMS),in which gamification is used to encourage students to progress in their studies, to develop and grow their avatar, in turn unlocking virtual excursions.

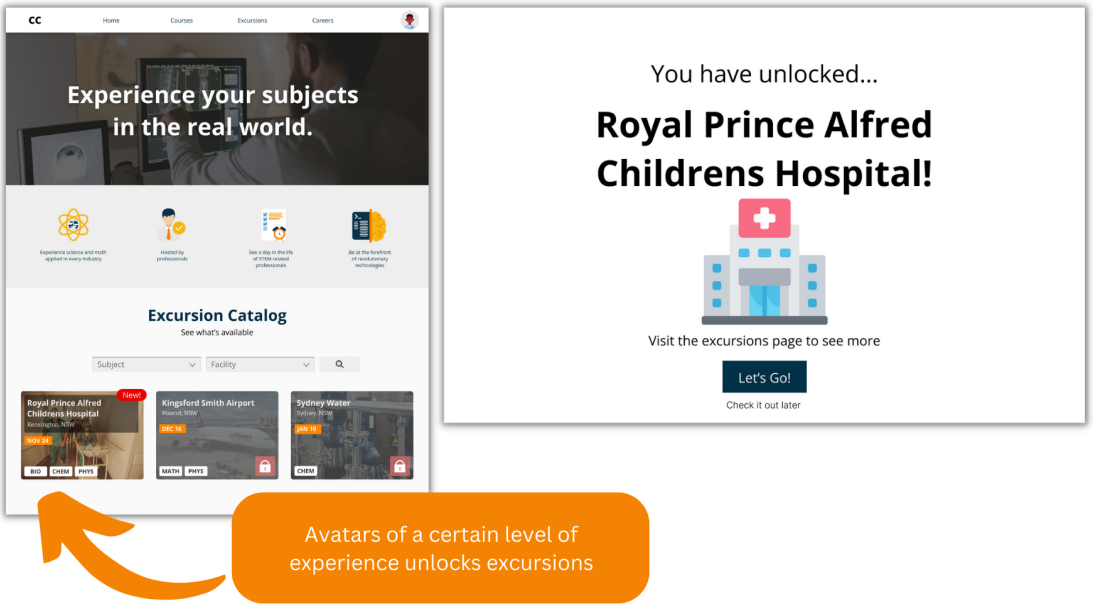
Many of its features are designed with the aim of communicating the practicality of STEM content, in accordance with our first design goal from our research phase.

Our research early in semester showed that students in rural contexts had a difficult time seeing the usefulness of school content. Being far-removed from the rest of society, many careers, facilities, technologies, services and other outlets don't have a visible place in their immediate context. It is common for these children to spend after-school hours occupied with the family business, which tends to mostly be farming or agriculture related. Other occupations include running local restaurants, or depending on their location, tourism related services. This means that students spend little time and attention towards their homework, or any pursuit which relates to advancing their education or aspiring for a future beyond what is immediate to them.

Students have very little exposure to alternatives to the aforementioned careers or the idea of pursuing further education. It is no surprise then that students see a disconnect between the content they study at school, and the roles which bring value to their communities and immediate surroundings. CareerCourse aims to increase and personalize exposure to STEM related careers and industries.

The avatar progressing and leveling up is a representation of learning's impact. It shows the fruits of academics in their character's progression. The virtual excursions themselves, hosted by professionals from the site, is direct exposure to how science, technology and mathematics help provide the services which the world depends on - a rare sight in rural contexts.

