Classta

Studying Simplified

Classta

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Don't have an account? **Sign Up**
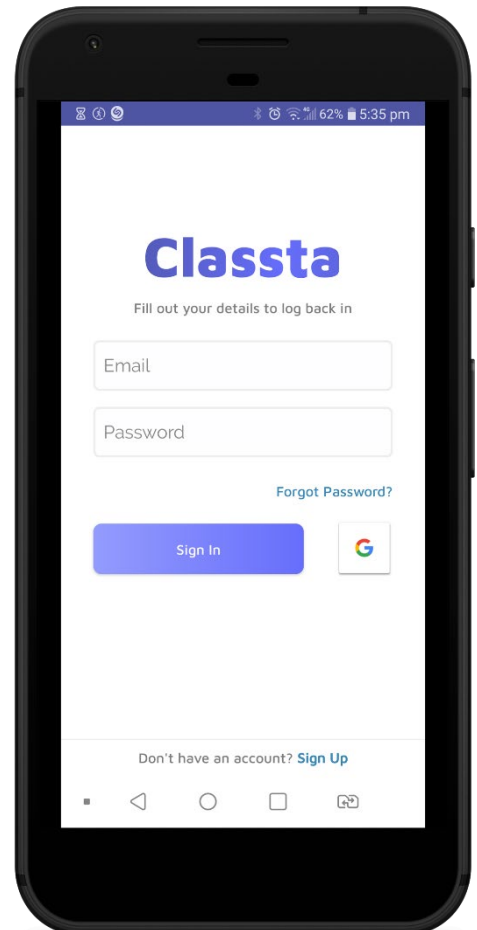
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Proposal and Management

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Introduction

Currently there are **next to no apps or websites** that **allow high school students in NSW** to meetup to **form study groups**.

Students who **form study groups** on average have a **3 times higher retention rate** than in their regular classes.

I have attempted to try and design a solution to help encourage greater educational outcomes in NSW High Schools.

My solution is to **design a mobile app** that is **free** and **easy to use** which allows students to **find others in their local area looking to study**, whom are interested/participate in the same subjects.

Additional Images
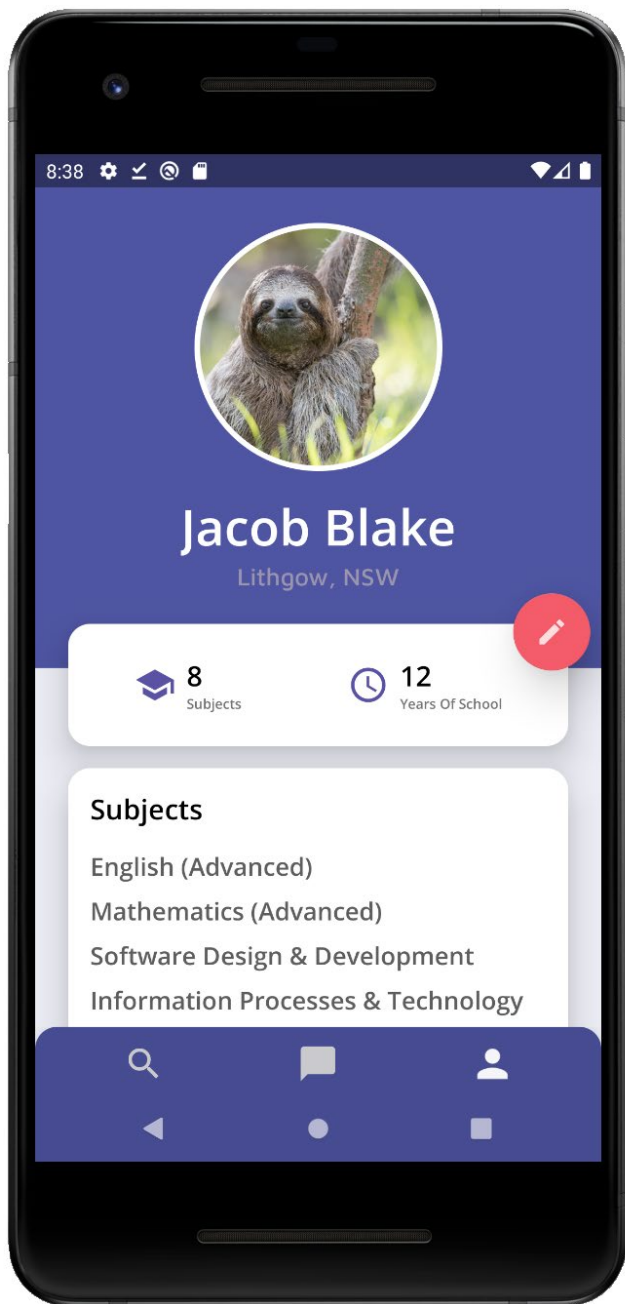
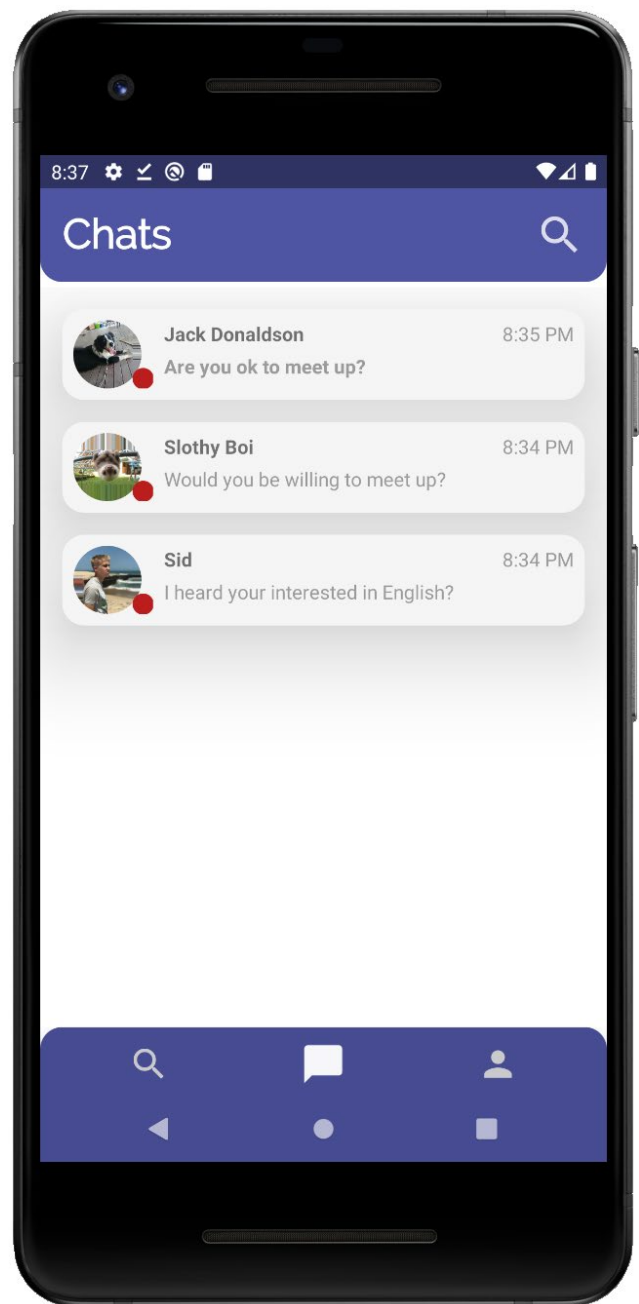The profile page which is shown when either viewing another person's or when viewing your own. It can be shown by either swiping right on the main menu which will show your profile. This allows editing it and changing any account details by simply pressing the 'Edit' button.

The main page a user is greeted with when logging in. It will show all of their current chats, sorted by the most recent message which is bold if it has not been read yet. Each user's picture will be shown with a circle indicating whether they are online. This list can also be searched if it gets too long.
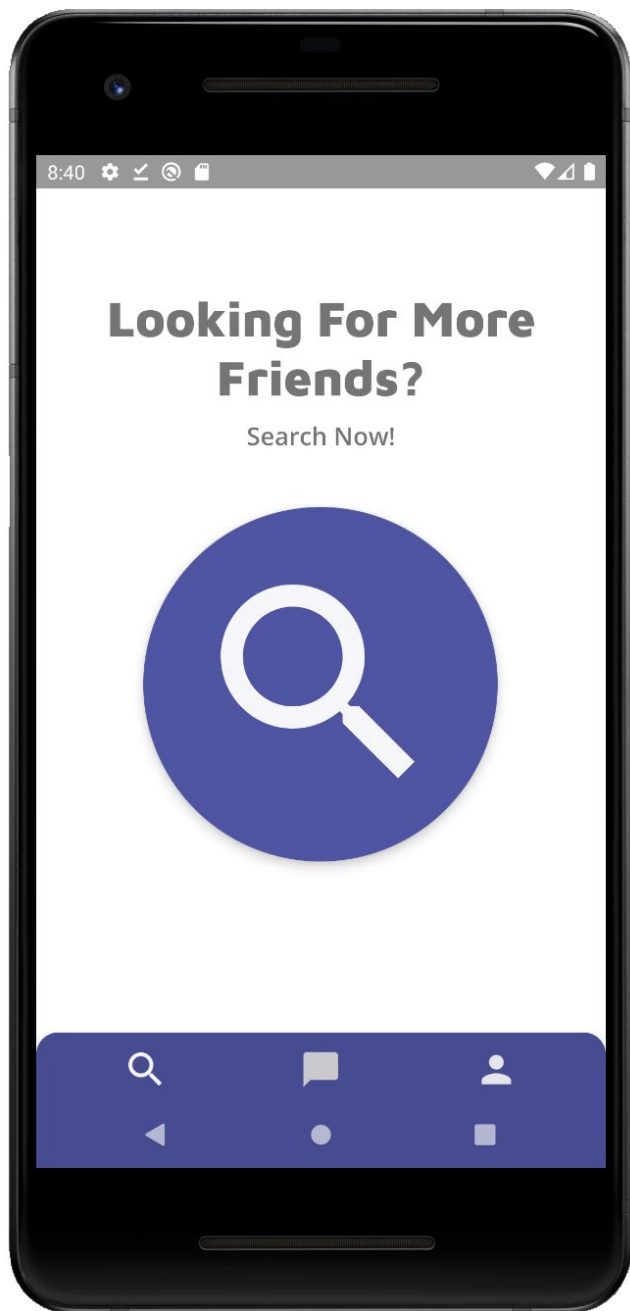
The search page for finding new friends in your local area, filtering by subjects, distance, age and schools. Viewed by swiping left or pressing the search button in the bottom navigation bar.
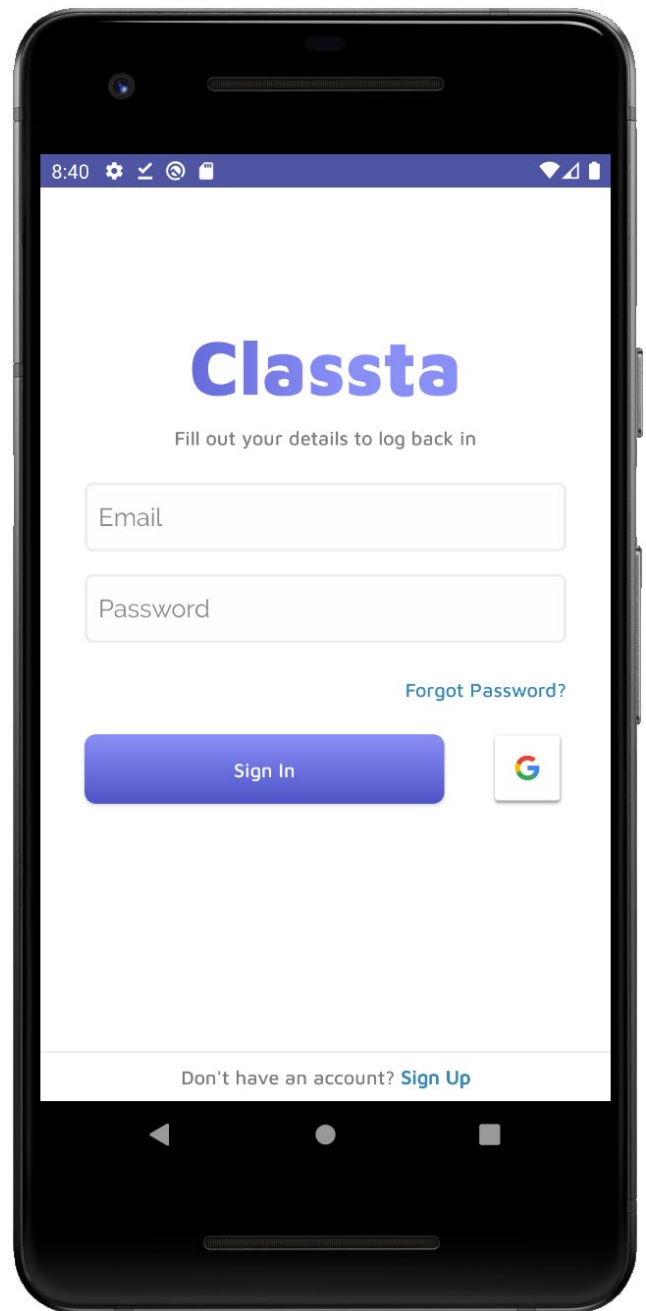
The login page which Is presented when first opening the app or if a user logs out. They can either sign in, press the sign-up button to register an account or reset their password with the relevant button. They can also login with their Google account if it is easier.

Additional Images
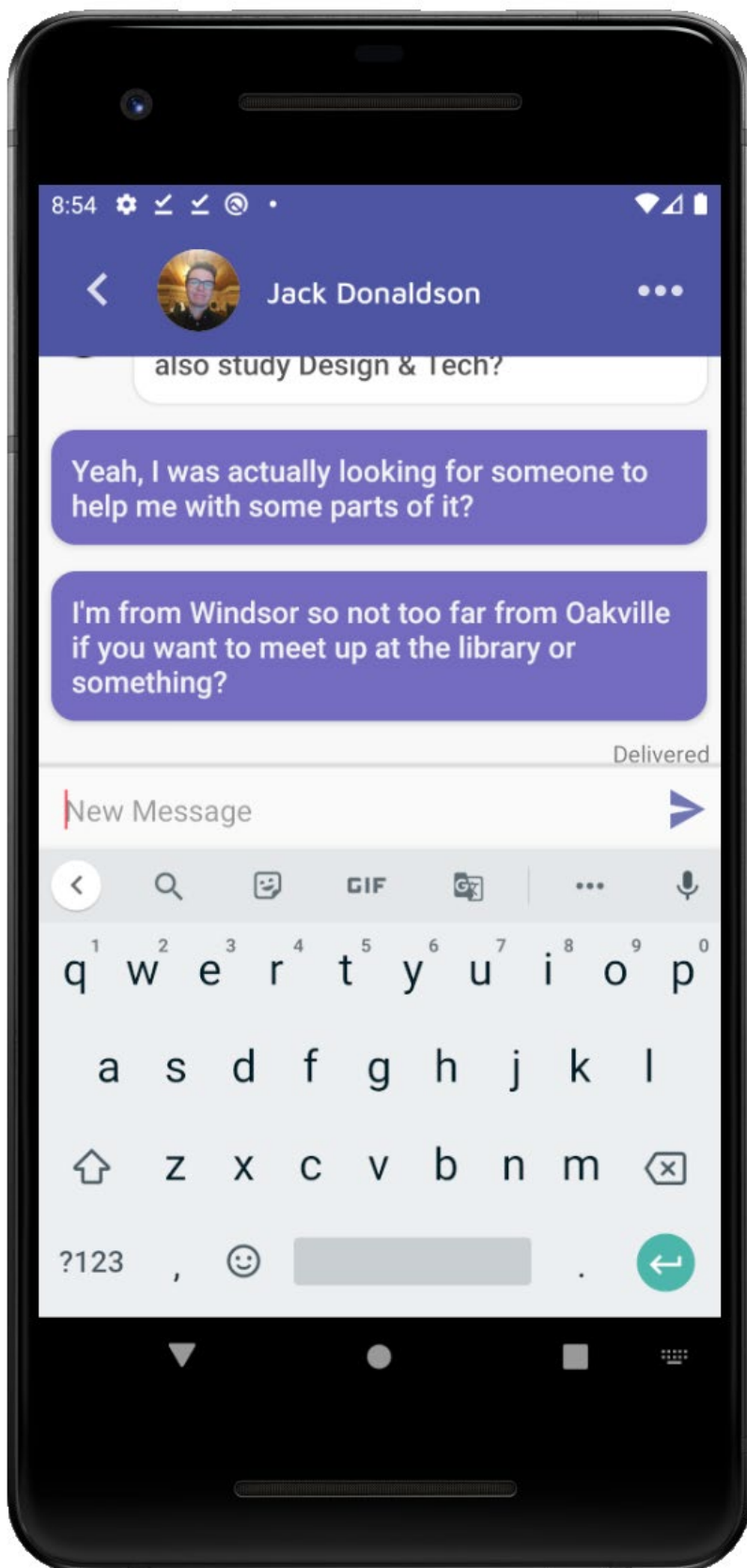
The chat page allows users to message other students who they are interested in meeting up with.
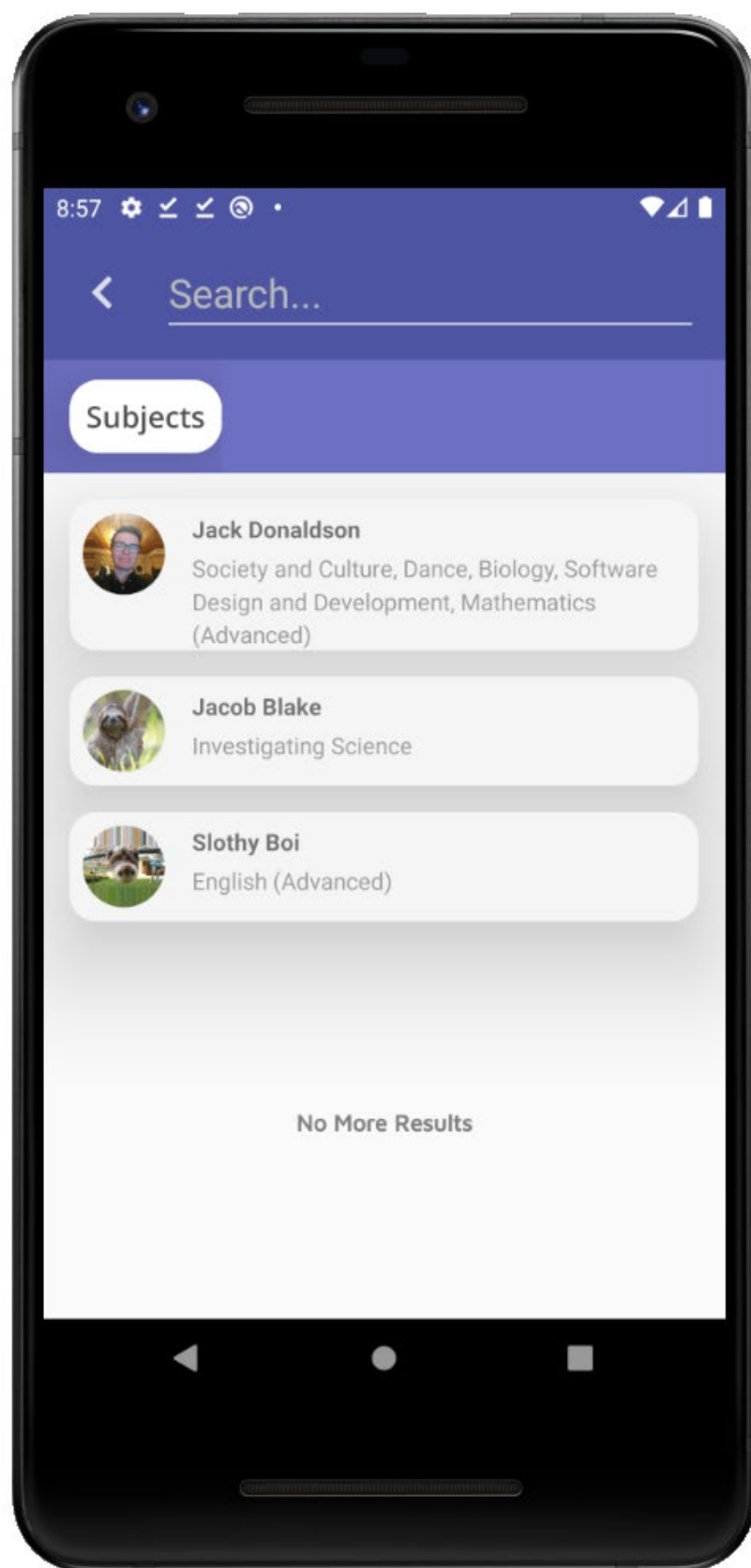
The user search page allows students to connect with other students. This can be achieved through searching them by their name or to filter the list by subjects specifically.

Identification of the Need

Design Situation

Australian students in both Primary School & High School are performing worse, with **educational averages on the decline**, particularly when compared to a multitude of OECD countries, including **coming 29th in an international PISA study for mathematical skills.**

According to an ABS Study, this has **been attributed to both an ageing curriculum** as well as a **lack of interest & competitiveness from students,** particularly in smaller schools. This disparity has become **more evident between suburban & rural schools** where students are often in smaller class sizes or forced to resort to Distance Learning for certain subjects meaning that they **often don't have anyone with similar interests or studying the same course to practise with**.
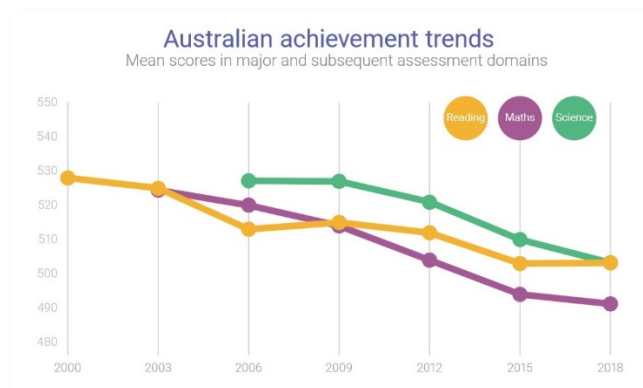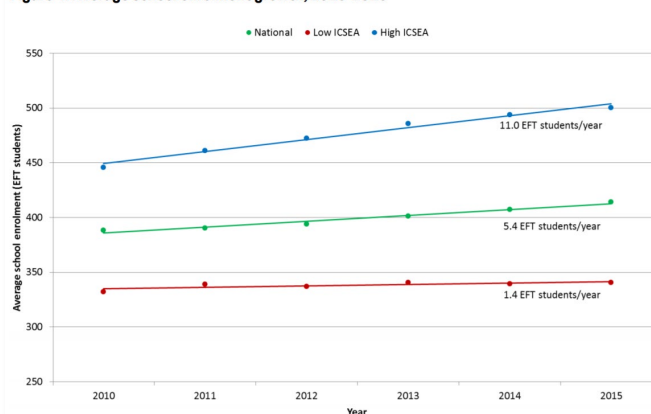

Benefits of Study Groups

Study groups allow likeminded students to meetup & learn together, testing each other & improving their learning outside of the classroom. A NSW Department of Education Survey found that students who form study groups **on average have a 3 times higher retention rate than or H in their regular classes.**
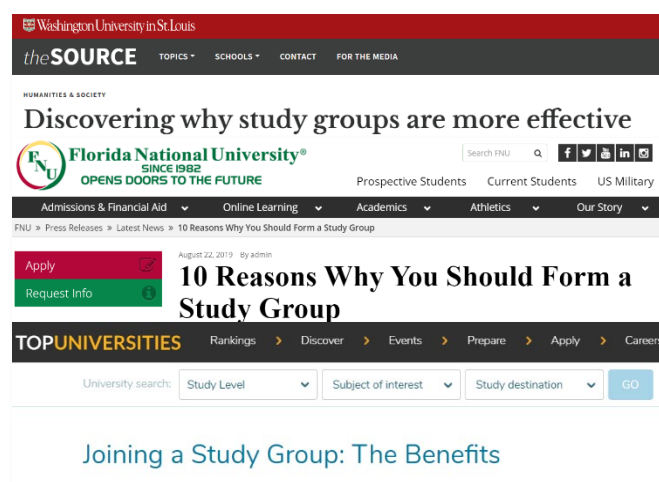
Study Groups are **most beneficial when students meet that are from different schools**, meaning they can share different notes & knowledge from competing schools, thus improving their results. However, the biggest barrier is often the fact that students looking to form study groups **do not have an easy way to find each other & meet up,** making these cross-school groups **very difficult.** Technological capabilities like Zoom, particularly in the current situation have fostered online study groups which are also beneficial & are not as restrictive in terms of having to be near each other but again, **finding others is the most difficult part** to forming these.

Design Brief

"Design and construct a mobile application that will help students looking to form study groups connect and find each other online."

I intend to design & construct **a mobile application** that students can download from an app store, similar to the Google Play Store allowing them to find local students in their area, with similar interests **in order to form study groups**. **I also plan to include a video,** promoting & explaining the product so that it can be used to encourage them to download it.

Purpose

The overall **purpose** of this project is **to facilitate the meeting of like-minded high school students** that are **looking to form study groups** to improve their overall education.

Motivation

My motivation for this project is personal as throughout my high school experience I have been focused & enjoyed technology related subjects but **have not had anyone at my school interested** as much as me. It was then **very difficult to find students** but after I did, I noticed **my enjoyment of school was significantly higher** & **so were my results**. It became quite apparent that this issue did not only exist for me but was quite prevalent across the state, particularly with more niche subjects, hence making me want to work on a project like this.

This project also caters perfectly to **my existing skillset of programming** as well as some experience in user interface design. Combined with my **technical ability** through my computer skills this should make for a project that embodies my passions. However, I still will have to learn new skills in order to fully realise this project, including a new programming language that is used to make Android apps. This motivation is further reiterated through **my passion for developing mobile applications & programs**, having done similar programs before. This project is also able to be completed **within the given timeframe** & at **no financial cost to me,** as such it a perfect final selection. Due to the digital nature of the project it also makes it quite easy to work on at school, home & wherever I am as long as I have access to the internet & a laptop.

Target Market

Age: **12-19**

Gender: **Any**

Occupation: **Student**

Location: **NSW, AU**

Income: **Low**

IT Skills: **Medium - High**

This is an **issue for students across Australia**, both **within High School & University**. As this encompasses a large demographic, I have chosen **to limit myself to just high school students** due to the **smaller number of potential subjects** available when compared to university courses. As a prototype I am also limiting myself to just NSW, however expanding it to allow other states courses should be relatively simple to do & if proven a success can be a future possibility.

It also should be relatively **easy to improve this design** so it can cater for University students **if this project is deemed a success at a high school level.** This expandability allows for an initial smaller proof of concept to be made & then **easily expanded later on**, meaning less resources are wasted if it is not proven to be successful.

Hence, the target market is mainly 12-19-year old's (High School Age) of any Gender. This means that I need to take care in insuring that the app is **inclusively designed to suit all users**, particularly some younger users by trying to ensure threats like **cyber bullying are minimised**. In addition, the student demographic generally has a low income meaning **that the cost associated with using the app/if any should be minimal** in order to ensure it is as accessible as possible.

EVALUATION

The choice to just start with NSW students meant that **I was able to finish & test the app a lot quicker** rather than having to implement features for both different states & university courses. Identifying any potential inclusivity & accessibility issues early on also meant that **I could plan the app around them** meaning **time was not wasted redesigning sections.**

This demographic should also be kept into consideration **when designing the promotional video** that will encourage them to download it. As such, the **language used will need to be appropriate** & reinforce the benefits of the app.

Poor Education Impact

Individual

An individual's education has an enormous impact on their life, particularly in the long term. For highly educated students, it can provide beneficial job opportunities & prospects, decrease the chances of mental health issues & increase an

individual's standard of living. On the opposite side, a poor education can severely limit a person's opportunities whether that be fundamental reading & writing or mathematical skills.

Society/Environment

The education of an individual has a large impact on the communities they live in, their family & the Australian society as a whole. **Often education is the one factor that allows an individual to pull their family out of poverty** & start intergenerational change, hence the high level of immigrant students coming to get a quality education. In addition, in regional or remote communities, **particularly with the Indigenous population an education is a rare occurrence & allows not only an individual's life to be more positive but also has a much broader aspect on their family & community**. Often regional students will travel for education & then come back to their towns, bringing their skills with them, encouraging others but also **reinvesting back into the community** whether that be through better job opportunities, spending or even by encouraging others.
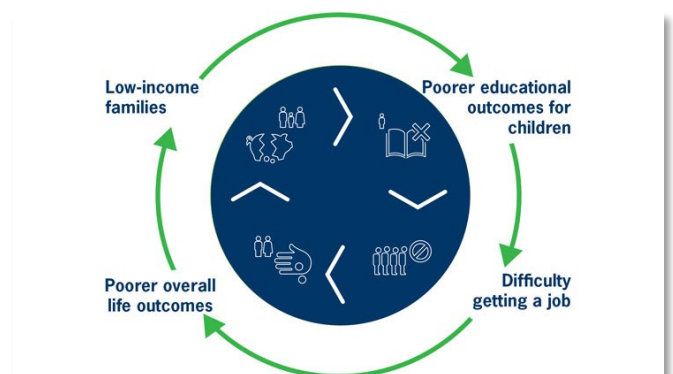
A more cohesive family unit & better education often brings with it a **deeper understanding of both the environment & any consequences that come with it.** This can be seen in my generation whereby Climate Change has become a topic in all NSW schools, educating children on their environment, something that was often neglected with previous generations.

Confirmation of Need

When trying to determine the best solution to this need, **I interviewed fellow high school classmates** as well as **sent out surveys to students at neighbouring schools.**

The surveys focused on **confirming there was a need for a solution** in other schools & **my situation was not just an outlier**. The interviews focused on **discussing potential solutions** that students would **find beneficial.**

Tyler a high school student in Year 12 helped **reaffirm this issue** when he described how he would feel about a study group app.

*"I would love to pursue a career in history but have **struggled to find motivation** as I am the **only one in my class**. I can see how Study Group software of some kind **would be beneficial** and **I certainly would use it.**"*

Nick a high school student in Year 11 had a similar response, particularly in regards to an app as at this stage I was still trying to gauge whether a website or desktop application might be best.

*"I feel like **an app would be easier** because everyone has phones plus it is **just simple to get and easy to download.**"*

When the surveys & interviewees were asked whether they would prefer a mobile app or website **89% agreed for a mobile app with 11% preferring a website**.
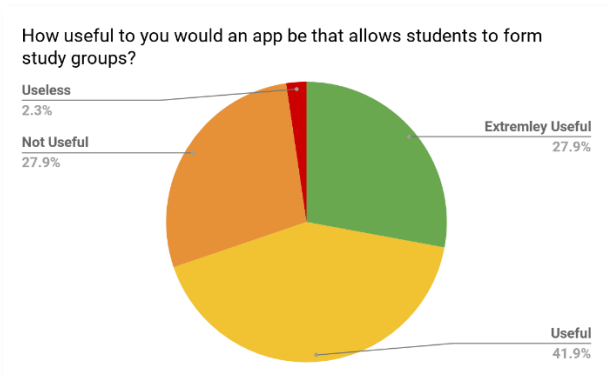
This was one of many responses whereby students felt that **this was not something they had ever thought about** before, but a lot would be **willing to try it**. This was further elaborated upon in the results from one of the survey questions sent out **to neighbouring schools**.

Other interesting insights from the surveys included the average amount of people that study groups should consist of.
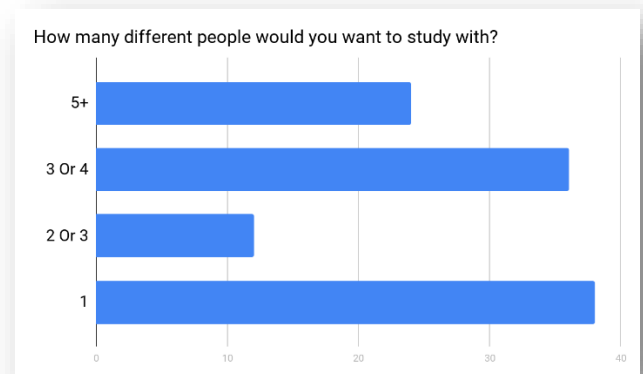
This showed that a **large number of people either wanted to study with one other person or 3 or more people**, with groups of 2 other people becoming an outlier.

> **EVAL**
> The interviews & surveys helped **reaffirm that students would be willing to try the app** & that this would be a good solution that they would use. **Ensuring that the need I perceived existed** was an incredibly important process.

Exploration of the Need

Point of the App

The main point of the app is to try **& increase the educational opportunities students have** by pairing them with other, nearby, dedicated students. Currently this educational trend is going in the wrong direction & **current solutions are not truly addressing the problems** & as such this product is **genuinely needed in the market** to try & help reverse this trend. The impacts education has on an individual, society & environment are very apparent & as such this is one of the **most important areas of concern to truly be addressed.**

Problem with Current Solutions

Currently, **there are not any available solutions that fit this niche market.** Existing ideas mostly revolve around **individual apps that lock your phone during school** hours or **remember your timetable**. The others focus on providing **study resources like flashcards & tips**.
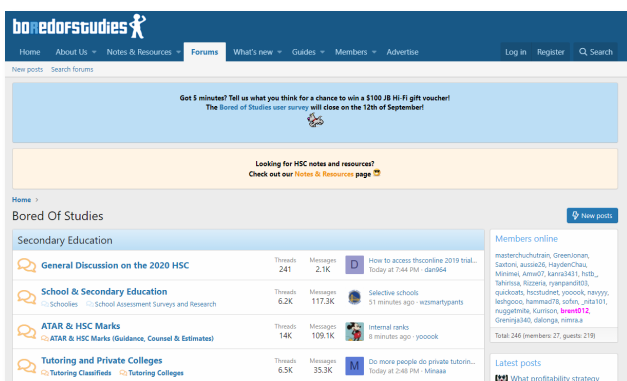
In regards to websites **the closest ones are dating** related or **HSC group forums** which are more **focused on providing study notes** rather than meeting up.
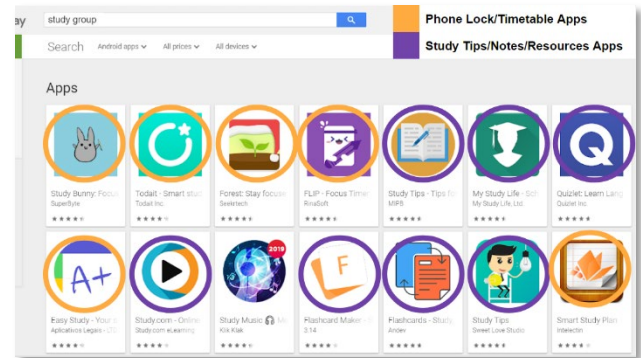
This can be seen when searching for study group apps on the Google Play Store which is one of the **most popular mobile app stores in the world**. Out of the top 14 results, **6 of the apps fall into the timetable/phone lock category** & **7 fall into the study tips/resources category**. This is one important way of determining that there is a **demand for study-related apps but** shows that **none have explored the niche** of connecting people to foster study groups specifically.

Areas of Investigation

Current Mobile Market

Method: Secondary Internet Research

I will investigate the current situation in regards to the **popularity of different mobile devices** & their operating systems in order to gain an understanding of the target market **in regards to devices & which to target**.

> **EVAL**
>
> I realised there are over **18 million smartphones in Australia** & that **91% of Australians have one.** The two most popular **run either Apple's OS or Android OS** by Google with the latter making it easier for student developers.

Aesthetics/UI Design

Method: Primary Expert Interviews & Secondary Internet Research

I will investigate the **current trends in mobile app UI design** & determine some potential **aesthetics that are popular**. In addition, I will be interviewing expert developers **about good design practises in today's market.**

> **EVAL**
>
> I found out that Apple & Google have **standardised elements** that they prefer their apps use in order to generate a consistent look across their platform. Additionally, experts **recommended a "flat style"** colour & design scheme.

Programming & Software

Method: Primary Interview Programmers & Secondary Book Research

I will interview some programmers including my technology teacher to **understand best practises when developing mobile applications** & to get an understanding of **what I will need to create the app**. In addition, I will borrow some programming textbooks on app development that will help me further understand.

> **EVAL**
>
> I learnt that I will need to **learn a programming language called Java which proved to be more difficult** than anticipated & as such **it meant that I couldn't learn Swift** as well which was needed to develop the app for Apple devices.

Costs

Method: Primary Interview Teachers & Secondary Internet Research

I am going to talk to teachers at my school who have taught Design & Technology in order to **understand how much I should be spending** so I can **define an appropriate budget**. In order to ensure I stick to it I will research any potential costs so I can forecast how much I will need, particularly in regards to software costs.

> **EVAL**
>
> I realised luckily that **developing an app for Android devices is free** as long as I have a computer. However, this type of app needed physical servers in order to allow messaging which ended up becoming an extra cost to bear. I determined that **$50 was an appropriate budget for this project.**

Safety

Method: Primary Interview Advice & Secondary Internet Research

In order to ensure that **I am safe when developing the project** I will research any concerns & discuss them with my teacher, in turn trying to minimise them. As it is an app I will mainly focus on that aspect & any Onguard requirements I may need.

Areas of Investigation

Licensing & Law Requirements

Method: **Secondary Internet & Book Research**

I need to understand how **licensing & distributing my app will work** & **what rights & responsibilities I have** as a software developer in order to maintain my app. I will also need to learn **what is needed to publish it legally on certain app stores.**

Research Plan

Surveys

I will be sending both digital & physical surveys to people **in my school & neighbouring schools** as well as to a **range of teachers in order to determine the needs of my target market**.

Interviews

I will be interviewing a few **teachers to determine an appropriate budget, safety measures & any recommendations for software or hardware**. I will also interview some programmers & UI designers I have met regarding UI design & aesthetics as well as potential costs I should expect. **I will also interview some students to determine the needs of the target marke**t & what **mobile devices they are using.**

Expert Consultation

I will **interview & discuss any aesthetic/UI design** requirements as well as **potential software** with relevant experts including **programmers, UI designers & project managers.**

Internet Research

I will be **utilising articles, tutorials, guides & research papers available online** to determine licensing & law requirements for my app by visiting sites like Googles developer page. In order to learn any **potential software or programming languages I may need I will also research online tutorials** & watch those if needed. In addition, **researching any prices of current software** will be conducted to help determine a possible budget.

Books

I will be **visiting both my school & local council library** in order to **gather books on programming & app development** as well as applicable laws in order to prepare myself with the relevant information.

Design Parameters

Aesthetics/Design Trends

As with all designs the market has design trends & will not use a product if it does not meet their criteria. Often aesthetics coincides with these trends & is a good way to differentiate a product from its competition. This means my project will have to be visually appealing & stand out when compared to other solutions. As aesthetics are the first thing a customer sees it often will coincide with "perceived" quality & as such making the app visually appealing is one of the most important design parameters.

Skills

Although I do have some technical background, I still am not an expert in all of the areas I need to be, particularly in regards to app development. This means that I will need to spend a significant amount of time reading & learning these new skills before I can even start making my project & as such this will limit what I can produce, making me allocate time towards training. As part of this learning I will need to make sure I make good use of my time & plan to learn only the things I need & to not waste time in order to quickly move onto app development.

Size

The size of my project will need to be something I consider because app development can take a significant amount of time with most apps often having large development teams behind them, for example Facebook has over 2500 developers & still takes months to release updates. Combined with the expectation for a viable & professional product I will have to limit myself & stick to my time & action plan in order to finish.

Time

I will need to ensure that I manage my time appropriately throughout the entirety of the project to ensure it is completed on time with the help of time & action plans. If I end up getting behind it could have a compounding effect & make it very difficult to catch up to where I should be in order to have it finished on time, particularly given I have just under a year to complete the project. I must also make sure to balance my time evenly between the project creation & portfolio creation as well as making sure I do not impact on my other subjects.

Cost

A budget will be needed to ensure that I minimise my expenses & only pay for what I need to finish the project to ensure that the costs don't blowout. Most of my costs will come from software when developing the project as well as any computers I need to program on & any equipment required to record the video. I will need to make sure that I investigate alternatives for different products, including software so that I choose ones which are within my budgetary requirements & evaluate the costs accordingly.

EVAL Due to the **large amount of potential limitations** on this project **I will need to sure all of them are managed properly** which will **be important for producing a successful product.**

Criteria for Success

A criteria for success allows me to have a list of elements to **help determine the ultimate success of the project** as well as to help centre my development around the key components my app needs. These are **categorised by importance** in order to help me prioritise parts of the product that are more beneficial.

Appropriateness

Priority: High

The design solution must be investigated to ensure it is **innovative** and has a **high degree of difference compared to existing solutions**. In this case the app needs to have a relevant design and **be appropriate for a modern 21st Century society** and **socially accepted** as well as environmentally conscious both in the materials it uses as well as its lifecycle.

Evaluation Criteria

- Innovative product compared to existing solutions
- Feasible for high school students to use in NSW
- Has a high degree of difference
- Environmentally appropriate & conscious

Quality

Priority: Medium

The application **should always work** because once the application has been downloaded it is difficult to update as they are not automatic on most devices, **thus a user could have a broken app** if a quality standard is not met. **I need to ensure that my design is reliable by repeatedly testing it,** not just on my own devices but on others with various screen sizes as well as internet connection speeds. Although working on lots of devices and scenarios is important, **this is very time consuming** and may

not provide as many benefits as other criteria like functionality, **hence a medium priority.**

Evaluation Criteria

- Needs to be thoroughly tested & work on different devices
- Programmed to a high standard to ensure no security issues are found
- Should not need continuous updates and work 24/7 without interruption or downtime

Functionality

Priority: High

Similar to appropriateness and quality, the app needs to fulfil its purpose, allowing users to meet each other online and create study groups. Without this, there would be no point in the design. The design must perform its intended function; **thus, it needs to function for each student**. **Any prototypes must also represent the final design** for me to **allow users to test**, thus the prototypes must also function as intended. The final design **must be able to allow multiple people to meet online and message to form study groups** in a fun and easy manner. It must also function in various scenarios including regional and remote communities as well as on a variety of devices.