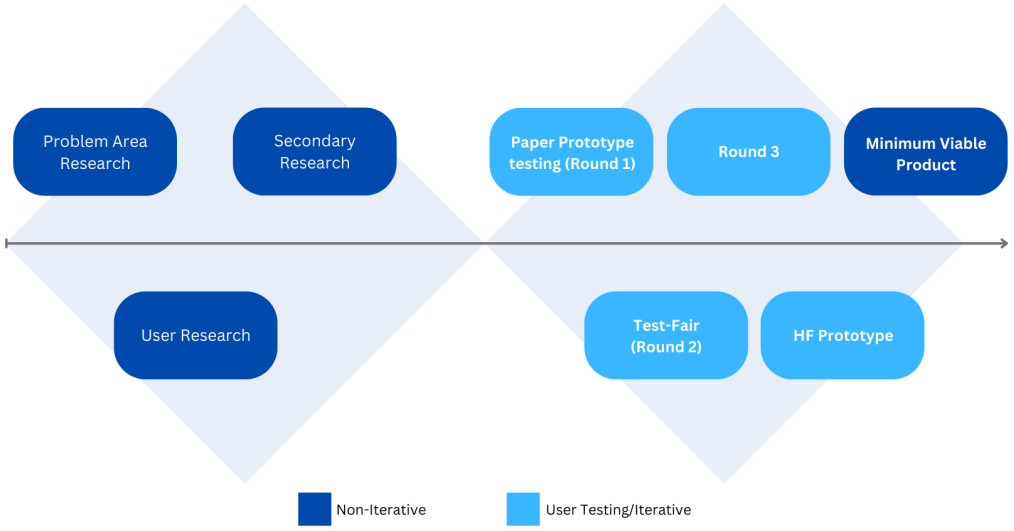




Tying the school curriculum closely with its application in the real world allows students in the rural context to see how it makes an impact to society, and inspires students to pursue careers and further education.

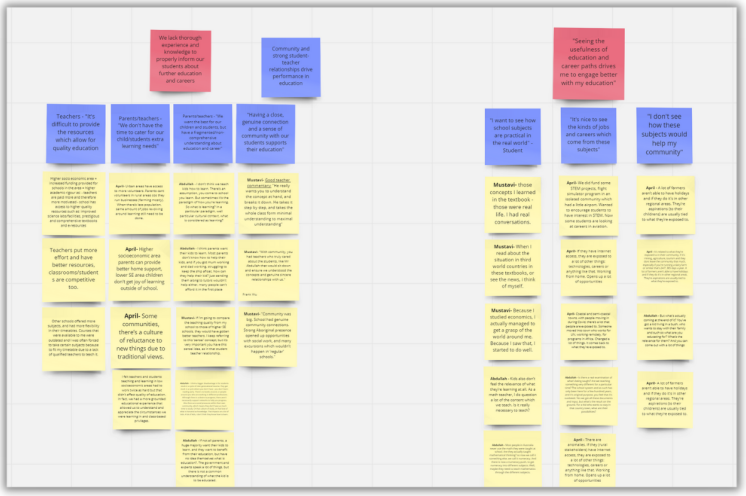
Our Design Process

Our team was provided the brief of solving one the United Nations 17 goals surrounding sustainability. We chose to focus on the goal ‘Quality Education’ as our problem area. We employed a double diamond design process involving four stages shown below: Discover, Define, Develop and Deliver.



Discover:

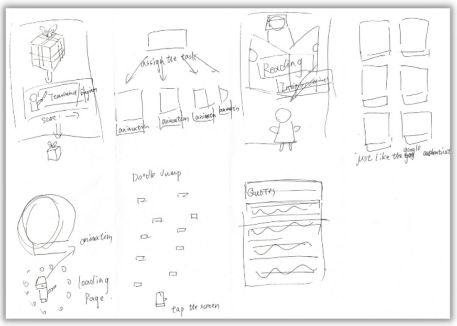
We embarked on our process with extensive secondary research to understand the context we were designing for. Having found some leads, we proceeded to interview people from rural and low socio-economic backgrounds. We also distributed surveys to students from various schools in all ranges of socio-economic status. From our research, we were able to extract two key insights.