Evaluation Criteria

- Must allow users to connect and meet each other
- Users should be able to create accounts and enter relevant personal details
- Users should be able to search for similar people in their local area and message them
- The app should work on all devices and in regional and remote NSW communities as well as metropolitan areas

Cost

Priority: Low

Cost is a criteria that I am going to try and meet and hence stay within my $50 budget. However, I am fairly negotiable and if need be then I can go over it, particularly considering other criteria are much more important. However, most **educational apps are free** and as such this product **to be viable needs to be free** of charge as well. Solutions to receive compensation could mean **implementing advertisements or blocking certain features behind an in-app purchase**, similar to other educational apps. Additionally, I will need to make sure to plan my finances and choose my purchases wisely, particularly in relation to software by looking at alternatives that may be cheaper. This includes minimising my potential monthly server expenses which are needed to store all user information and are charged monthly.

Evaluation Criteria

- Be within my $50 budget
- App should be free for all users
- Minimise monthly server expenses, potentially through in-app advertisements

Meets Market Needs

Priority: Medium

The needs outlined in the **exploration of need and investigation need to be fulfilled** otherwise the app **would not be considered a success**. This includes ensuring it functions properly, is accessible in both rural and remote areas as well as stays within budget and works on most modern devices. Inclusivity and accessibility are also another key feature that should be implemented if possible, however some of these needs aren't as high a priority and as such **this is a medium criteria overall.**

Evaluation Criteria

- Works in Rural, Regional & Metropolitan Areas
- Is inclusive and accessible to as many people as possible
- Has the ability to expand into other states courses and for university courses to be added
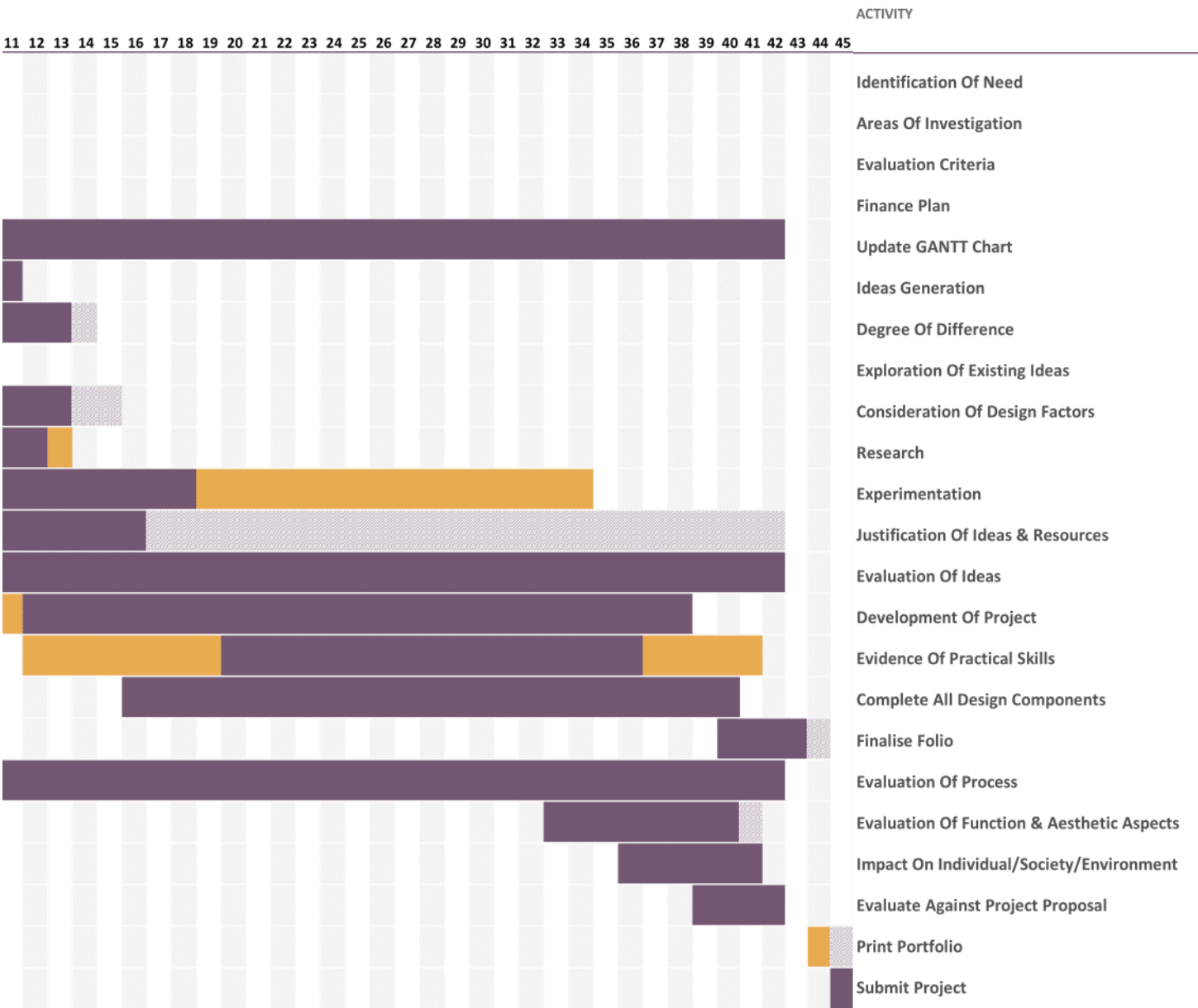- Works on most modern devices

EVAL I will need to **make sure I stick to the priorities of each of the individual criteria** in order to **focus on what matters most** in this project and ensuring it is able to be completed in time.

Time Plan

ACTIVITY	PLAN START	PLAN DURATION	ACTUAL START	ACTUAL DURATION	PERCENT COMPLETE	
						1 2 3 4 5 6 7 8 9 10
Identification Of Need	1	2	2	2	100%	
Areas Of Investigation	1	3	3	2	100%	
Evaluation Criteria	3	2	3	2	100%	
Finance Plan	3	3	4	3	100%	
Update GANTT Chart	1	42	2	41	100%	
Ideas Generation	4	8	3	9	100%	
Degree Of Difference	9	6	5	9	100%	
Exploration Of Existing Ideas	4	5	3	7	100%	
Consideration Of Design Factors	7	9	6	8	100%	
Research	5	8	1	13	100%	
Experimentation	10	9	5	30	100%	
Justification Of Ideas & Resources	8	35	7	10	100%	
Evaluation Of Ideas	4	39	3	40	100%	
Development Of Project	12	27	10	29	100%	
Evidence Of Practical Skills	20	17	12	30	100%	
Complete All Design Components	16	25	16	25	100%	
Finalise Folio	40	5	40	4	100%	
Evaluation Of Process	1	42	5	38	100%	
Evaluation Of Function & Aesthetic Aspects	33	9	33	8	100%	
Impact On Individual/Society/Environment	36	6	36	6	100%	
Evaluate Against Project Proposal	39	4	39	4	100%	
Print Portfolio	45	1	44	1	100%	
Submit Project	45	1	45	1	100%	

EVAL Making the GANTT Chart means that I can plan all of my tasks ahead of time and mark them off as completed, in my case I can update them with a completed percent regularly and visually see the updates in Excel. This means I can see how far ahead or behind I am and adjust my speed accordingly, i.e. if I am ahead, I can focus on improving the app a bit more then I otherwise would have.

Gantt chart

Timeline (weeks): 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

ACTIVITY

- Identification Of Need
- Areas Of Investigation
- Evaluation Criteria
- Finance Plan
- Update GANTT Chart
- Ideas Generation
- Degree Of Difference
- Exploration Of Existing Ideas
- Consideration Of Design Factors
- Research
- Experimentation
- Justification Of Ideas & Resources
- Evaluation Of Ideas
- Development Of Project
- Evidence Of Practical Skills
- Complete All Design Components
- Finalise Folio
- Evaluation Of Process
- Evaluation Of Function & Aesthetic Aspects
- Impact On Individual/Society/Environment
- Evaluate Against Project Proposal
- Print Portfolio
- Submit Project

Key: Plan Duration | Actual Start | % Complete | Actual (beyond plan) | % Complete (beyond plan)

Action Plan

Research Design Situation & Explore Need

Goals:

- Qualitatively and quantitatively analyse the current education market and determine potential problems, issues or needs that may arise.
- Identify any impacts both on the individual, society & environment that this situation may have.
- Highlight the important study groups can have on increasing a student's educational outcomes.

Research & Construct Design Brief

Goals:

- Determine an appropriate design brief from the identified need.
- Outline any motivations and my purpose for creating the solution.
- Provide context & terminology to support any areas of the design brief that are complex.
- Summarise the target market and any potential demographics that have the greatest need.

EVAL Ensuring that I spend a significant amount of time on the Project Proposal should minimise the chances of building a poor product as I am trying to research potential issues & solutions to future problems.

Areas of Investigation

Goals:

- Create a detailed list of potential areas that the project may impact and any issues arising from them. Also determine appropriate methods to explore these areas.
- Display the collected information in a logical format that is summarised.
- Evaluate the different elements considered and how they will help the solutions development.

Limitations Parameters & Possibilities

Goals:

- Explore any potential limitations or parameters that could affect the project and discuss their impact.
- Evaluate strategies to minimise the impact that these parameters may have.

Create a Criteria to Evaluate Success

Goals:

- Create a list of all aspects that the design requires for it to be considered a success. This criteria will need to be measurable & relevant as well as determine by analysing the results of the earlier investigations.
- Prioritise the different aspects using High, Medium & Low in order to maximise the chance the most impactful criteria are met.
- Determine a way to measure & evaluate these criteria.

Produce a Time Plan

Goals:

- Make a Gantt chart which outline the required steps in order to complete the MDP.
- Allocate time accordingly to each goal to ensure the MDP is viable within the given time period.
- Track the progress of each task and contrast actual time to the proposed time plan.

Create an Action Plan

Goals:

- Make a plan that breaks each task down and analyses them in depth, depicting what is required at each stage of the design process.
- Include evaluations to determine if the tasks were completed up to standard.

Produce a Finance Plan

Goals:

- Create a plan which identifies the key areas for spending and identify and predicted costs.
- Propose a final cost for the project and contrast with actual cost whilst drawing conclusions during an evaluation.
- Investigate any potential areas for unpredicted costs and factor them into the proposed budget.

Analyse Existing Designs

Goals:

- Research existing designs and evaluate the differences between current solutions.
- Evaluate each existing solution in terms of its positives, negatives & interesting features. Look into how the target market has responded to the solution.
- Compare the existing solutions to my proposed MDP idea.

Idea Generation & Degree of difference

Goals:

- Come up with potential designs ideas demonstrating creativity through the use of designs, sketches and models.
- Evaluate each idea against each other and the ability to meet the criteria for success.
- Determine how different the proposed solutions are from existing ideas. Evaluate which solution is best and if the proposed is viable.

Relevant Design Factors

Goals:

- Critically analyse important design factors that will contribute to the success of my design including safety, quality, ergonomics & function.
- Evaluate how these design factors will need to be addressed in potential solutions.

Action Plan

Design Solution Research, Testing & Justification

Goals:

- Summarise the variety of methods used from the research plan in order to assist with the development of a design solution.
- Acknowledge and discuss any research results and their sources.
- Experiment and test a variation of ideas using tools and techniques that are relevant.
- Evaluate which solution has been chosen, utilising research and testing, illustrating how it has impacted my decision.
- Identify and justify any resources or ideas that will need to be used in the MDP.
- Evaluate the success of any testing and research.

Communication & Visual Techniques

Goals:

- Explore a range of communication & visual techniques that I will use in my MDP to help illustrate my project ideas.

- Discuss techniques in relation to the folio, MDP & promotional video.
- Evaluate the feasibility & success of the techniques.

Evidence of Practical Skills

Goals:

- Demonstrate all of the practical skills that I have needed throughout the project as well as any that were learnt throughout.
- Evaluate whether these skills were needed and how they have been applied.

Application of Evaluation Procedures

Goals:

- Record the different changes that were made throughout the project & evaluate them.
- Ensure that all sections of my folio that are undergoing constant evaluation are well documented.

Evaluation of Functional & Aesthetic Aspect

Goals:

- Critically evaluate the functional and aesthetic aspects of the MDP in relation to the Criteria for Success.

Final Evaluation with Respect to the Impact

- Research and determine quantifiable measurements illustrating the impact the project has had on the target market.
- Focus the impact report through the individual, societal & environmental lenses.
- Evaluate the success of the project in relation to the impact & any potential implications that could/have occurred.

Relationship of Final Product to Proposal

Goals:

- Evaluate the relationship of the MDP to the criteria for success identified in the project proposal utilising a variety of self & peer evaluations.
- Determine the overall impact the project has had through both a personal lens but also by asking a peer. Also get the perspective of a professional like a software developer or teacher to determine how successful they believe their project to be.
- Weigh up the results from all three areas and come to a conclusion as to the success of the project.

EVAL

Utilising a time plan will mean that I have a detailed list of what I need to do in turn maximising the chances of a high standard product being made.

Finance Plan

When designing this project I had to keep in mind my budget, particularly as I was aiming to make this application **as cheaply as possible**. As such I have tried to still make a quality product whilst spending under **$50**.

I believe this should be feasible as creating a mobile app **doesn't require any physical materials** to create copies of the product. The only requirements being a computer to develop on and a phone to test it, even then a phone wasn't necessary as there are emulators for computers. As I already owned a computer and a phone I didn't have to purchase these items even though I was using them to develop my app.

Budget: $50

However, my research with experts determined that I should use Google Firebase, a server hosting solution developed by Google. This will be required as the app needed a database to manage logins & user profiles, i.e. somewhere to store the information. However, Firebase is free to develop on as long as I have a small number of users. When developing the solution I will have to keep this in mind to prevent any unwanted charges.

Item	Estimated Cost	Actual Cost
Desktop Computer	$1500	Already Own
Android Studio	Free	Free
Android Developer License	$25.00 USD	$31.34 AUD
Laptop Computer	$1100	Already Own
Firebase Services	Free (with usage limits)	$1.50 (Went over usage limits)
Windows License	$100	Already Own
Printing	$0.10 per Page	Free At School
Microsoft Word	$13/month	Already Own
Total Cost:	$25	$32.84

Products	Spark Plan Generous limits for hobbyists Free	Flame Plan Predictable pricing for growing apps $25/month	Blaze Plan Calculate pricing for apps at scale Pay as you go
Analytics, App Indexing, Dynamic Links, Invites, Remote Config, Cloud Messaging, Authentication, and Crash Reporting.	✓ Included	✓ Included	✓ Included
Realtime Database			
Simultaneous connections	100	Unlimited	Unlimited
GB stored	1GB	2.5GB	$5/GB
GB downloaded	10GB/month	20GB/month	$1/GB
Automated backups	✗	✗	✓

HP ENVY x360 - 15-bp108tx 15.6" 2-in-1 Laptop- Intel Core i7/512GB SSD/16GB RAM/Windows 10-3AP22PA

Renewd Warranty: 90 day Warranty - Free
Shipping: Standard Shipping 5-10 Business Days – Free

~~$1,299.00~~
$1,099.00

🏷 VIP200 (-$200.00)

Shipping
Standard Shipping 5-10 Business Days – Free   **FREE**

Subtotal	$1,099.00
Shipping	FREE

Total
Including $99.91 in taxes   AUD **$1,099.00**

Developer Registration Fee

$25.00

DATE	TIME
Friday, May 29	6:56 PM

Quantity	Item	Price (USD)
1	Developer Registration Fee	$22.73
	Subtotal	$22.73
	GST	$2.27
	Total	$25.00

EVAL

Planning and predicting my costs in a budget is important to ensure that I do not go over budget with my folio & I have enough money in order to be able to complete it properly.

Exploration of Existing Ideas

In order to demonstrate a creative and unique design I have decided to **analyse some existing solutions for inspiration,** looking at their features including aesthetics, functionality, quality & fulfilment of a need will help me learn what to & to not do. Although **there aren't many solutions exactly like mine,** there are some that try to encourage students to study.

AceHSC Website

AceHSC is a website that has a variety of services it offers to HSC students to **help encourage communication and sharing of resources** for a variety of subjects. This website also provides services for posting quizzes, accessing tutoring and writes articles **targeted towards HSC Students.**

Essentially this not for profit site **aims to educate students and improve their results by giving, free, equitable access towards everyone**.

PMI

+ Visually appealing with the Purple Colour Scheme
+ Allows students to download relevant resources, sorted by subjects and year groups
+ All accessible for free over the internet, i.e. **no cost**
− Not suitable for finding other people
− Doesn't have a mobile app
− Only supports NSW & ACT Students
* That they chose to spend time writing HSC Articles
* No cut is taken from the tutoring
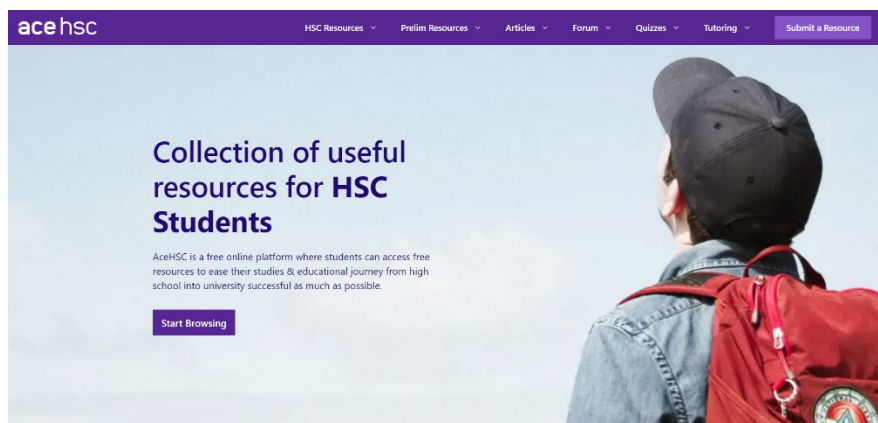
EVAL

Analysing existing solutions helped enhance my creativity as **I was inspired by these existing solutions to make something better**, combining all of their good qualities.

I chose to investigate this website because like my MDP, it will be aiming to help High School Students.
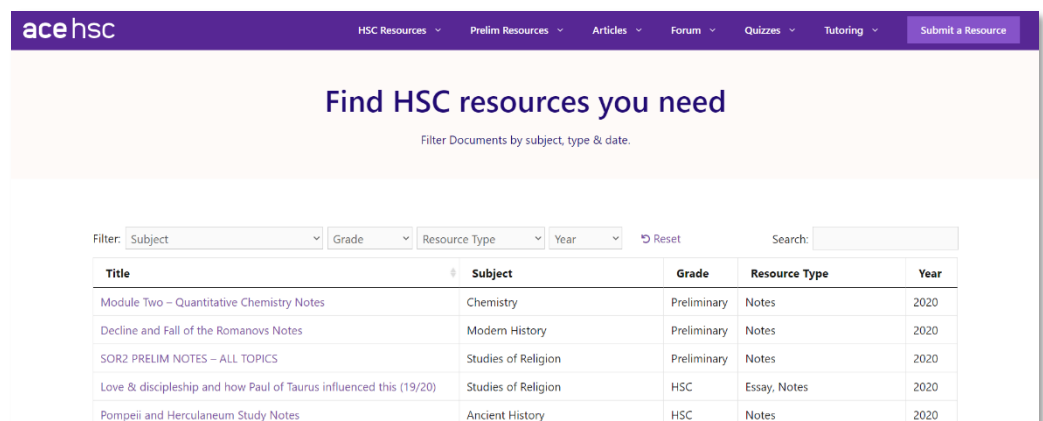
HSC4ME App

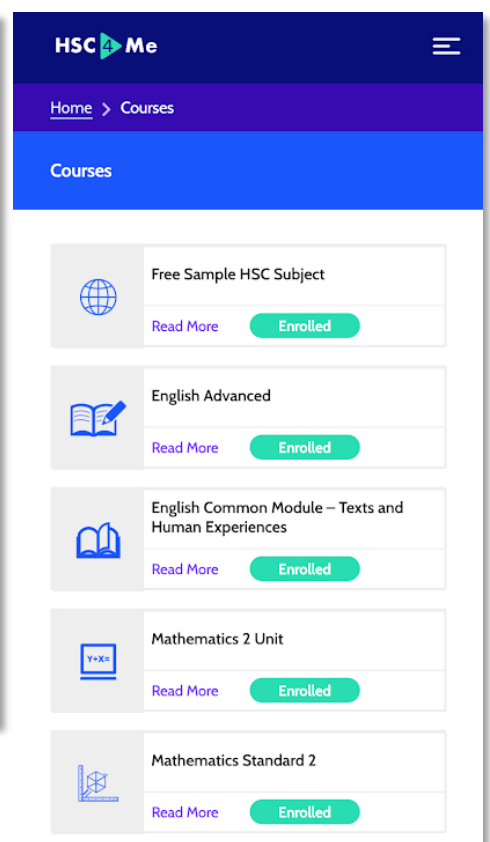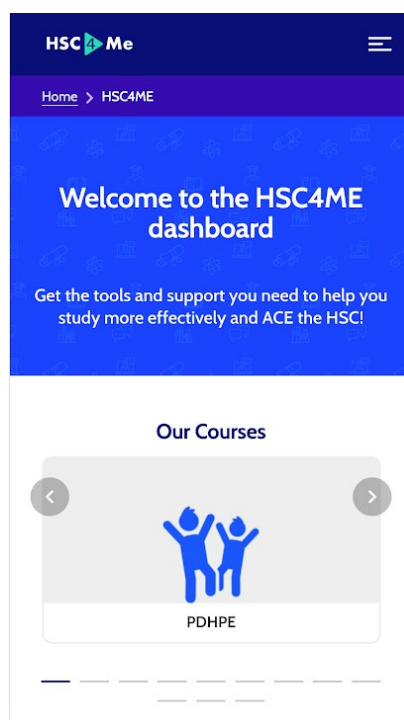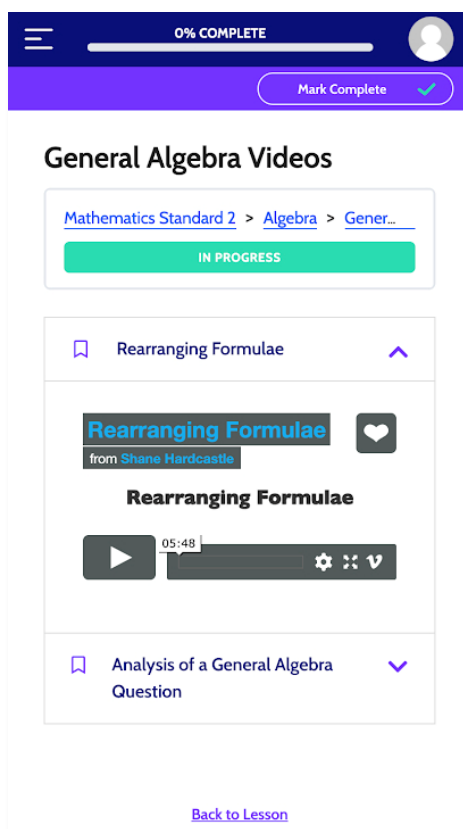HSC4ME is a company that develops tools and resources for HSC students to use **including both an App and Website.** This app contains useful information and links to resources as well as full syllabus outlines and study notes inside of the app. However, **this costs the students** and any "Premium" features will **require a monthly subscription** making it inaccessible otherwise.

This app utilises the same design across both Android & IOS, **utilising a stark, contrasting colour scheme which is full of vibrant colours**. This type of application generally is **most beneficial to students who are willing to or have parents willing to spend money** in order to access quality content whilst delivering a higher quality than that of most free options.

PMI

+ Allows students to download resources relevant to their subjects and year groups
+ Supports Students all across Australia
− Not a fan of the colour scheme, too much contrast and doesn't work well together
− Certain **features require money**
− Only supports NSW & ACT Students
* That they have both an App & Website at the same time.

EVAL

Using a PMI chart when analysing each existing solution allows me **to easily examine both the flaws and advantages of current solutions** so I **know what to avoid/use** when designing mine.

Mindmap

Before I moved into sketching my ideas I first brainstormed ideas using a mind map as a visual organiser which **allowed me to layout all of the things that I need to consider when developing an idea.** These include aesthetic features like colours as well as functional & usability features like text placement & size. In addition **legal consideration needs to be considered in regards to copyrighted content** that other users have

uploaded as well as **privacy** of stored user information. In need to make sure to **consider the platform I'm developing for and any standards that come with that** as well as things like Gestures & touch screen support which will be used for navigation.
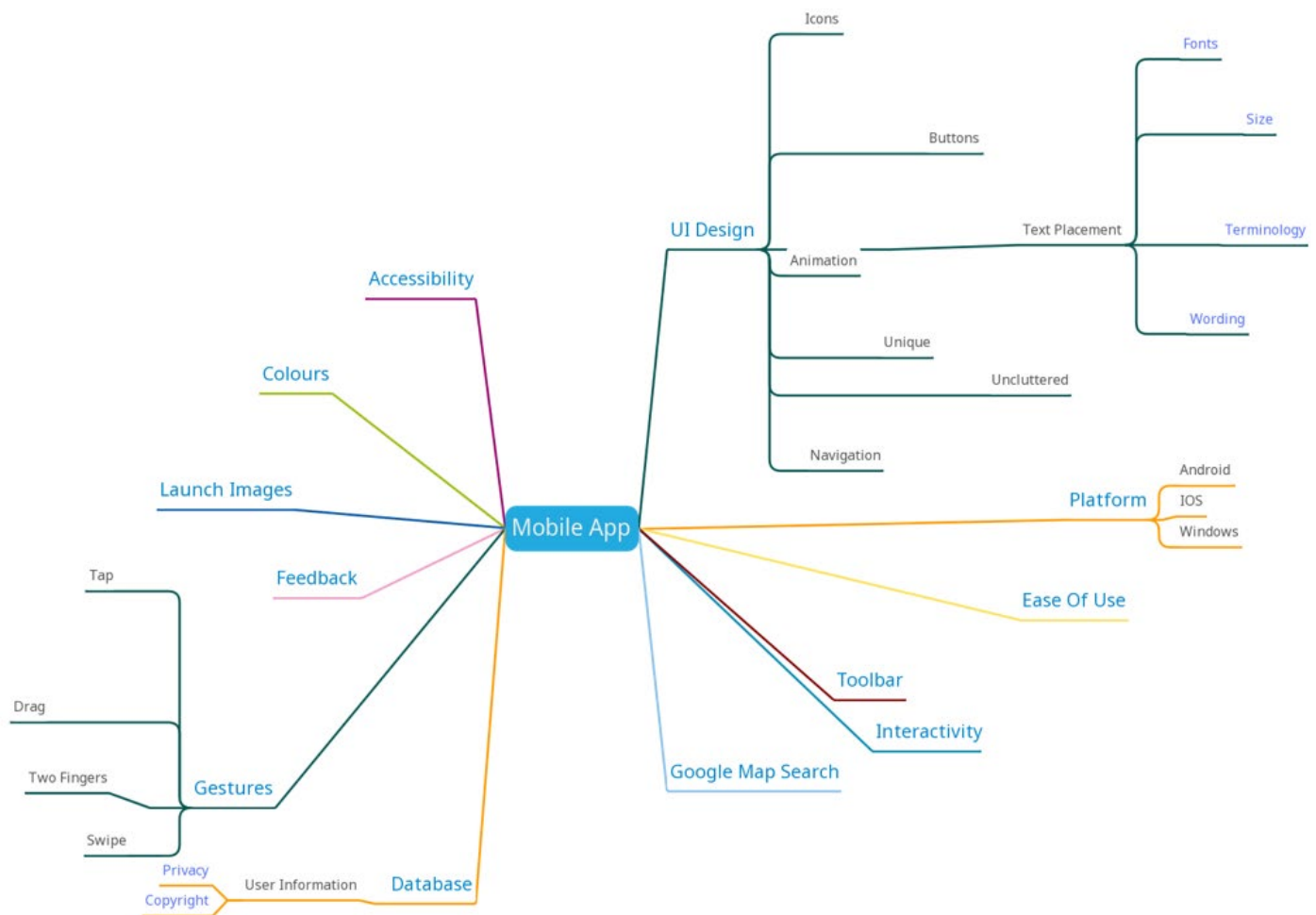
EVAL

Utilising design tools like a mind map & collage allow me to **explore my creativity** and to **generate potential ideas that I otherwise might not have thought of.** This means that the overall product should end up being better/more creative.

Inspiration Collage
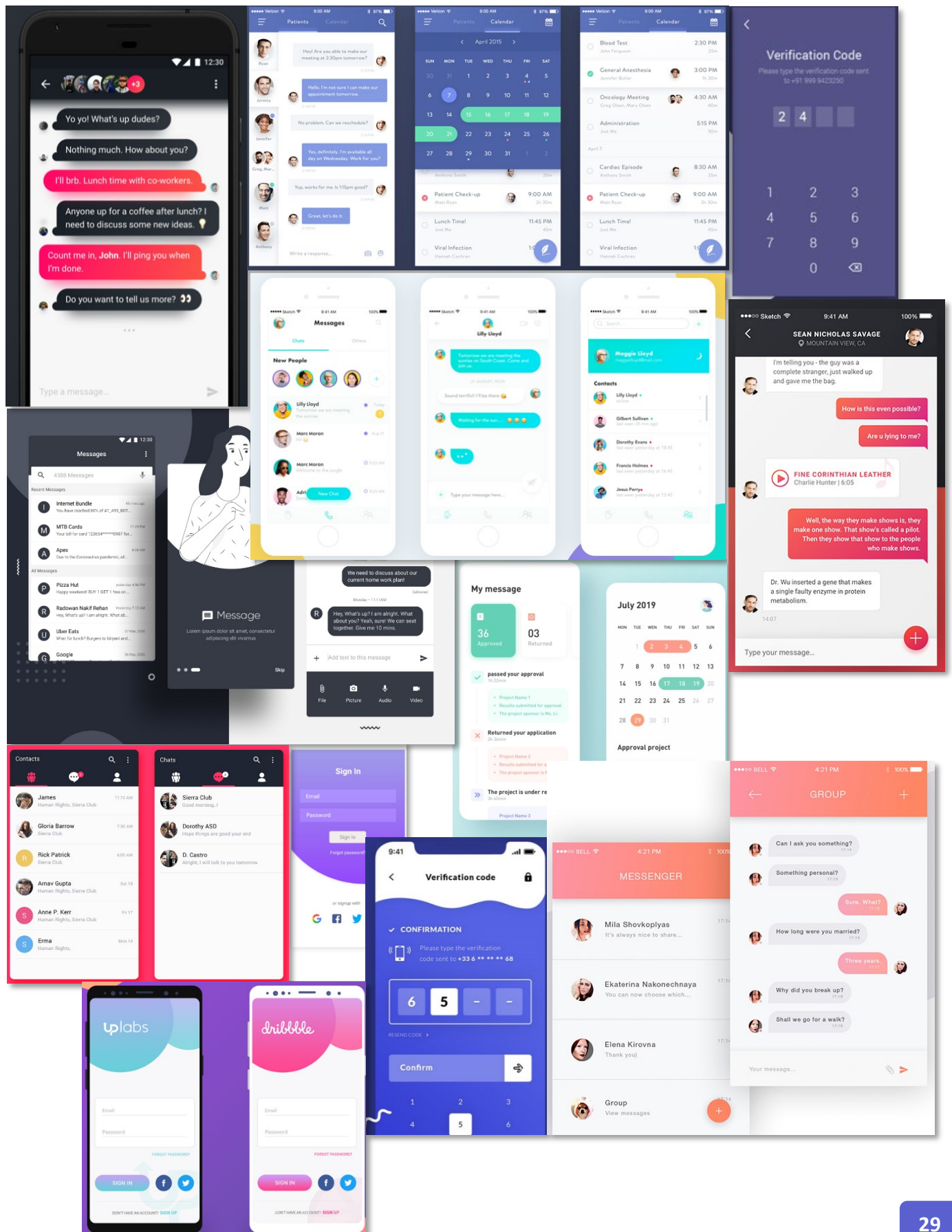
Sketches

Below are some initial concept sketches that help illustrate my plans for the login, signup & profile pages as well as the main chat page. After analysing existing solutions and drawing a Mindmap I tried to convey a creative design that would look unique compared to other solutions but also function effectively.

EVALUATION

These sketches ended up becoming useful as references when I moved onto designing mock-ups in an online tool. Sketching also allowed me to experiment with creative & unconventional designs however I still attempted to stay within the "general" theme of Android apps.
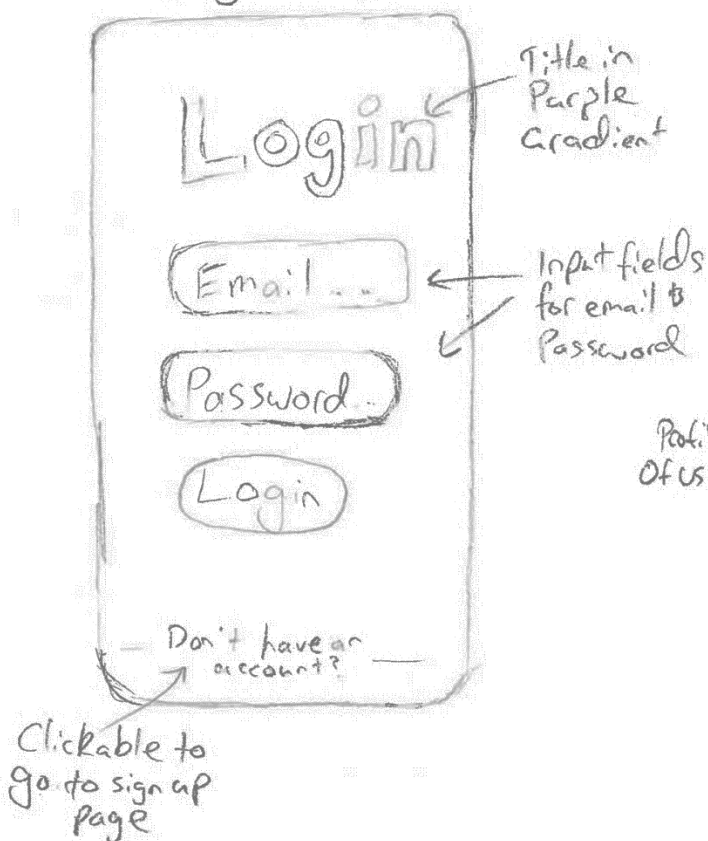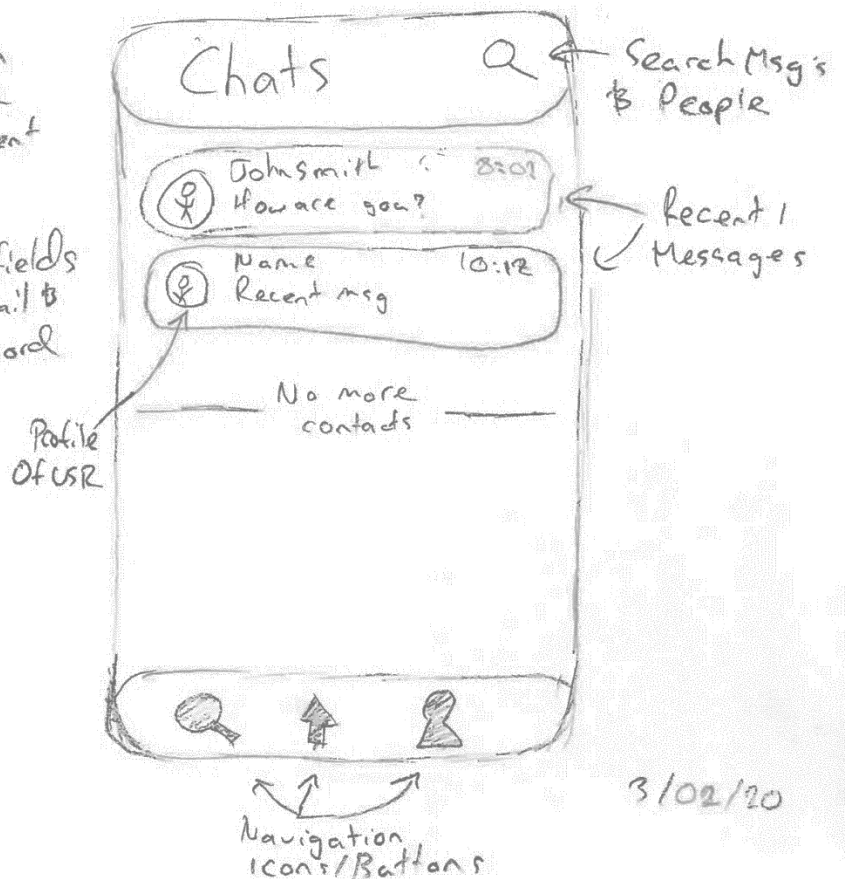
Digital Mock-Ups

After producing my Sketches, I decided to use an online tool to create mock-up of how the app's user interface would look before I started making it. This was very useful as it forced me to consider how the app would function in terms of pages as well as how everything would be displayed.

I didn't worry too much on aesthetics for this however it allowed the ability to use standardised elements giving it that "mobile look" much more easily then in my sketches. It also benefitted me as I am not very good at drawing or sketching by hand, so when a program can do it this allows me to quickly create the mock-ups and change any elements & visualise colours much more easily.

PMI

+ Simple User Interface, requiring little explanation
+ Utilises standardised app components & elements
+ Labels are clear and easy to read, makes it easier for users with poor vision
− Not a fan of the colour scheme, too much blue, is too bright.
− Not enough variation in the UI, could do with some more colours or contrast
* It was very quick to edit & produce this sketch using online tools
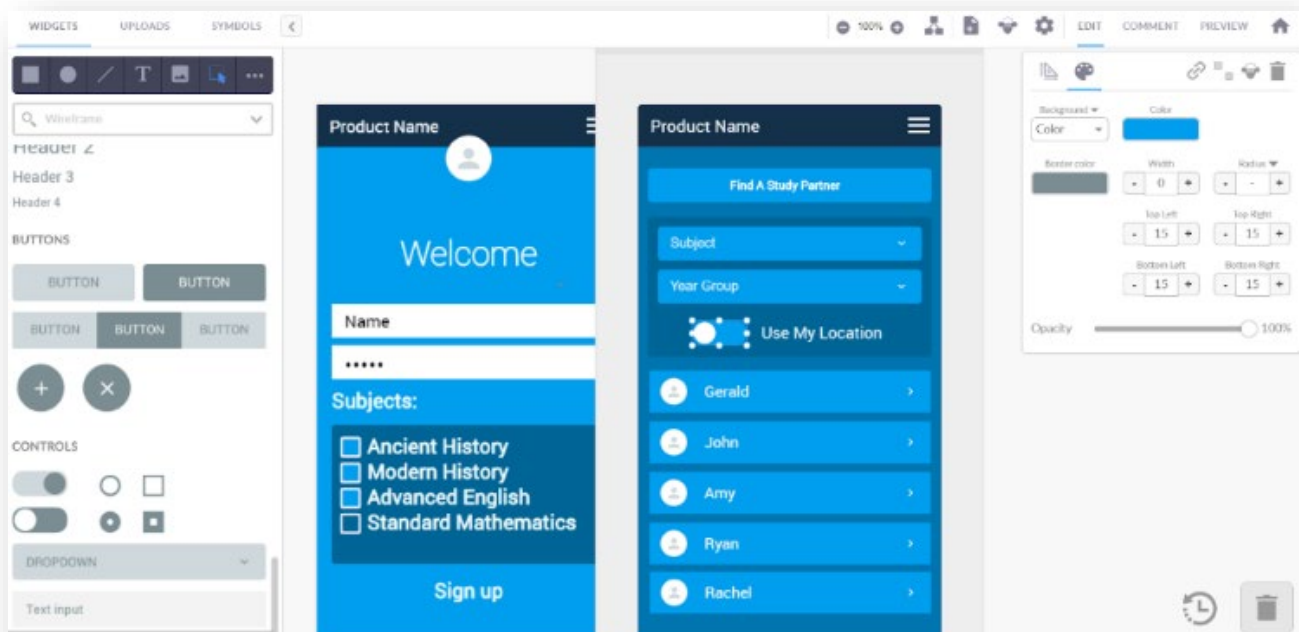
Application of Creative Techniques

Design Techniques

When designing potential user interfaces for the application **I will have to take into consideration a variety of techniques,** each imposing their own criteria or requirements that will force me to **showcase creativity in order for my MDP to have a high degree of difference.**

UI Accessibility

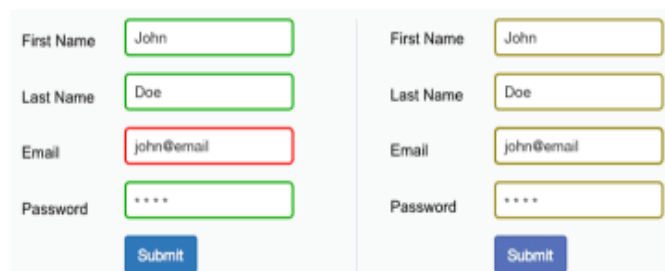As **4.5% of the global population experiences some form of colour blindness,** I will have to ensure that I am designing my UI with this as a key consideration. This means rather then using colours as an indication I should utilise symbols or dynamic movement.