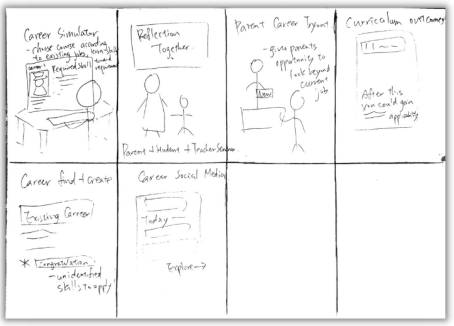


Qualitative data seemed to cluster around two main themes

Define:

We were able to extract our two key insights from our affinity diagramming. These insights shaped our design goals for what would be our concept. We began to ideate solutions using techniques such as Crazy 8's and Forced Association.





We came up with over 40 different undeveloped concepts, and mixed and matched features between our concepts.

Develop:

Paper Prototypes

To filter out concepts most effective at achieving our design goals, we created a decision matrix with criteria based on our insights, the constraints of the rural context, and general accessibility and usability considerations. We prototyped our concept over multiple iterations

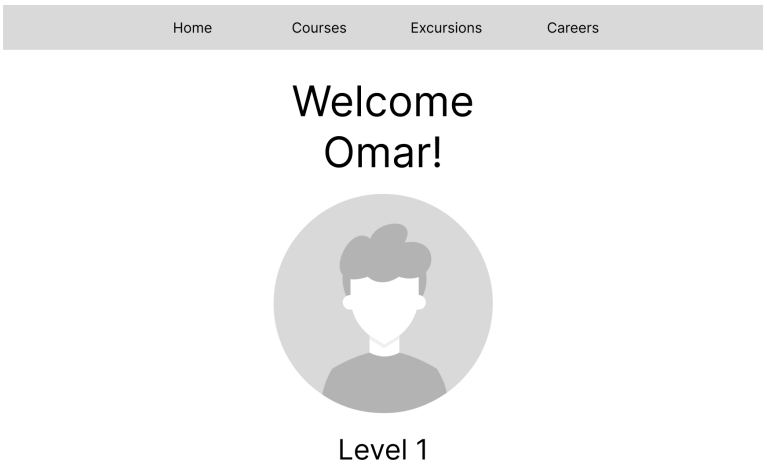
on Figma, improvising additional features, usability and aesthetics of the design based on user testing feedback along the way.
CareerCourse was one of three final concepts we filtered out. We created paper prototypes of essential screens which focused around demonstrating the concept's main features, which included avatar customisation, moving through course content,leveling up and progression and finding excursion and career-related information. Paper prototyping would allow us to make quick, low-cost changes and refinements to our concept.

Low fidelity screens (Wireframes)

We received a series of feedback which shaped our wireframes in the next stage. A lot of the feedback revolved around understanding the value of our concept, as well as the purpose of each feature specified. Consequently, changes mostly revolved around understanding the purpose of the various features such as the avatar's progression and virtual excursions. Using Figma in this round, we were able to implement a number of changes which included introductory screens which introduced the application.

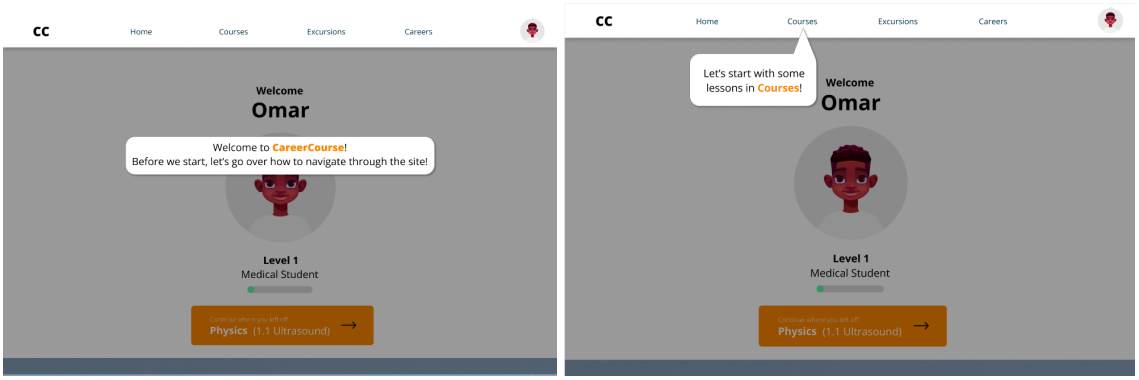
Low to Mid-fidelity screens

Between our wireframes and mid-fidelity, we continued to iron out points of confusion, and general accessibility and heuristic issues. The testing round here involved other design students as participants who were able to easily identify areas where usability could be improved. This round introduced calls to action which took users directly to the desired place instead of letting them find out themselves. For example, when avatars leveled up, beyond a description saying new excursions had been unlocked, users would be taken directly to the excursions page