Here you can see some scenarios where to a regular person red & green are easily distinguishable but to a colour-blind user it looks the same. Overall, this challenge **means that I will have to use my creativity, utilising a variety of visual cues including animations & popup alerts** to demonstrate events to a user.

Visual Consistency

Another technique to ensure that the users experience is not harmed means that **I will have to choose a standardised typeface including, fonts, buttons, labels & colours**. This will ensure a consistent look across the whole app which means that I will have to spend a significant amount of time planning how the app is going to look prior to ensure its style is consistent.

Functional Consistency

Similar to Visual Consistency**, the apps elements should all interact similarly across different sections** i.e. a magnifying icon on a button should represent search across the different parts. One way I plan to minimise the chance of it not being functionally consistent is by **utilising a lot of standard Android components** which will mean that they will all behave in a "standard" way. However, **this will mean I have to be creative in how I use them to ensure the app's aesthetics are not harmed.**

Visual Weight

Visual weight is a **technique that I plan to utilise which refers to increasing the size of each element relative to its importance.** For example, below the 3-minute circle is physically larger, emphasising its importance.
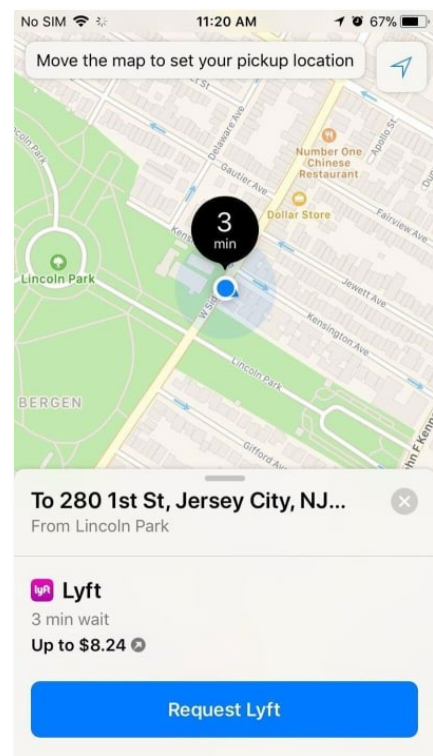
However **visual weight can also refer to changing size or colour** like the blue button below which stands out.

Degree of Difference

The Exploration of Existing Ideas has really **highlighted the lack of a design that meets the current needs of the market.** This can be seen as the **closest apps/websites revolve around sharing notes or resources** with the only mention of meeting up being around tutoring which students have to pay for. **Often the free designs were of a much lower calibre** compared to the ones requiring payment to access which was an issue my design would not run into.

I have **taken inspiration** from different existing solutions and have **highlighted both the similarities and difference between the designs** whilst also **maintaining unique characteristics to my design.** I have investigated the two solutions discussed earlier as well as the Bored of Studies forum discussed in the Project Proposal section.

ACEHSC Website

Similarities

+ Free to access all content & resources
+ Works for NSW HSC & Prelim Students

Differences

- Not a mobile app
- Does not have individual accounts for personalisation
- Focuses on sharing resources
- Does not allow students to meet up or contact each other

EVAL

This degree of difference, particularly when comparing my design against others **reinforces how unique and creative my approach to this situation is**, namely by the fact there are no existing designs with intent like mine.

HSC4ME App

Similarities

+ Is a mobile app
+ Works for NSW HSC & Prelim Students
+ Allows individual student accounts for personalisation

Differences

- Some content requires paying
- Focuses on sharing resources & paying for tutoring
- Does not allow students to meet up or contact each other
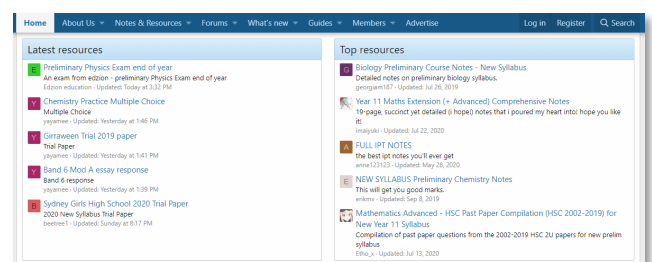
Bored of Studies Forum

Similarities

+ All content is Free (Ad-supported)
+ Allows individual student accounts for personalisation
+ Allows students to post discussions and message each other

Differences

- Not focused on forming study groups and meeting up
- Works **for HSC Students only**
- Is a website
- Has not being updated for a significant amount of time (Pre 2012)

Consideration of Design Factors

Appropriateness

This design needs to be appropriate for the users, particularly considering it is the only mobile app for forming study groups that exists meaning that **significant testing should be conducted on any prototypes to ensure that the design is appropriate given it is so unique.** I also realised that any existing solutions were either websites or apps that focused on sharing HSC resources which is still beneficial, but they are not designed for students to meet up and form study groups.

Given the target demographic, a **mobile app would be considered appropriate as most High School students have a phone and on average will have a high technical proficiency** meaning they should be able to operate the app accordingly. This product **being entirely digital also means that students have easier access to it** & as opposed to a physical product which could easily be lost & become more expensive to produce it is quite apparent which is a more appropriate design.

Need

When exploring the need for improving average education in Australia, particularly in NSW the statistics were quite substantial. This need has arisen from **Australia not keeping up with other countries in terms of their education system** and as such this design will help to lower that need indirectly by improving student engagement and learning potential. In my case the need is for a **resource that allows students interested in similar subjects to meet and form study groups in order to improve learning opportunities.** This design is **focused on fulfilling that need** with it being a pivotal component of the app. It is also important to **consider the target demographic and as such this design specifically caters to young high school students both in its language and promotional video.**

Aesthetics

Aesthetics is pivotal to this design as it is an application and as such the User Interface will need to be aesthetically pleasing as it **is what users will be interacting with**. The look of the app must also **appeal to the target market**, looking new and **fitting with current design trends** whilst also being viable in the given time period and with my skills.

Additionally **the look of the app is the first thing users will see** whether that is via a download, looking on the app store page or through the promotional video, as such **it is critical that the aesthetics are nailed otherwise it will be difficult to get users and to retain them.**

Cost

Due to the product, being of a digital nature it means that most of the **costs will be associated with either software or running servers/computers** in order to process all of the online user's data & information. Whilst I have **outlined a budget of $50** and attempted to make accurate forecasts detailing any potential costs that may impact my project, this design factor is of a **low priority** as I am fairly flexible in terms of going over my budget.

Functionality

The main **function of this design is to meet the need of its users**, i.e. to allow them to create an account and search users in their local area who study & are interested in similar subjects. The app must be able to allow messaging & communication between the people & allow them to meetup whilst encouraging study groups to be formed. **The final design must be able to meet this function.**

Consideration of Design Factors

Quality

Due to the nature of the project it will not have any physical qualities but must be upheld to the equivalent digital quality standards. This means that the app **must function correctly & as expected, not crash and work on a variety of devices each & every time.** It must also have all features working correctly on all of them including account creation & authentication as well as messaging & push notifications. It must be **easy to use** and the UI should **demonstrate that it has had time & effort** put in, i.e. the apps quality should be indicative of just under a years' worth of work.

Without any of the aforementioned quality checks then the whole project will be considered "low quality" which would be detrimental to the user experience. In order to ensure high quality, I will **make sure to test the application** using a variety of different methods as well as **use high quality software tools & techniques** when producing it.

Obsolescence

Most designs have a high chance that they will become obsolete, however if planned & maintained properly then this design could last a significant period of time. This is **because being a digital product it can be regularly updated & improved upon** with new features added & bugs fixed which physical products do not have the ability to do.

However, with the competitive nature of the app marketplace if the project is a success there will most likely be competition that arise. As such, **the design should be planned for future use** and function as such from day one in order **to encourage users not to switch to other alternatives.**

WHS

Workplace Health & Safety should be a key consideration for both the developer & the end users. This consideration will **mean I create a list of any potential hazards** as well as risk assessments, **rating each hazard and planning risk mitigation strategies** in combination with a risk assessment matrix. Key considerations include **ergonomic computer use, electrical fire hazards, unclear walkways & cable trip hazards.**

In addition the prototype & final design should be safe for the user and not pose any risks to them. Currently **most of the risks associated with the end user are related to mobile phone use**, including eye strain & potential radiation.

Ergonomics

Ergonomics is the **interaction between a user and their work environment** & should be carefully considered when developing my MDP. As such I should consider factors relating to the production & development of my solution such as ensuring that I have **ergonomically designed furniture when programming, take repeated breaks, minimise extended computer use** which can result in eye strain as well as check that I'm working in a safe environment.

Consequentially, the end user will also have ergonomic **considerations that will need to be made, mainly regarding the placement & design of user interfaces,** ensuring that buttons and motion gestures are easy to reach and don't require hand strain when using a device. Additionally, **support for low brightness modes & different orientations** will also result in a more ergonomically design application.
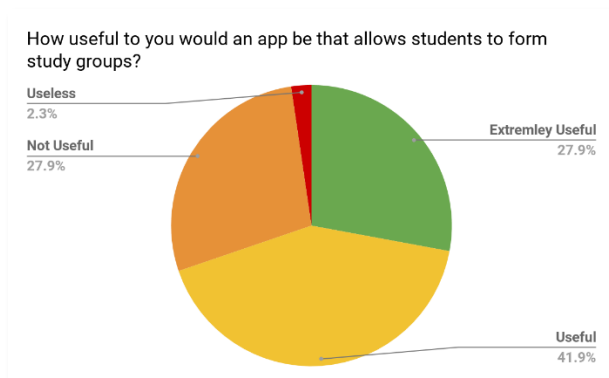
Affirmation of Need

Method: (Primary) Interviews & Surveys

As illustrated in the **Exploration of the Need** I chose to interview and survey both teachers and classmates from my school as well as other local schools in the surrounding area trying to determine the viability of an app & whether any of the potential target market would use it. The surveys **focused on more quantitative questions that could be easily translated into statistics which was much faster to interpret trends from then qualitative data,** like that gathered in the interviews.

When the surveys and interviewees were asked whether they would prefer a mobile app or website **89% agreed for a mobile app with 11% preferring a website**.

How useful to you would an app be that allows students to form study groups?
Useless 2.3%
Not Useful 27.9%
Extremley Useful 27.9%
Useful 41.9%

Some **key trends** I found from the surveys & interviews were:

- People preferred groups of **either 2 people or 4+**
- Students **had not heard of anything like this** before
- Students were willing to try this app for most of the subjects they enjoyed, **on average they would be willing to use it for ~40% of their subjects**
- Students **were more likely to be interested at schools with less than 700 students**

Study Group Project Survey
Please fill in all of the questions properly
* Required

1. What Year are you in? *

   Mark only one oval.

   ○ 7
   ○ 8
   ○ 9
   ○ 10
   ○ 11
   ○ 12

2. Approximately how many people are at your school? *

   Mark only one oval.

   ○ 0-200
   ○ 200-400
   ○ 400-700
   ○ 700-1000
   ○ 1000-1500
   ○ 1500+

3. How useful to you would an app be that allows students to form study groups? *

   Mark only one oval.

   ○ Useless
   ○ Not Useful
   ○ Useful
   ○ Extremley Useful

4. How many different people would you want to study with? *

   Mark only one oval.

   ○ 1
   ○ 2 Or 3
   ○ 3 Or 4
   ○ 5+

5. Approximately how many of your subjects would you be interested in joining a study group for? *

   Mark only one oval.

	0	1	2	3	4	5	
None	○	○	○	○	○	○	All of Them

EVAL

The surveys & interviews **helped reaffirm that this design would be appropriate** for the target market & **led the pathway into further research & development.**

Software

As I had not previously made an application before I decided to **interview some programmers who had deep experience and knowledge in this area**.

The point of this interview **was to determine what tools & software I needed to purchase & learn** in order to be able to make the app. I was also **particularly interested in how designing an app for multiple different platforms works** and as such focused on the technical aspects related to that. Below is a snippet from interviewing the programmers.

"I personally develop mainly IOS apps however you are being particularly ambitious trying to develop an app for two different platforms. You realise that you will have to recreate the whole app over again to make it work for both devices as they don't use the same tools or languages either? I would also make sure that your willing to spend on a MacBook because you need at least one Mac product to even program your app as all the libraries are proprietary."

- Programmer 1

This response made it quite apparent that in order to develop for both platforms I would have to spend double the amount of time recreating the app and purchase a Macbook as well as an iPhone in order to even try getting started programming the app. This would have blown my budget right away and as such I determined it was in the projects interest to start with just Android

> **EVAL**
>
> Interviewing these experts was a good choice because otherwise **I would have wasted time learning how to program for IOS devices** and **most likely gone over my time plan & budget** which I am going to try and stick to.

products and eventually move to IOS if it is considered a success.

In regards to **what types of software & costs would be associated with development** the programmers surprisingly were quite optimistic.

"In terms of the software you are going to **need to learn Android Studio** which is luckily **free** and developed by Google. A **license to publish will also be needed** luckily, it's a cheap one-off fee unlike Apple's. All Android apps are also **written in either Java or Googles own language Kotlin** so whichever you would like to learn doesn't really make a difference. Otherwise you should just be able to plug your phone into your computer and get programming!"

- Programmer 2

In conjunction with my expert interviews **I decided to research software** and the programming language Java on the internet in order to start learning it and to determine how long it would take. Luckily, **Google publishes in depth courses that allow me to teach myself this language** (Similar to how humans have different languages so do computers). It also **gave an estimate of 4-6 weeks as long as I was reading an article & watching a video a day.**
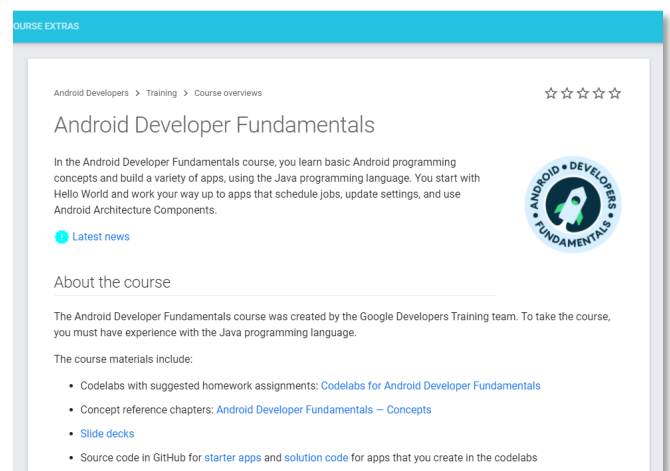
Appropriate Research

Useful Tools

Method: (Primary) Interview & (Secondary) Internet Research

In order to determine if there were **any additional useful tools I could use**, I decided to discuss my questions with my teacher **who directed me to some applications for managing my files** which resulted in me researching more about them online.

These tools were, GitHub, Git & SourceTree.

GitHub is an online website similar to Google Drive that allows programmers to store their project files for free.
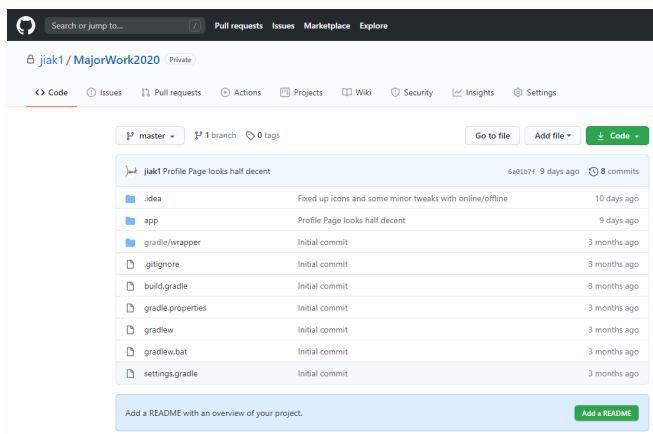

It **uses a special piece of software called Git to add and remove these files** from the projects which is incredibly useful because **it tracks any files changes meaning** that each time I change my files **I can revert them back to any previous time I want** if I happen to make a mistake.

This sending of the files is done through a program called **SourceTree which is an application that acts as a visual UI for sending and saving files** using the GIT utilities to interact with my files on GitHub.
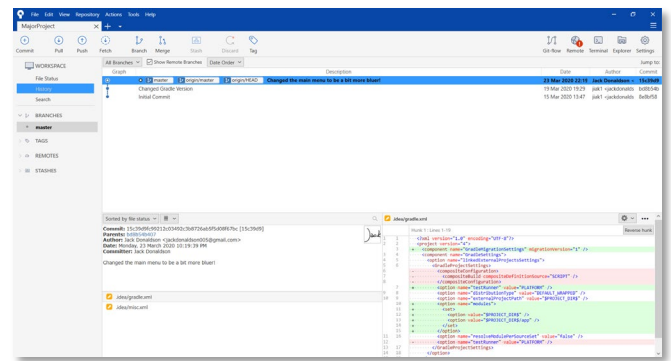
Whilst this means that I can easily backup any of my files it also means that I can transfer the project between my laptop and desktop computer really easily and allows me to work on whichever I prefer at any time as long as I have an internet connection.

Hence, after my initial discussion with my teacher I was able to learn about this software and then visit the relevant documentation sites like **docs.github.com** and **support.atlassian.com** to fully learn how to download and use it properly.
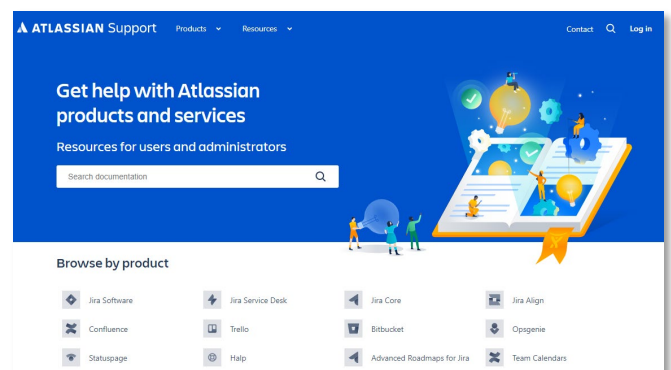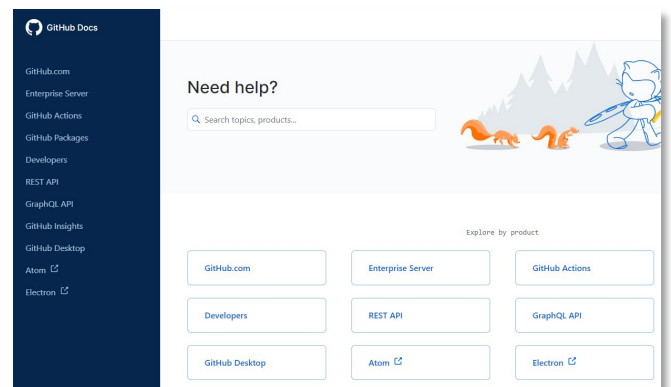
My teacher also **recommended some server hosts** which are essentially companies that run buildings with computers in them that **developers can pay to use to run** their code on them.

This means for **things like storing user information will require a database server**, i.e. one that can quickly save, read, write, update & delete data which will be needed for features like messages, profiles, accounts etc.
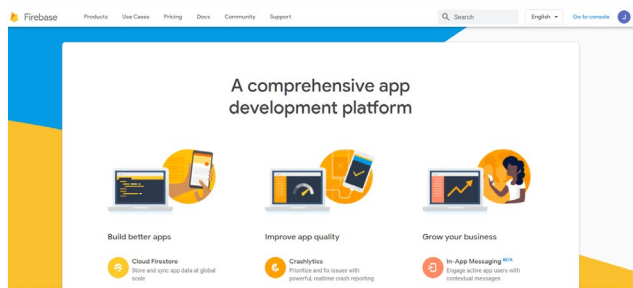
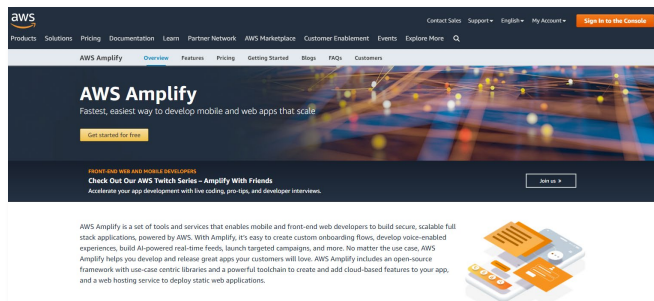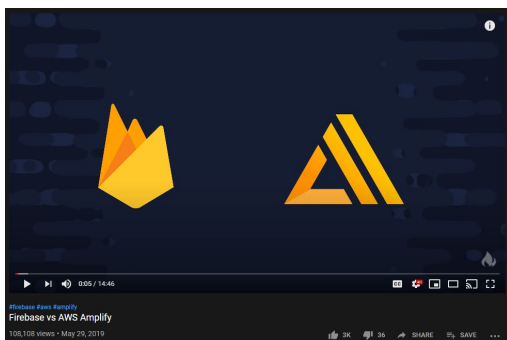Two of the main services that my teacher recommended was **Google's Firebase** & **Amazon's Web Services** division.

I then chose to **research their pricing models** as well as watch some educational YouTube videos which **detailed the main differences between the two** so I could **get an external perspective** on the situation.

I ended up **determining that Google's Firebase services would be better suited** because they have a much more extensive Free tier rather than AWS which is a pay per usage model from the outset. This meant that **I had to research how to integrate Google's Firebase services into Android** which was relatively painless due to Android being developed by Google as well, hence a lot of the software was already on Android phones making it easier.

Target Market

Method: (Secondary) Internet Research

As part of my promotional video and app store page I will need some statistics regarding the benefits of study groups and Australia's declining educational rankings. I have chosen to gather them from online studies, **usually conducted by international or government organisations as they are more accurate.** This was all discussed in the Design Situation, earlier on hence I will reuse that research.

Existing Designs

Method: (Secondary) Internet Research

As part of my existing design research and idea generation I researched existing designs and made an inspirational collage whilst also performing a PMI analysis to determine the pros and cons of the other solutions.

Cost

Method: (Secondary) Internet Research

As part of my budget, after determining what software will be required, I researched any costs associated with that. The software I found that cost was Adobe Premiere Pro, Google Firebase & Googles Developer License.

Experimentation and Testing

Loading App Test

Aim

To learn about Android Projects and **how to send my application to my phone and test it** can run the app.

Method

1) Open my Android Studio Project
2) Compile the program into an executable
3) Connect the phone to the computer with a USB cable and ensure Android Debugging is enabled in the phone settings & check phone appears in program.
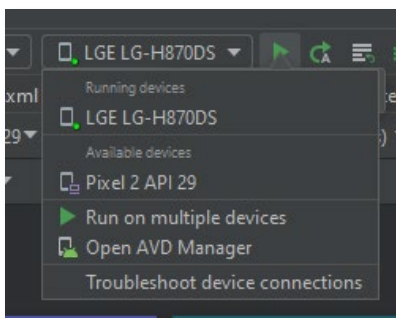
4) Click run app in Android Studio
5) Wait for app files to transfer and run
6) Check live error console and troubleshoot for any errors.

Results

To begin with I had an issue where I forgot to enable the "Android Debugging" setting which meant that it was appearing when plugging in the USB to the computer. However, after doing that the app successfully transferred and the application ran properly.

Conclusion

This test was well worthwhile as having to debug the app on a device is something that should be very common and as such I need to get good at doing it and troubleshooting any errors, hence learning this skill is important.

UI Design Test

Aim

To learn how to **create a user interface** in Android Studio with Text & Buttons.

Method

1) Open my Android Studio Project
2) Click File > New > Activity > Empty Activity to add an activity and name it.
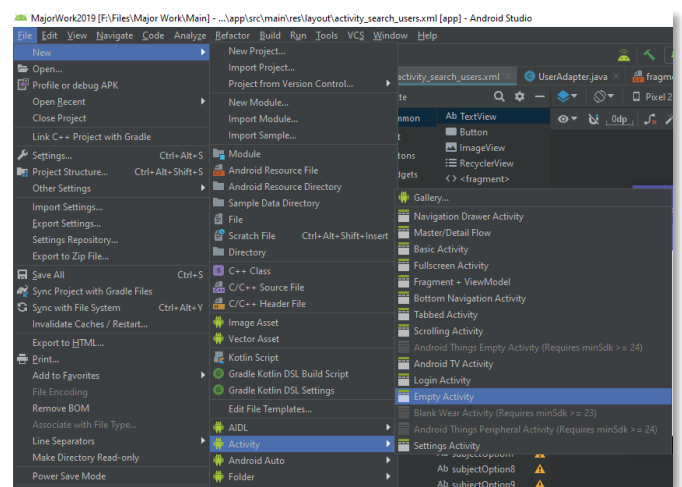
3) Drag the user interface elements from the left element panel.
4) Select the elements and edit their properties with the properties window if needed.
5) Save any Changes.

Results

I am now able to create a custom user interface also referred to as a "New Activity". I can now edit any details including text details, colour, background, size etc.

Conclusion

This is well worthwhile because creating different screens and menus will be very common when developing the app, hence speed and familiarity will be key to producing the app quickly & efficiently.

Switching Activities Experiment

Aim

To learn how to program buttons to switch between "Activities" or screens in Android Studio.

Method

1) Create both Activities making sure to rename them accordingly.
2) Create a button and make sure to give it an id.
3) Open the activity program file and in the "OnLoad" code section add some lines which essentially says *when the button with a certain ID is pressed, navigate to the other defined activity*.
4) Load the app & troubleshoot any issues.

Results

Initially I had an issue because I didn't give the button an ID which meant that pressing it did not do anything meaning that I wasted a lot of time trying to figure out the problem. Eventually I figured it out and was able to make the button transfer between both of the relevant screens.

Conclusion

Performing this experiment was helpful because I now know what to troubleshoot if I run into this issue again which is highly likely as I will be moving through a variety of screens in the final product.

Different Screen Size Experiment

Aim

To test if a screen will work on different device screen sizes.

Method

1) Open the activity layout in Android Studio

2) Make sure that all elements have constraints set to the edge of the screen so they have something to help adjust when the screen size changes.
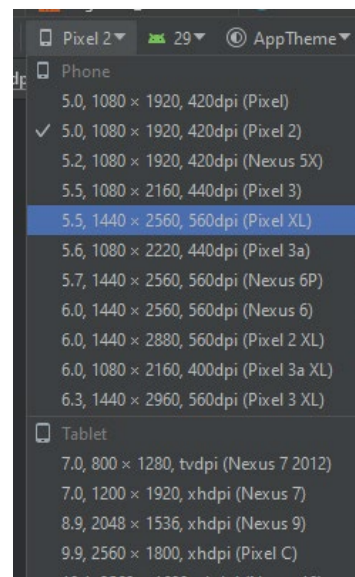
3) Select the device type window and change it according to the different screen size you would like to test.

4) Check that the layout looks correct and troubleshoot any odd constraints & elements.

Results

This concept took a while to get used to because making an interface that works for all devices can be difficult but eventually, I got my menus to work properly.

Conclusion

This experiment was useful because it means I can check the screen size scaling without having to ask other people with different devices to check it for me.

Application of Conclusions

Cost

Aim

To be able to research and determine how much all my resources and software should cost me including how much I have to spend. I must also ensure that there is room to cover any additional unexpected expenses.

Conclusion/Changes

Most of my software was actually free for educational use including GitHub, SourceTree & Git. Other fees like the Google Developer Program & server hosting however were not and I still had to account for their impact on the budget.

Software

Aim

To be able to identify the best route for any potential software that will be needed as well as any skills that may be required to operate it. I also need to know any additional requirements for using the software, e.g. cost.

Conclusion/Changes

I ended up not going down the route of developing the app for IOS as it was not viable within the given situation and instead focused my software purchases on Android specific programs. This meant that I must purchase a Developer license as well.

Tools

Aim

To be able to determine any additional tools that may aid in the production of the MDP that were not uncovered in the software research.

Conclusion/Changes

I learnt about software such as GitHub, SourceTree & Git which will hopefully improve my ability to work on the project across multiple devices as well as keep it safe & secure. I also learnt of Google & Amazons services for server hosting which will hopefully speed up my development rather then having to build my own servers. I ended up going with Googles option because of the pricing and integration with Android.

Target Market & Need

Aim

To affirm that the target market is interested in this design & to determine any potential needs they may have that should be included in the design.

Conclusion/Changes

The target market is still interested in this design, the only suggestion is to make it more widely accessible to University students and other states but currently that is remaining unchanged because of the additional time it would take. Additionally, I determined that the need was still there & this design was needed.

Techniques & Skills

Aim

To determine & learn relevant techniques & skills that will be needed for development.

Conclusion/Changes

I have had to research & teach myself a new programming language called Java as well as how to create Android Apps with Android Studio.

Identification & Justification of Resources

Materials

Laptop

Source

Renewd Technologies

Cost

$1099 - Already Owned

Justification

My laptop is a resource that is vital to my projects development as I require it in order to be able to run Android Studio & other software that is needed in order to be able to program the app & test it. This laptop has an i7 processor with 16 GB of ram and a dedicated graphics card as well as high speed storage making it extremely suitable for programming. This is because fast access to compiling, loading & writing code is critical to fast development of my MDP.

It is important that I have this as I need to be able to program the app in various locations, not just at home & as such the portability makes it feasible to develop the project whilst at school. Additionally I have made modifications, increasing the speed & size of the storage that the laptop has so I can fit all of the relevant video & program files on it. Coupled with the fact that I already owned the device prior to the start of the MDP it was a no brainer to utilise this resource.

Desktop/PC

Source

EBay, I bought the parts separate & built it myself.

Cost

$1400 - Already Owned

Justification

My desktop, just like my laptop is beneficial for working on my project. This is because, whilst my laptop is very fast, desktops have far superior capabilities, including speed & as such it is much easier to work on the project from home. The fact that I already owned the PC prior to commencing the project made it an effective resource to use as it didn't cost me anything. Additionally the advantages of dual monitors will make it much easier to both read tutorials and follow along programming at the same time, increasing my efficiency.

Mobile Phone – LGH870

Source

Bought it from a friend.

Cost

$40 - Already Owned

Justification

In order to test my app I need to utilise a mobile phone, whilst I can run emulators on a computer, the features of a phone including swipe gestures and navigation make it a priority in order to properly test the app & ensure that it works. Overall, as I had already owned this phone it made sense to utilise it or the project as it is only a few years old meaning that it had most modern features.

Tools

Android Studio

Source

Google

Cost

Free

Justification

Android Studio is a piece of software that I for development of my app as it is used for programming & compiling my code into a format that is usable and runnable on a device i.e. it directly translates my code into a runnable app. As explored in my earlier research, this is one of only a few pieces of software that perform this function & by far the most popular way of developing an app for Android due to its free nature and constant updates & development by its parent company, Google. As such, because of its ability to be beginner friendly but also allow detailed interactions and complex mechanics it makes it a perfect suit for my project. Its ability to interact with other Google products such as Firebase also helps justify its use.
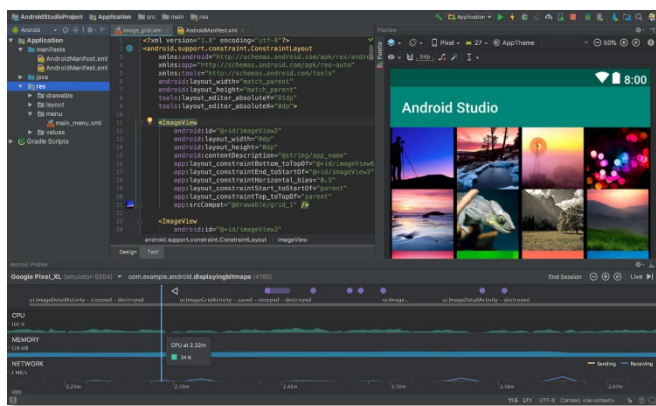
Microsoft Word

Source

Microsoft

Cost

$13/month for individuals. **Free** with my school as student.

Justification

Microsoft Word is a tool that I have had significant previous experience with and as such I am very proficient in using it. Coupled with the fact that I get a free license across all my devices as a student means that it is one of the most suitable tools to use for developing my folio. This is needed as the folio must be visually appealing and convey my point in a succinct form. Features including, colours, text resizing, image manipulation and formatting abilities make it the top software product for developing my folio.

Grammarly

Source

Grammarly

Cost

Most Features **Free**. More advanced punctuation & grammar checking costs $5/month.

Justification

Grammarly is an online punctuation, sentence structure & spell checker that works with most files on a computer. This means that it will automatically check my portfolio and app sentences whilst I am developing, in turn minimising any grammatical errors or issues that could occur. Although they do have a paid service I have chosen to stick with the free option which is still very beneficial and will help the quality of my MDP.

Identification & Justification of Resources

Google Firebase

Source

Google

Cost

Usage limitations of the **Free tier**. Anything past the free tier will be billed depending on usage.

Justification

As discussed in my earlier research and investigation, Google's Firebase service allows me to focus on developing the application whilst Google will run special servers that are required for the app to function properly. It will allow features like, messaging, push notifications & account data storage and as such a solution that has a good free tier would be the best option. This also means that during development & testing I shouldn't be billed as I won't be using their services that much & the cost will come when the app is released. Overall the decision was between Google's Firebase solution and Amazon's Web Service solution, however cost & integration within Android Studio was the driving factor that made this the best option.

Google Play Developers Program

Source

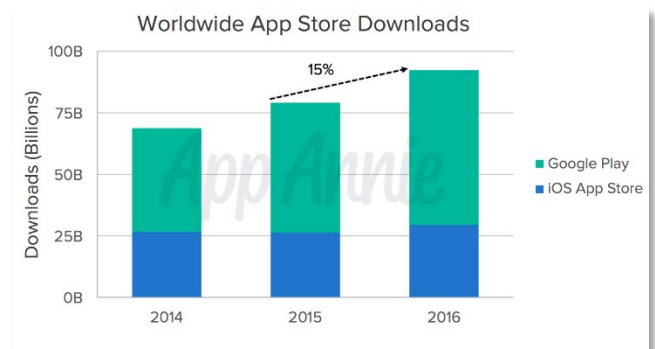**Google**

Cost

One off fee of $20 USD.

Justification

Google play is one of two major online app stores, competing against Apple's App Store. As this has such a large market share for Android devices (the operating system I am designing for) it really is the only option & in order to publish apps I will have to register for a developer account which costs a one off fee of $25 USD.

Techniques

Java Programming

Source

Capability built into Android Studio

Justification

A key technique that I will be utilising when developing my MDP is Java Programming. This is because Android Studio gives developers the option of two different programming languages, Java or Kotlin (A language developed specifically for Android by Google). Due to the specialised nature of Kotlin & when compared to Java's ability to program not just mobile apps but Desktop & Web applications it was quite justified to choose this language. Additionally I had no experience in neither languages & Java was closer to C#, a language I was fluent in & shared some similarities. As such I chose to use Java as it was a relevant technique that will allow me to program the whole application easily.

XML Syntax Programming
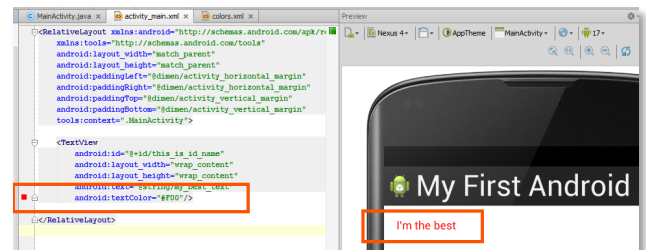
Source

Capability integrated with Android Studio

Cost

Free

Justification

XML is a set of rules for writing files that can be read by Android Studio and is used for creating, saving & editing user interfaces. As it is the only option for writing User Interfaces in the program I must therefore must learn this technique and utilise it when developing my interfaces.

Identification & Justification of Resources

Ideas

Description of Idea	Idea Selected	Justification
I will need to have a way to navigate between the chat UI, profile & friend search interfaces.	Choose to use a swiping gesture and custom bottom bar with buttons for people unable to swipe.	I chose this option as it is modern & allows both quick, responsive movement when joining the pages whilst also linking them together easily. This is particularly useful as it gives the user freedom in how they hold the device with different methods of navigation for each hand posture.
A way in which users can reset their password if their account is lost.	Have an automated system that allows users to request for an email to be sent to them that has a reset link they can click.	This is a common way for users to reset their credentials and as such creating another customised method would not only be a waste of time but detrimental to the user experience as they wouldn't be used to an alternative. Thus a consistent approach is the best option.
I will need a way to interact with Google's Firebase Servers	I have chosen to use Google's Fire base API (Application programming interface) written in Java.	Much like real life languages in order to interact with Googles servers which run a completely different language to the one I am programming in I will need an API to translate that. However, this is one of the only API's for firebase that is written in Java, the language I am programming in. Otherwise the others are written in Kotlin, the alternative language I could have used. Overall, because this is the only good solution I have to use it.
I need to be able to verify the user's emails & passwords are legitimate and safe.	Use a programming library which contains code that will automatically check emails & password strength & formatting.	The use of programming libraries is very common nowadays with most programs using hundreds of different, open source code written by a variety of developers. This library is officially written by Android and allows me to easily check user's inputs without having to spend time programming my own solution. As such this is a free, quick solution that will work well & has been tested by lots of other users.

EVAL Ensuring that I have good reasoning for solving each idea should mean that I have a better end product as it will be more thoroughly thought out.

Communication Techniques

When constructing both my portfolio and project I have tried to ensure I use a variety of communication & presentation techniques to demonstrate both my development, time & effort spent on the project.

When it came to directly communicating with other people, particularly in my research I utilised the following in order to communicate:

+ Emails
+ Video calls
+ Phone calls
+ Online chats
+ Face-to-face interviews
+ Digital surveys
+ Physical surveys

This variation is due to me catering my communication techniques to suit each individual, for example when interviewing students at my school I chose to do it face to face because it was easy, however students at other schools preferred interviews via emails.
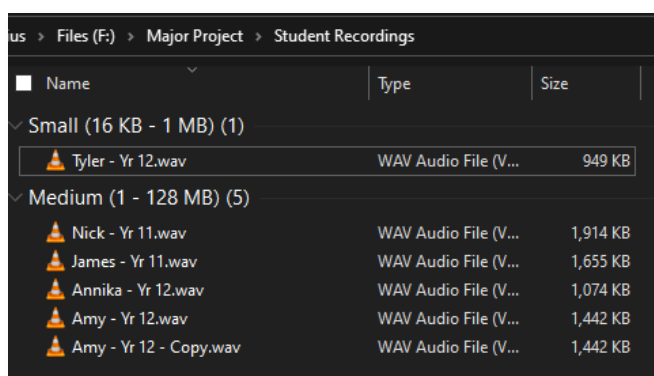
In order to ensure that I didn't waste their time, I pre-prepared any questions I wanted to ask & for the face to face interviews I chose to record them talking so I didn't have to worry about noting what they were saying down.

Emails were mainly utilised for some interviews, including some of the programmers & students from other schools I corresponded with when undertaking my research. This was because they were particularly busy and weren't easily accessible for an in-person interview, thus email happened to be the most suitable option.

Video & Phone calls were not as popular to begin with but became useful when we hit lockdown & will be my preferred option when undertaking any evaluation surveys or communications in the future.
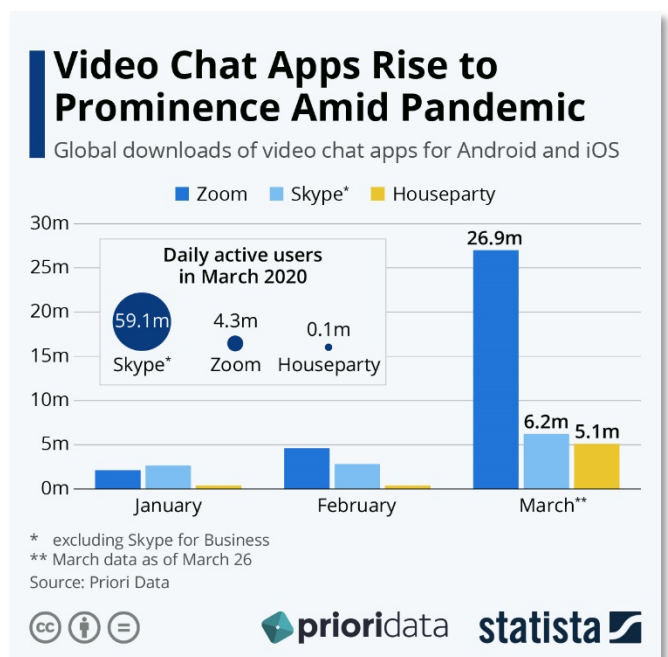
Additionally, video calls allowed the flexibility to share screens & images making the discussion much more interactive. I utilised these strategies when communicating with my teacher as I undertake Design & Technology via Distance Education meaning that in order to get feedback, ask questions or showcase relevant information, sharing my screen was a good option in order to communicate effectively.

My communication regarding surveys utilised both physical and digital solutions, with the latter being more popular due to its ease of being shared & to automatically collect results.

However, there were some scenarios were giving a physical survey to people was easier as I found with students they were more likely to remember to complete it if they were given a physical survey to complete rather than a digital one.

In total, I ended up having about 5% of my surveys be physically printed & manually entered online by me.

Another communication technique I utilised was online chats & forums which were helpful whenever I ran into an issue. These communities are full of developers across the globe willing to help others for free when they run into problems. I utilised the aid of an online forum called Android Forums.