Mid-Fidelity to High Fidelity

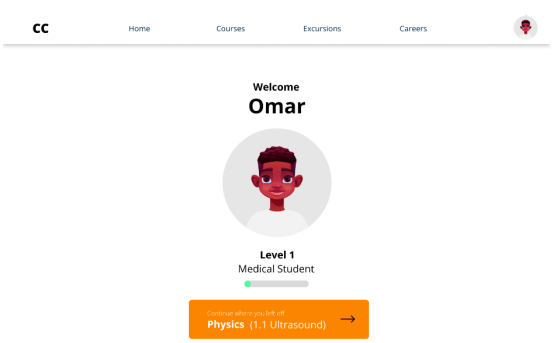
From the last round of iteration, the users responded to our mid-fidelity prototype that other than the functions itself, more descriptive guidance and the usability aspect of the presentation of these features should be better implemented, especially for users that have zero experience with similar platforms. Therefore in the final high-fidelity prototype, we included more error recovering interactions and more importantly a descriptive guide-through that takes the user through the site in their first launch to gain proper understanding prior to engaging in any interactions.

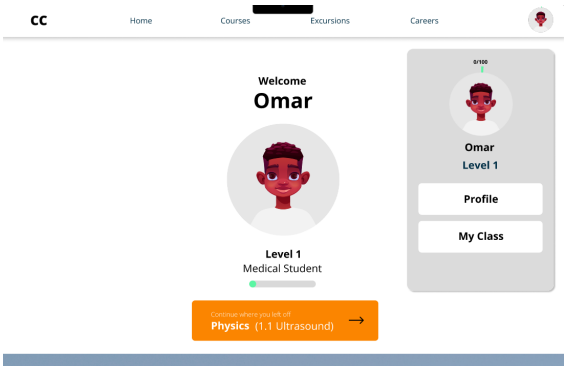


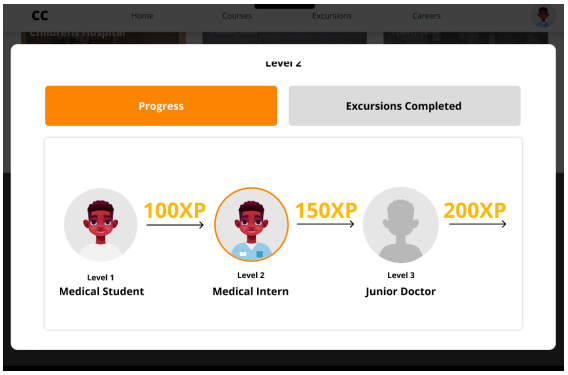
With the high fidelity prototype, the main difference, other than the more adhering to our design system polished looking aesthetics and avatars, is that the user now can store their module progression as they navigate through the platform. This indicates that, compared to the mid-fidelity prototype where the module section is only crafted for the purpose of showcasing and does not allow users to stop halfway from completing the entire course module, now with the high-fidelity prototype the platform actually mimics the experience of utilizing a database that keeps track of the users progression in leveling up.