Below you can see my post on the forum, detailing my issue which in simple terms refers to me being unsure how to optimise part of my code to make it more efficient, in this case the login system. I have shared steps I have undertaken to try and fix it as well as shared any code that was relevant for others to read. Sites like this allowed me to get quick responses to problems, usually within a day or two which was great when trying to develop the app.

EVAL

The interviews or online calls that I spent more time preparing for often meant that I would get more enthusiastic responses from the users & they would be more willing to expand upon their ideas. This was also common in the online chat where as long as I showed evidence of me attempting to solve my problem prior, then people were always willing to help.

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Folio Presentation

When designing the MDP I need to take into consideration the impact the folio will have on my end result as it will be the focus of majority of the markers attention, particularly considering it is the only aspect now marked externally. As such I need to ensure it fits my visual style & theme, representing parts of my product throughout. In order to do this, I have used a variety of different presentation techniques to ensure that the markers stay interested & appreciate the presentation of my project with the aid of software like Microsoft Word.

Colour Scheme

In order to help the folio, represent the look & feel of the app I utilised the same colours scheme throughout to try and ensure consistency. This was done by creating a colour palette which I must stick to and only allow minimal variations towards.

This colour palette was created using a website called coolors which is a great tool for randomly generating contrasting colours. Here you can see I have the main dark purple, a lighter alternative, an accent colour/red, black & of course white.
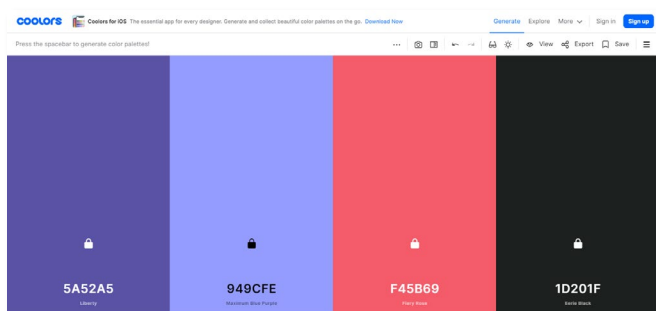
This primary dark purple is mainly used throughout the folio due to the nature of printing favouring darker colours, hence the use of the lighter purple & red was very limited because it wasn't showing up properly when printing.

Fonts

In order to help differentiate sections of text from each other I have utilised a duo of fonts & multitude of sizes. All of the main body text is written in Size 12 Calibri as it is a good ratio in terms of content fitting per page to readability.

However, in order to ensure that the pages don't look repetitive I have utilised the Open Sans font for any headings and aspects that I wish to stand out. Additionally, the sizes of each heading get progressively larger, ranging from size 32 to 16, each size representing importance.

Purple Open Sans Is Used for Headings & To Stand Out. **Bold makes it stand out even more.**

I have tried to incorporate my main colour palette with these headings, using a white on purple scheme for page headings and a purple on white scheme for smaller headings. This tries to help offset the use of purple by changing the ways in which it is used in order to give a bit more variation to the eye.

Another presentation technique I have utilised throughout the folio is **highlighting key sentences or messages in bold** which **provides emphasis** on the most important parts. This is really important as markers will have a limited time to look over the folio & may potentially skim read components. This ensures that if skim reading, they still take notice of the most important parts.

Formatting

Except for the initial few pages, the whole folio is split into two separate columns in order to make the text look less visually draining. All of this content is justified which helps with consistency in the look & allows more space on the page when opposed to left aligned content.

The folio has also been split into sections that directly follow the marking criteria making it easy for the markers to determine which sections correlate between the criteria & the folio allowing them to spend more time focusing on the content.

It is also essential that I have enough space to write in detail & remove any unnecessary information, this not only will help staying under the word limit but will allow the markers to focus on the content that is worthwhile & required.

Overall, the formatting of my portfolio is essential to the whole project as its job is to convey the whole project in a succinct & visually appealing way.

Current Marking Criteria Relation:

Pictures & Symbols

I have interspersed throughout the whole folio visual aids including, tables, graphs, screenshots & pictures which both help breakup the content on the page but also convey information in a much smaller space.

Alongside various cognitive organisers including collages, mind maps, PMI & GANTT Charts have been utilised to convey meaning to the markers in a succinct, visually appealing way. Some key considerations include ensuring that the size of all these graphics are appropriate & any text on them is legible, particularly when printed. For example, this is why the GANTT Chart spans over 2 pages, whilst it would be nicer to have it onto one page, this would shrink the text size so much it would be difficult to read & therefore not convey any meaning of have any reason to be included. As such graphic decisions need to be considered when developing the project.

I have also utilised symbolism, particularly in PMI Charts whereby I utilise coloured symbols to help demonstrate the differences between positives, minuses & interesting components. Not only does this visually break up the page with colour it also works well because the "plus" & "minus" symbols are indicative of their respective PMI columns. The use of presentation techniques like this help make the folio more appealing to read, particularly given its size.

EVALUATION

Ultimately, the way I utilise presentation techniques will have a direct impact on the success on my final mark. **I must ensure the folio & project is easy to understand**, follow & mark. This is particularly important considering the limited time the markers have & **the need to showcase detail given that the markers will not be seeing the product.**

Application of Practical Skills

Initial Design
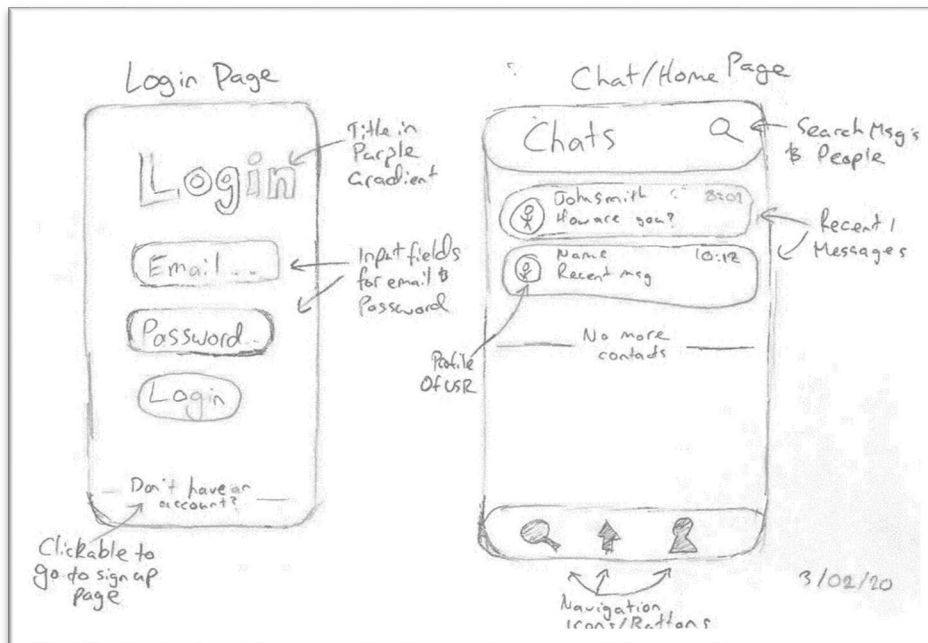
My initial user interface designs were done on paper where I first planned out how some screens will look.

I then transferred some of these sketches into **an online CAD tool** which helped me better visualise and plan my design allowing the ability for colours.
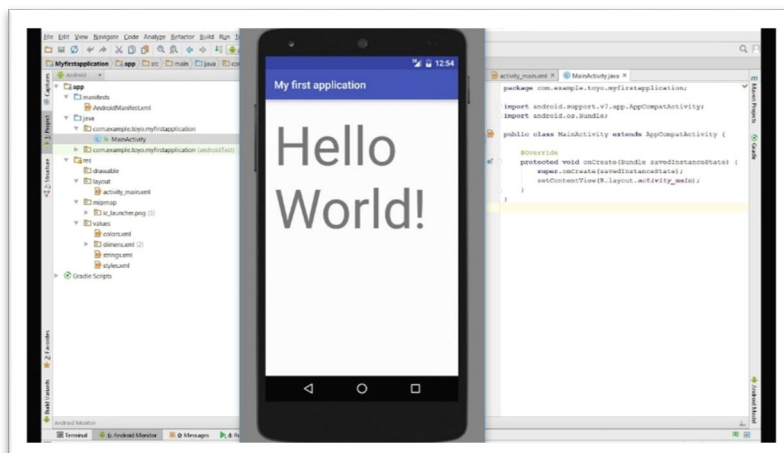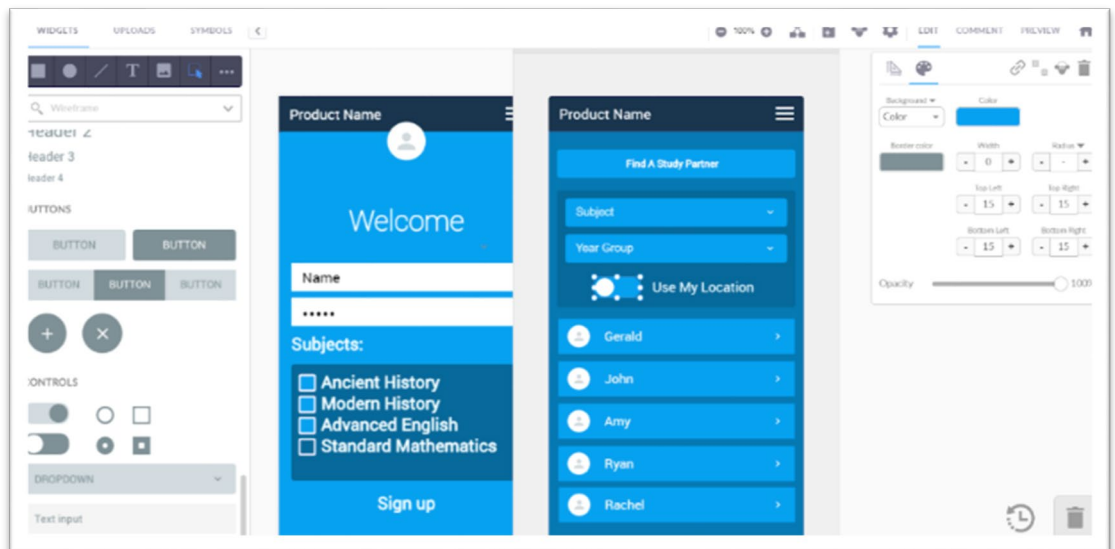
I spent a significant amount of time **creating an empty project in Android Studio** because I first had to **install all the software** properly & then **install emulators** which ended up **having installation issues** due to my Windows version. **Eventually I was able to get the emulator to run & load** the app on my phone.

Construction
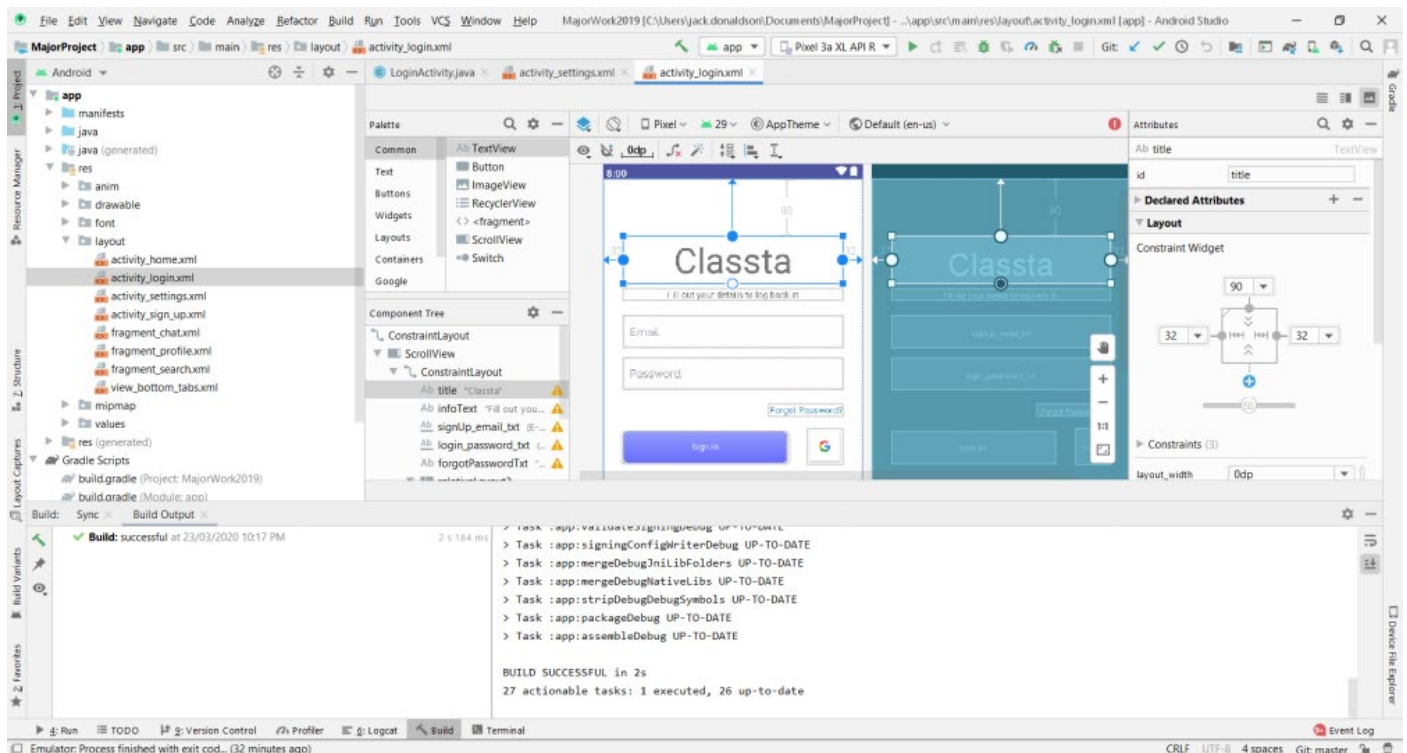
I then focused on constructing the different screens & interfaces for the app utilising the drag and drop features of Android Studio as well as editing the raw XML language that the drag & drop creates. At this stage I focused on creating just the UI designs & transferring them from the online tools to this new form of CAD. I was not bothering with programming any of the button or app functionality yet as I felt designing the interface first would be a good decision so that I do not have to change it much further through development. This ended up taking a significant amount of time to create the individual designs as it is very complex to get the screens to work on lots of device sizes. **Below you can see the XML equivalent of the above login screen UI.**
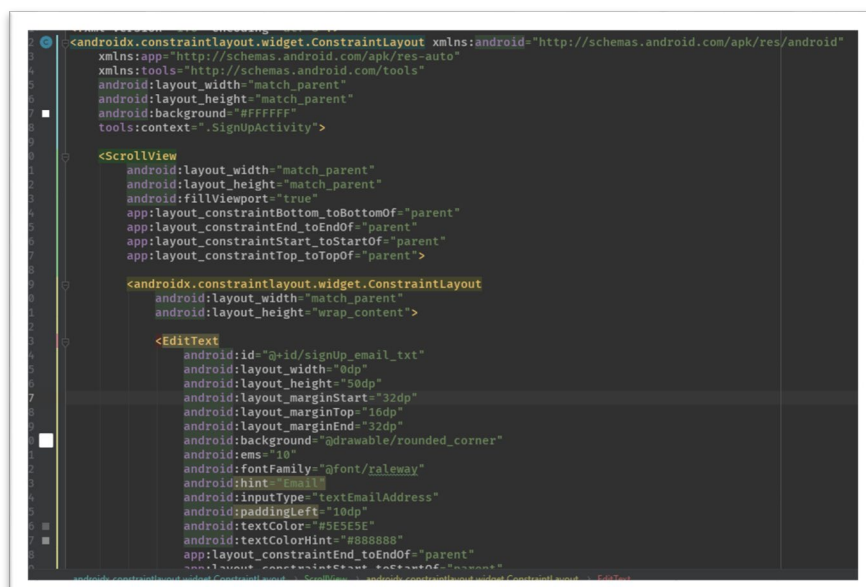
XML uses tags that are defined by the <> symbols and allows editing of various properties in a visually appealing way. Here you can see a feature of Android Studio whereby it automatically indents and colour codes sections for me, making it easier to read.

Functionality

```java
    @Override
    public void onStart() {
        super.onStart();
        mAuth = FirebaseAuth.getInstance();

        // Check if user is signed in (non-null) and update UI accordingly.
        firebaseUser = mAuth.getCurrentUser();

        //User is not logged in
        if(firebaseUser == null){
            getWindow().setNavigationBarColor(getResources().getColor(R.color.white));
            Intent startIntent = new Intent( packageContext: HomeActivity.this, LoginActivity.class);
            startActivity(startIntent);
            finish();
            return;
        }

        getWindow().setNavigationBarColor(getResources().getColor(R.color.darkDarkPrimary));
```

Once I had created all of the User Interfaces, I then had the massive task of programming all of the functionality for the app. This meant that I had to learn the programming language Java & ended up finishing with over 15,000 lines of code, not including code that has being deleted in the process of getting there. Although programming can be complicated, examples of code can be seen above where everything inside of this "onStart" section is run when the app is first loaded. It will then try and connect to Google's Servers, utilising a special API (Some code given by Google that makes interacting with servers easier). Then we will query the servers to see if this device is registered to a user and if it isn't, we will then make the app transition to the login page rather than the chat page. This code is split across a variety of different files to try and make sure it is organised and as readable as possible. This is done by ensuring that code relevant to different screens is placed in its own file & some of the various files can be seen below.
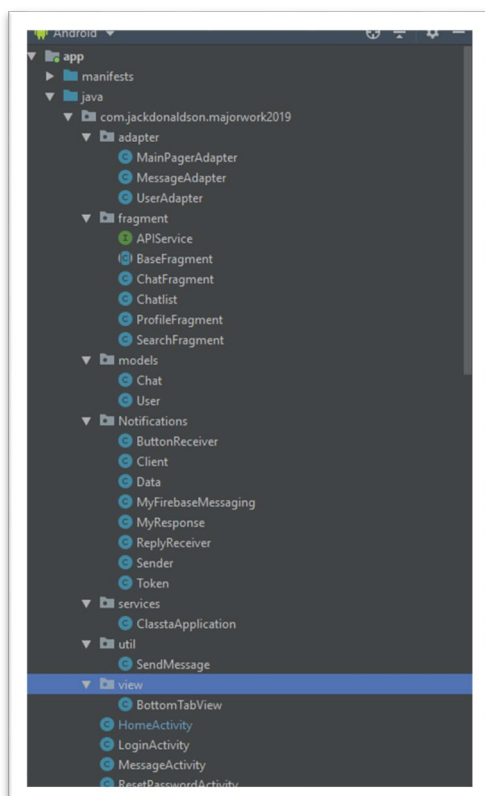
EVALUATION

The construction of the app ended up taking a significantly larger portion of time than I had initially planned for, partly because I underestimated the scale of the task. This was most likely due to the abundance of high-quality apps that individuals are used to & as such with so many apps available I believed that they were simple and quick to make. This was not the case.
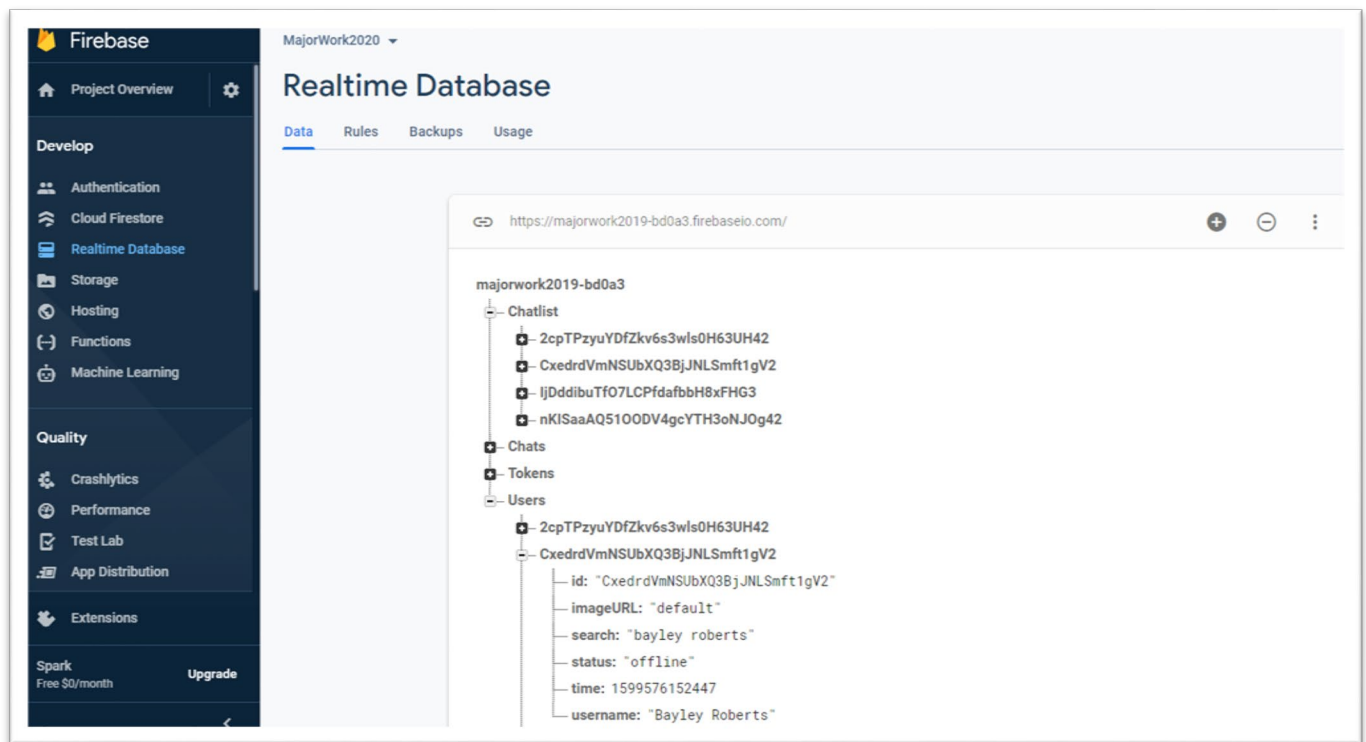
Server Interaction

Another practical skill I had to utilise during my production was interacting with servers that are located across the globe. As seen above Firebase luckily has a great way to visualise all the stored information in their databases & as such this meant I could Debug (The act of looking for solutions to errors) my Code whenever I encountered problems. Issues I had related to the way the data was structured & ensuring that individual users had unique ID's as seen above the randomly generated string of characters corresponds to an individuals "Account". All of their information is stored in "lists" meaning that they can be easily accessed, read, written & updated to. Additionally, I also had to learn how to get push notifications to work with Firebase & also uploading of user content, i.e. their profile photos need to be stored on servers as well. This posed significant problems as I initially ran into issues with incorrect file types but eventually solved them to get profile photo uploading working properly.