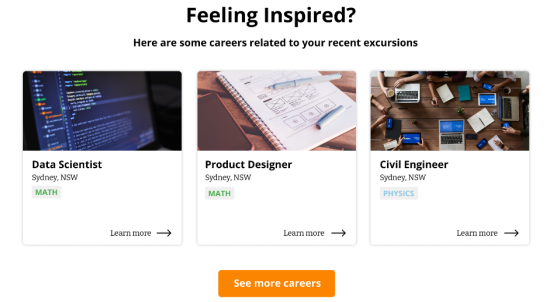
Considering the main feature of avatar, we also implemented the presence of avatar in more portions of the user experience to emphasize the impression and link between the user and their chosen avatar. This includes an always-displayed profile panel on the upper corner that

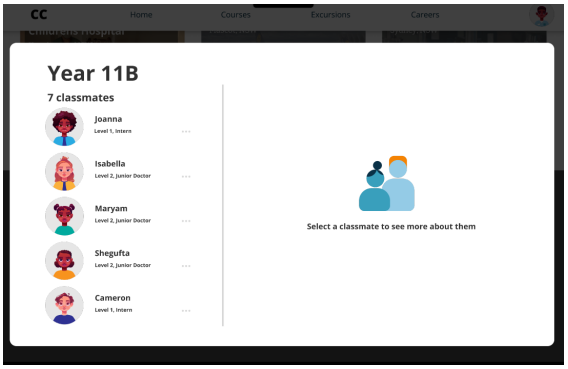
includes both self progress report and a classroom feature that allows users to also see the progression of other classmates.

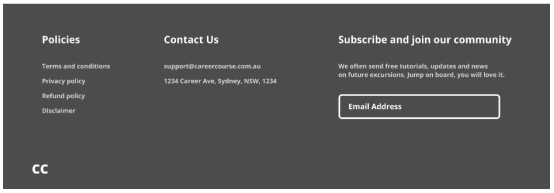












Deliver:

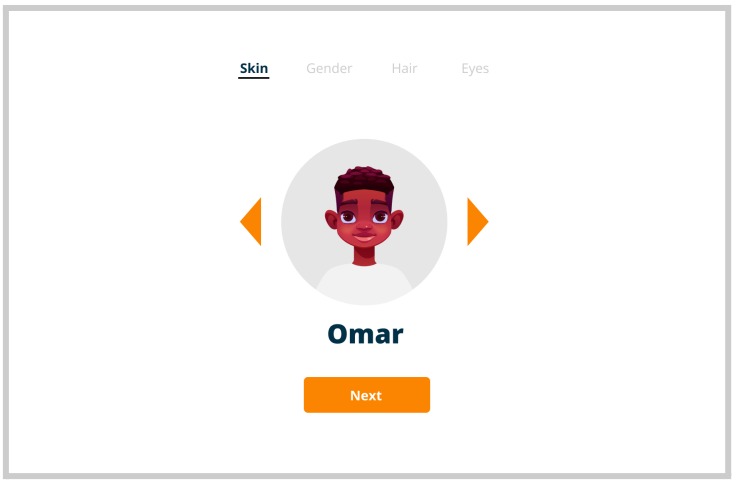
We created our final prototype - a minimum viable product of the CareerCourse application which aims to showcase its core features. The prototype was made on Figma which can't utilize a database and text inputs. As a result, we aimed for our prototype to showcase all the core functionalities, but use a dummy dataset throughout its usage.

Core Functionality

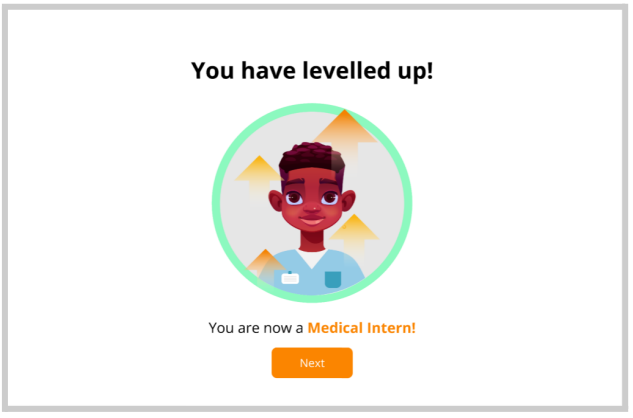
Functioning similar to many standard LMS platforms, including features such as course module system and classroom features, CareerCourse differentiate its main approach from other similar products with its core functionalities:

1. Avatar upskilling

Entering the platform, users would be able to customize an avatar that represents themselves. The purpose of the avatar is to not only reflect the growth the user has gained through leveling up in their subject courses, but also act as a representation of themselves in experiencing career outcomes through virtual excursion and character rankings/titles.



Once the user has settled with an avatar of their choice, their avatar would start from level one and requires the user to level up their avatar via the course material. With each lesson completed, the user would earn experience points accordingly. Once enough experience points are gained, the avatar would be leveling up with animation shown and received a new title according to the subject material they have completed.



The achieved levels are then tied with the unlock system of the virtual excursion, which would act as a reward system to motivate the user to better engage with the course material.

2. Virtual Excursions

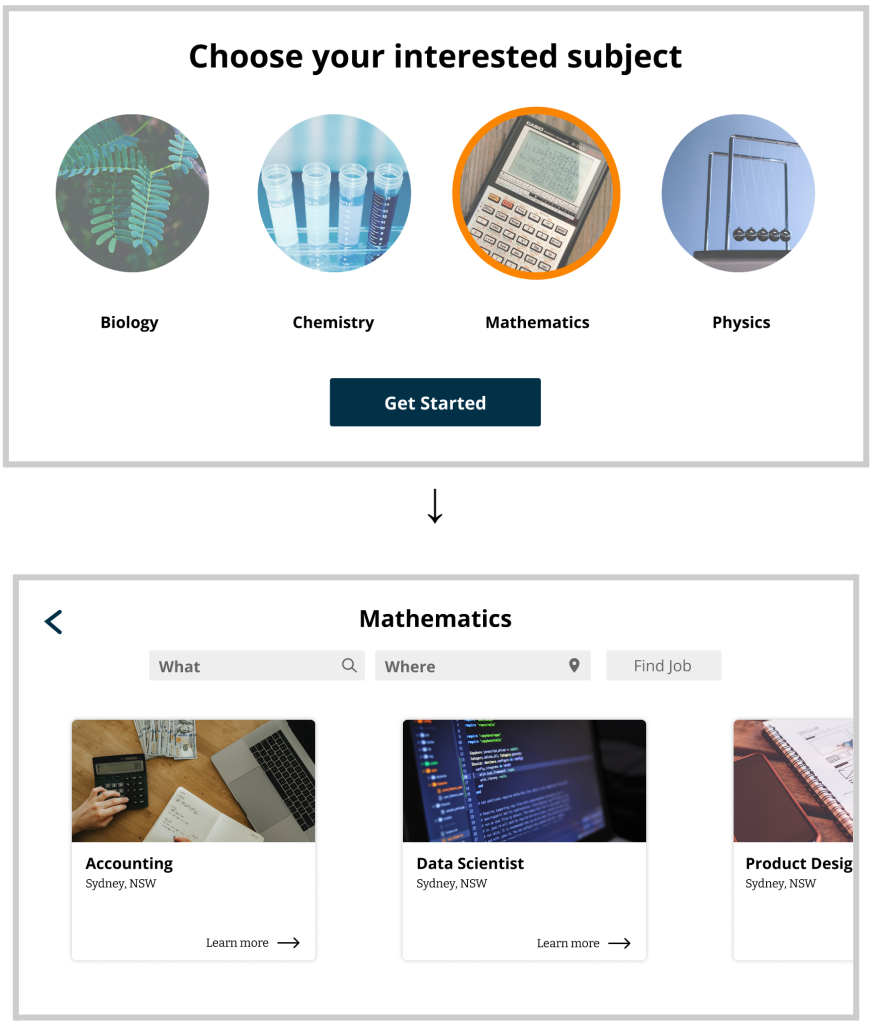
The Virtual Excursions provide the most value for students. These virtual experiences are what address our design goals directly, whereas the other functionalities revolve around this virtual experience.