Problems Encountered

App

One of the core issues I ran into when developing my app was the User Interface design & making it work on devices with multiple screen sizes. Additionally, there were a significant number of minor bugs, particularly with page navigation not animating properly and the back button taking users to the wrong screens. I also had to try and add loading signs wherever I could as it could be quite jarring without them in some situations.

Promotional Video

Some of the videos I had taken got corrupted or were not long enough and as such I had to re-record a significant portion of the clips and ended up using a lot less then I encountered. I tried to substitute this with more visual overlays which I feel worked well.

Application of Evaluation Procedures

Project Proposal	Evaluation Comment	Development or Changes
Exploration of the Need	The choice to just start with NSW students meant that I was able to finish & test the app a lot quicker rather than having to implement features for both different states and university courses. Identifying any potential inclusivity & accessibility issues early on also meant that I could plan the app around them meaning time was not wasted redesigning sections. The interviews & surveys helped reaffirm that students would be willing to try the app & that this would be a good solution that they would use. Ensuring that the need I perceived existed was an incredibly important process. The identification & exploration of the need was crucial to this project. This helped prove that this need existed in todays society as well as how pivotal it is to ordinary Australians. This further analysis also highlighted how there are really no current solutions, making my product a first & helping to reinforce that there is a demand for this type of product.	The exploration of the need & initial research aided in confirming the need was prevalent before I spent a significant amount of time on development. The need identified ultimately ended up been the centre of my designs development.
Areas of Investigation	I learnt that I will need to learn a programming language called Java which proved to be more difficult than anticipated & as such it meant that I couldn't learn Swift as well which was needed to develop the app for Apple devices. I found out that Apple & Google have standardised elements that they prefer their apps use in order to generate a consistent look across their platform. Additionally, experts recommended a "flat style" colour & design scheme.	This section allowed me to conduct more research on different areas that would be pivotal to generate a successful design, allowing me to get a deeper knowledge of what I needed to produce & how I could fulfil that.
Research Plan	In some cases interviews were unavailable in person, particularly with programmers & project managers so I chose to do some over the phone and others via email which worked well.	This plan allowed me to focus on areas that were of most importance & this importance was determined through expert consulation.

Project Proposal	Evaluation Comment	Development or Changes
Design Parameters	Due to the large amount of potential limitations on this project I will need to sure all of them are managed properly which will be important for producing a successful product.	The areas address in this section were key to ensuring that my idea was possible within the given parameters, mainly time & budget.
Criteria for Success	I will need to make sure I stick to the priorities of each of the individual criteria in order to focus on what matters most in this project and ensuring it is able to be completed in time.	This criteria constantly evolved as I researched more & determined new ideas that would result in a better design. I ended up not putting advertisements in my app despite initial indications.
Time Plan	Making the GANTT Chart means that I can plan all of my tasks ahead of time and mark them off as completed, in my case I can update them with a completed percent regularly and visually see the updates in Excel. This means I can see how far ahead or behind I am and adjust my speed accordingly, i.e. if I am ahead, I can focus on improving the app a bit more then I otherwise would have.	This chat helped me learn how I most spend my time for the MDP to be finished & completed to a high standard. Ended up been followed quite well.
Action Plan	Ensuring that I spend a significant amount of time on the Project Proposal should minimise the chances of building a poor product as I am trying to research potential issues & solutions to future problems.	This provided a more detailed indication of the tasks I must complete & in which order they will be. Helped with structuring the folio, particularly.
Finance Plan	Planning and predicting my costs in a budget is important to ensure that I do not go over budget with my folio & I have enough money in order to be able to complete it properly.	This allowed me to predict any future costs & to help minimise the chance of me going under budget.
Exploration of Existing Ideas	Analysing existing solutions helped enhance my creativity as I was inspired by these existing solutions to make something better, combining all of their good qualities.	The exploration of existing solutions helped me generate ideas later on which manifested into my final products design.
Idea Generation	Utilising design tools like a mind map & collage allow me to explore my creativity and to generate potential ideas that I otherwise might not have thought of. This means that the overall product should end up being better/more creative.	This was heavily influenced by the previous exploration of existing ideas including me adding a collage that aided with creativity which ended up being the basis for a lot of my user interfaces.
Degree of Difference	This degree of difference, particularly when comparing my design against others reinforces how unique and creative my approach to this situation is, namely by the fact there are no existing designs with intent like mine.	In order for my product to be a success it must stand out which was done using a variety of function & aesthetic techniques.

Application of Evaluation Procedures

Project Proposal	Evaluation Comment	Development or Changes
Appropriate Research	Interviewing these experts was a good choice because otherwise I would have wasted time learning how to program for IOS devices and most likely gone over my time plan & budget which I am going to try and stick to.	Research was critical to my investigation & provided me with knowledge, particularly regarding what software I should be using. I also learnt that I was not going to support IOS here as well.
Experimentation & Testing	Creating & performing tests & experiments allows me to examine what techniques & tools will be suitable for production & gives me experience using them, overall making production more efficient.	Testing allowed me to find faster ways to approach certain tasks & made the development significantly faster.
Justification of Resources	Ensuring that I have good reasoning for solving each idea should mean that I have a better end product as it will be more thoroughly thought out.	Here I was able to finally list all of the tools, ideas, techniques & skills I used giving me insight into how important they are in development.
Communication & Presentation Techniques	The interviews or online calls that I spent more time preparing for often meant that I would get more enthusiastic responses from the users & they would be more willing to expand upon their ideas. This was also common in the online chat where as long as I showed evidence of me attempting to solve my problem prior, then people were always willing to help.	I actually found a good formatting & set of presentation techniques as a result of my folio design meaning that not much changed in this section.
Application of Practical Skills	The construction of the app ended up taking a significantly larger portion of time than I had initially planned for, partly because I underestimated the scale of the task. This was most likely due to the abundance of high-quality apps that individuals are used to & as such with so many apps available I believed that they were simple and quick to make. This was not the case.	This illustrates how my product has developed from the beginning to now. There were a lot of minor changes but overall the production went according to the time plan.

Functional & Aesthetic Evaluation

Appropriateness of the Design Solution (Function)

My project is an appropriate solution for the target market, the environment, and the community as a whole. My project overall allows people to download & utilise a solution to help address Australian's widening education gap by encouraging students to form study groups.

My project, due to its digital nature is accessible to everyone both in metropolitan, regional & remote communities. As outlined in my initial criteria, the current solution allows users to create accounts, enter relevant personal details and search for others in their local area with similar interests. It also functions on a variety of Android devices & is easy to use. The fact this design meets all of the outlined criteria means its functional aspects can be considered a success.

Target Market

Due to my project's characteristics, the target market for the app is high school students in NSW who are interested in learning & education, particularly those at smaller high schools. Due to the nature & design of the app, with this target market as a central focus it can be concluded that this design functions for the intended users. This can be seen through its ability to connect students & in the way the UI has being designed, utilising colours & language suitable to the age group as well as being accessible to as many students as possible.

Use of Design

The app will eventually be made available for free on the Google Play store, however this is a long & rigorous process that the time limits did not allow & as there is a stringent review process the app will be available soon. Additionally the promotional & explanation video will be available on both YouTube & on the App Stores main video showcase. This means any user can access the video and will soon be able to access the design easily as the Google Play Store is on every Android device.

Ergonomics

When developing the application, I ensured that I was taking care with regards to my seating position, posture, organisation & taking breaks regularly. This was in an effort to ensure I was not in danger & any accidents risk level was low.

Additionally, as the project is of a digital nature it cannot cause any physical potential danger to users & all User Interfaces have being ergonomically designed for different devices to ensure that strain is not placed on the user. Overall, I have attempted to ensure no dangerous content is posted on my app & if I am notified of anything then I can easily remove it, hopefully ensuring that users are safe online.

Sustainability & Recycling

As my project does not involve using physical items, the consumption of any particular physical product was not a concern. In terms of the production my biggest unsustainable resource was using energy when developing on my computer, I ensured that I was using energy efficient devices & when not working on the project I made sure to turn off my device in order to save on power.

Recycling has not played a major factor due to the digital nature of the product & I will ensure that my folio is printed double sided and utilises recycled paper. Additionally, when it is disposed of it will be recycled again.

Safety & Health

I have made sure to design my product so that it is safe to a variety of age ranges & that any users shouldn't have their safety put at risk. Additionally

the possible digital & psychological effects of my product were considered during development. However, due to the nature of the app it should not be used for extended periods of time & as such should not pose a high risk to a user's health.

Quality

I have tested my design for any possible errors, bugs & problems. There was a significant amount of small issues after going through this process however I feel as though my app is at a higher standard than it was prior. Throughout the development I have ensured that I spend adequate amounts of time developing the app, making sure that no shortcuts are taken and as such I believe the quality result of this is much higher. Additionally, I have made sure to test the app on a range of devices to ensure its compatibility.

Cost

Throughout the whole process I only went over my estimated budget by a few dollars. This was due to accurate forecasting & researching as well as discussions with experts. This planning resulted in a solution that was affordable & affective making me well under my $50 budget. The utilisation of free software & student licenses aided in this endeavour.

Appropriateness of the Design Solution (Aesthetics)

As determined in the initial research and criteria for success I must produce a solution that is visually appealing & that stands out when compared to other solutions. As aesthetics are the first thing a custom sees it often will coincide with quality & as such making the app visually appealing is one of the most important factors.

However, aesthetics is an area that is very subjective with individual preferences playing a

big factor & thus making it difficult to evaluate effectively. I have tried to judge to the best of my ability what designs & colours each aspect of my project should be & utilised tools & techniques for designing my apps user interfaces that made it more aesthetically pleasing. Aesthetics also have a major effect on the usability of an app & therefore I took it very seriously.

Ways in which I have designed the aesthetics to be appropriate are:

+ Fitting with current Android design trends & utilising standardised components
+ Using animation, scale & other UI techniques to draw user's attention
+ Sticking to a colour palette in order to ensure a consistent design across both the app & the folio
+ Using graphics that are appropriate to for my target market
+ Making a UI that is simple yet functions
+ Using colours that are easy to look at

Project Impact Evaluation

Individual

This project has successfully created a design that will aid in the problem of Australia's declining education. By encouraging individuals to be more proactive in their community & to find others with similar interests, not only will they benefit others but themselves as well. The fact that this design is completely free to access makes sure that it is accessible & can benefit any student in NSW. The app element has the ability to make people's lives more enjoyable & in turn increase the potential for a student to further their education, which as described earlier can lead to significantly higher quality of life expectations as a result of better job prospects as well as a better overall education which can lead to a more positive attitude towards society as well as other people. Overall, this project has also had an impact on me as it has increased my skills in a range of areas including programming & app development, user interface design, video production & video editing.

Society

The existence & introduction of my MDP will effect society in a positive way as the education of an individual has a large impact on the communities they live in, their family & the Australian society as a whole. Often education is the one factor that allows an individual to pull their family out of poverty & start intergenerational change. **By giving greater learning opportunities to all students** my app will be able to **promote its solution to part of a massive problem.** In addition, in regional or remote communities, particularly with regards to the Indigenous population an education is a much rarer occurrence & allows not only an individual's life to be more positive but also has a much broader effect on their family & community. The ability for this app to be downloaded & utilised for free, for any student **increases its accessibility for all users** & in turn will increase the effect it has, **particularly on lower socioeconomic areas.** Often regional students will travel for education & then come back to their towns, bringing their skills with them, encouraging others but also **reinvesting back into the community** whether that be through better job opportunities, spending or even by encouraging others. This app also **fosters community engagement** by **connecting people within communities,** allowing them to meet, talk & build bonds. This **potential to create small communities** is fairly evident in the fundamental design of the app & therefore **the flow on effect will impact many people in society.**

Environment

Throughout the entire design process, I have being effective in minimising my MDP's impact on the environment, particularly considering the only physical materials that will be needed is the paper for printing. I have ensured that the tools & technologies I utilise are energy efficient when physically creating the product to ensure I am not damaging the environment. This includes services like Google's Firebase warehouses which are entirely carbon neutral, minimising the impact they have on greenhouse gas emissions. However, it is to be noted that physical goods that could be harmful to the environment including mobile phones, laptops & desktop computers were needed. But these products have a much longer life cycle & are not specific to this project & as such whilst this design may encourage the use of technology, it would only be having a minimal impact on the purchasing of high value tech goods. My product has been designed with a long-life cycle in mind and as such by prolonging the life of the app it will decrease the impact on the environment as new solutions would not need to be constantly created.

Final Product Relationship Evaluation

Design Situation & Brief

In Australia, particularly NSW, high school student's educational performance on average is declining particularly when compared to other economically advanced countries with us coming 29th in a recent PISA international test for mathematical skills. These trends for this is only going downhill, with educational averages consistently dropping over time. In addition, solid research has found that when students form study groups, they have much better educational & learning outcomes, generally on average having a 3 times higher retention rate than in a traditional classroom scenario. I have met this design situation as my final design addresses the issue of declining educational outcomes, as it encourages good habits & allows students to meet up & form study groups in their local area, in turn adding positive growth the NSW educational performance.

The design brief I determined from this situation was to *"Design and construct a mobile application that will help students looking to form study groups connect and find each other online."* I have fulfilled my design brief through the creation of my app which meets all aspects of the design brief, mainly an application being available that allows students to connect & find each other online. I will also include a video promoting & explaining this app which will encourage students to download it.

Target Market

My target market for this project is High School students between the ages of 12 & 19 as they are the most proactive when it comes to education & as such will be the most affected by the design. My apps has being designed to cater towards this target market through both the aesthetics & functionality, utilising references & the perceived technical skills of the market to create a design which is appropriate. I believe my product fits the target market as I conducted deep research on the

expectations of my target market. This was further outlined in my criteria for success where the following evaluation criteria was established:

- Works in Rural, Regional & Metropolitan Areas
- Is inclusive and accessible to as many people as possible
- Has the ability to expand into other states courses and for university courses to be added
- Works on most modern devices

My current solution meets all of the aspects defined above in terms of its functionality & as such **it is an appropriate final solution to meet the needs of the market.**

Motivation

My main motivation for this project was personal as throughout my high school experience I had a passion for technology related subjects but had not had anyone at my school interested as much as me. It was then very difficult to find students but after I did, I noticed my enjoyment of school was significantly higher & so were my results. It became quite apparent that this issue did not only exist for me but was quite prevalent across the state, particularly with more niche subjects, hence making me want to work on a project like this. After having completed the project and looking back I know this has opened my eyes as to how the educational divide in Australia is such a significant issue that in order to be solved it will require a multitude of solutions from different angles all working together. I have learnt a lot through this project and spread this knowledge through my passion for technology. Overall, I am confident that I made the right decision in completing this project, particularly considering the scale when compared to some of my other ideas.

Time & Finance

Both time and finance plans are extremely important to any project & given the scale of this one, ensuring that I kept on track was vital to the success of the project. The finance plan respectively also helped ensure that I do not go over my budget whilst producing my project. During my planning it was clear that if time were not managed properly then it would affect the quality of the whole project, both in terms of the folio, video & product. I personally believe I have managed my time well & this is evidenced by the final solution which has benefited from quality time management. In addition, the finance plan ended up being a success with my final cost only a few dollars above my prediction & well under my budget I was happy to spend on the project. Actions like utilising free software & seeking out competitive prices has meant that I was able to stay on track the whole way through the production process. Overall, the use of GANTT Charts and Budget Tables has helped me effectively organise both of these crucial project management aspects.

Design Factors

Appropriateness of Solution

In order to ensure my product was appropriate I created criteria that were focus on ensuring it was an innovative, modern product with a high degree of difference when compared to existing solutions. The criteria I will use to evaluate the appropriateness is:

- Innovative product compared to existing solutions
- Feasible for high school students to use in NSW
- Has a high degree of difference
- Environmentally appropriate & conscious

Overall, my solution is innovative as it is the only app on the market currently like it as illustrated in my degree of difference & existing solutions research. Additionally, it is easily accessible through a free download on the app store & its digital nature makes it environmentally appropriate. In conclusion, this design was appropriate as it met all of the defined criteria.

Cost

I determined various cost factors focusing on ensuring my app was financially accessible. The criteria I will use to evaluate the cost is:

- Be within my $50 budget
- App should be free for all users
- Minimise monthly server expenses, potentially through in-app advertisements

Overall, my solution meets the main two criteria by being free & within my budget. Currently I am not spending much on servers but do not have advertisements in place as I determined during my research that they hinder the user's experience, as such they will not be included. As such, I would consider these criteria met.

Quality

I determined various quality factors focusing on ensuring my app was designed up to today's standards. The criteria I will use to evaluate the quality is:

- Must allow users to connect and meet each other
- Users should be able to create accounts and enter relevant personal details
- Users should be able to search for similar people in their local area and message them
- The app should work on all devices and in regional and remote NSW communities as well as metropolitan areas

Final Product Relationship Evaluation

Overall, my solution meets all of the above criteria in terms of it working as expected. Additionally testing & experiments on various devices were conducted to ensure that the app works across a wide variety of devices which it succeeded in. As such the quality criteria has been met.

Needs

I determined various factors focusing on ensuring my app met the identified need which was allowing students to connect & form study groups. The criteria I will use to evaluate the need is:

- Works in Rural, Regional & Metropolitan Areas
- Is inclusive and accessible to as many people as possible

Overall, my solution meets these criteria, with my techniques for user interface design centring around inclusivity & accessibility. As such these criteria have been met.

Functionality

I determined various factors focused on ensuring my app functioned as expected & worked properly. The criteria I will use to evaluate the functionality is:

- Must allow users to connect and meet each other
- Users should be able to create accounts and enter relevant personal details
- Users should be able to search for similar people in their local area and message them
- The app should work on all devices and in regional and remote NSW communities as well as metropolitan areas

Overall, my solution meets these criteria, with my detailed testing confirming each of these individually. As such I can confidently say the design meets the identified functionality requirements.

Conclusion

Overall, I am extremely happy with my final product & folio. I feel that **I fulfilled all of the criteria** I created after intense researching. This criteria **has all being evaluated as complete by various means**, including **extensive & rigorous testing & experimenting.** I have **learnt a lot of different skills & techniques** in a variety of different areas regarding both programming, design production & video production which will aid me in the future & have aided my production of this project.

From a resource utilisation perspective, I feel as though I have managed both my time & money well with the project, video & folio all completed on time & to a high standard. Due to the massive nature & timespan given for the project it was essential that **work be consistently done on the MDP which I feel resulted in a well-designed solution that meets a genuine need.**

> **EVAL**
>
> My final product has had a considerable number of criteria it had to meet & due to this predefined & planned criteria **my product was able to be completed to a high standard.**

To improve the final solution overall I should continue updating the app & adding more features, utilising a more quick, Agile Project development methodology which requires less initial planning & as such it suited to rapid development of applications. More features including advertisement, sending videos & gifs as well as more detailed profile pages would provide great improvements to the product in the future & would help it to stay modern & up to date.