In the virtual excursions, students receive a walkthrough of a site or facility from a professional. They take place in any location which involves STEM related products, services and careers, and are hosted by professionals themselves. Ideally, the excursion has a direct correlation with the theory and content covered in class so that students get to see the practicality and impact of what they're studying at school, achieving design goal 1.

3. Career Exploration

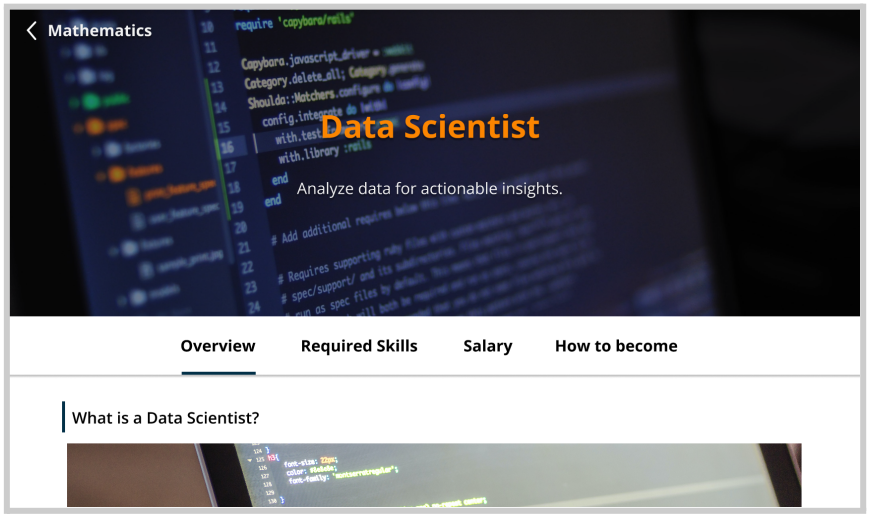
Career exploration is built upon the fundamental STEM subjects. Our platform aims to provide plenty of valuable information on future careers for rural students to acknowledge how these basic courses are highly relevant to their future careers, which would become their motivation to keep on emphasizing fundamental education. With the accessible multiple career description, users might be inspired by them and then turn their temporary learning goals into long-term goals throughout their life.

The user would choose his preferred subject to enter in. Our interfaces would present lists of cards horizontally with the titles and locations of each career for users to click on.



The detailed career page offers users enough information to browse. There are 4 main classes — Overview, Required Skills, Salary, and How To Become. Each subtitle would

directly show the necessary description for users to understand the significance of the career.



Hardware/Software requirements

Since we were designing for the rural context, many of which have limited or low-end technology, it was important for our concept to be able to run with limited hardware and software requirements.

CareerCourse is a simple web-based LMS, which requires only a PC with minimal computing power and an internet connection. The ideal experience is on a PC rather than a mobile phone. Access to budget laptops are quite common in the contemporary rural context in Australia.

Setup Instructions

As we developed our prototype based on Figma, the set up to our prototype would only require the Figma link to our prototype file. The design of our prototype was currently only aimed for computer screen usage, so it is also required that the prototype should be accessed through a laptop or PC to ensure the dimension presented remains as intended.

Known Issues

Number of career variations for avatars

One of the features of CareerCourse is the variation of careers available for the Avatars. Whilst the prototype shows an avatar progressing in their career as a medical student to a doctor, a future version would showcase different careers and pathways which the user could level up in.

Different subjects in school would add experience points to the different careers of Avatars. For example, Avatars would progress in their ‘doctor’ career when users complete biology or chemistry related careers, but not mathematics. Completing mathematics courses would however increase the experience of the engineering career pathway. This way, users can obtain a feeling of progression in different fields and careers, not just one.

Future Work/Versions

We intend for future works to include other unlockables besides virtual excursions. As virtual excursions are often done collectively as a class, in practice it would not be strange for students to all be at the same level or status. There is an issue here regarding variation between the avatars in a given classroom - everyone would hold the same status. A system of in game points gained with completing modules, and being able to expand those points for cosmetics or other features.

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