

School of Electronic Engineering
and Computer Science

Final Report

Programme of study:
Computer Science BSc

Project Title: **Noteable**

Facilitating Student Collaboration,
Idea Exchange, and Peer Support for
Academic Success

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Date: TBA

Abstract

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Chapter 1: Introduction

The author, reflecting on their own experience as a student, describes the challenges faced during a year of online study amid the pandemic, followed by a second year without friends or academic support. They highlight the feelings of loneliness and anxiety that arose from trying to engage with the social aspects of university life under these circumstances. The author notes the difficulties of building friendships behind a screen and, later, the challenge of navigating in-person university life alone. Neither experience, whether online or on-campus, offered sufficient resources to facilitate friendships or foster a supportive community.

The author found it especially challenging to seek help, as the group chats and servers they were part of during this time didn't provide a reliable source of academic support. This lack of communication with peers and teachers contributed to their struggles, leading to a cycle of avoiding work and considering dropping out during both the first and second years. As deadlines and exams unexpectedly approached, the author found themselves overwhelmed, often unclear about the week they were studying in or what tasks they needed to complete. This accumulating stress and anxiety negatively impacted their mental health, a struggle that, they believe, was shared by many students in similar situations. Relying on resits was the only way they managed to progress through the first two years, though this limited their marks and affected their overall degree outcome.

Reflecting on what might have alleviated their experience, the author believes that a platform like Noteable could have provided crucial support. They suggest that being able to connect with other students would have allowed them to share their thoughts and feelings with those going through similar struggles, thereby fostering a sense of belonging. The author envisions Noteable as an online environment focused on building connections between students, offering a space for both peer and tutor support to help prevent students from falling behind. They believe that such a platform could help students from their first year onward to avoid isolation, stay on track academically, and potentially build friendships with peers in the same course or university. Now in their final year, the author has learned—albeit through challenges—how to navigate academic success and support their mental health, and they hope that Noteable can provide future students with a smoother path.

1.1 Background

The problem revolving around university level education unveils the amount of difficulty students endure during their time studying. It has been studied that 44% of students surveyed said they experience loneliness during their time at university, that 44% of students were less engaged with their extracurricular activities than they were expecting to be, and a quarter has never engaged at all (Brabner, 2024). Loneliness doesn't only isolate a student but also instils fear of further socialization. Socialising is a learnt behaviour, and when you are not given the opportunity to do so in a new environment, then a certain fear can come over when acknowledging its need in a student's academic life. Further statistics show that over a quarter of students indicated they would feel uncomfortable seeking support from their university (Brabner, 2024). Such statistics can display the inherited avoidance that students display from their feelings of discomfort from the environment university creates, such feelings stem both from a type of social anxiety to reach out to peers, support groups and module leaders and displays the weight of mental health and how it can instil emotions of fear and doubt.

The scenario of being in a hall full of hundreds of students can seem daunting, and the idea of voicing a concern or a question about the content which everyone is going over can also make you feel anxious. The scenario isn't always easy, and it places students in a vulnerable position to openly share what they fail to grasp or understand. In public situations like this it isn't uncommon for a student to doubt themselves and wonder how they sound in the perception of others when forwardly asking questions. It has been studied that fewer than half (48%) of students feel comfortable asking questions when they are in class, and more than two-third (67%) feel embarrassed when lost in their classes (Global Education News, 2023). A higher statistic of nearly three-quarters (71%) of students

say they tend to feel anxious about their classes and schoolwork (Global Education News, 2023), on top of this 44% say they have trouble meeting new people and making friends (Global Education News, 2023). Whilst students feel anxious regarding their workload, it is easier to maintain stress levels when there is an environment on which you can lean on for support and guidance in times of difficulty or overwhelming feelings and thoughts.

As a result, finding stability in an online environment like Noteable allows students to reach out to others online, which feels less daunting than socialising in a lecture hall or in a lab, and possibly form friendships, not only with those who go to university but also those in the same course.

1.2 Problem Statement

The problem with students who shift from a more supportive system with a nurturing education environment to a more independent and self-directed learning space is that a lot of the time they do not know how to adapt to the academic requirements of university without have the feelings of:

- 1) Isolation and loneliness
- 2) Fear of failure
- 3) Inability to keep up with their educational expectations.

This means that the structure of university is not secure enough for students to rely on and find a safe space to search for a resolution to their struggles. A lot of students do not know where or what to do when looking for support, and if they are to find it; it is not adequate to fully support them when in a very challenging time of their education. University can be seen as a place which is both difficult to socialize in and study effectively in – especially when in our previous years of academic life we have continuously seen familiar faces and been around an expected support system from teachers and peers. The lack of familiarity with people and the education system, does not offer stability to students but rather a higher level of stress and anxiety when faced with a very different environment.

This is why the solution the author has come up with is an expansion and addition to the current university system. Whilst maintaining the academic expectations of students – The author will intend to provide the necessary support and comfort to students who find it to be a great challenge when settling into university.

1.3 Aim

The idea to create an online environment for students to seek support from potential tutors and their peers allows them to solve the various obstacle they face when trying to find accessible help. The further opportunity to socialize with those within their course whilst simultaneously gaining academic support through note sharing allows them to feel more comfortable and grounded within their academic environment.

1.4 Objectives

1. Conduct a comprehensive literature review on how my webapp plays as a solution for students who feel isolated and anxious with their studies, and how this would benefit the success of their overall time at university and the progress of gaining their degree.

1.1 Understanding the impact of the lack of academic support from universities

1.2 Understanding the needs of the students when it comes to a platform which directs them to help from their peers and tutors.

- 1.3 understanding the benefits of sharing work and having a space of communication and how this affects a student both academically and socially.
2. Gather insights from real-life potential users of the web-application and their insight of having a platform which attends to their academic needs.
3. Design and develop a web-based application that provides its users the best platform for sharing academic resources in a way which supports the user and builds their confidence around their peers.
 - 3.1 A “log in” page which gives the student an opportunity to have their own account and keep resources which are familiar and necessary to them.
 - 3.2 “My Notes” tab which will lead students to a page where they can access their saved notes from other students
 - 3.3 “sharing Notes” tab where students can share notes that they have made to support their peers.
 - 3.4 “Contact” tab which allows students to reach out to their peers or to potential tutors which they would like further assistance from.
 - 3.5 “AI bot” tab which allows students to talk to an AI chatbot for further help with their studies or if they are in need for an answer in a short frame of time.
 - 3.6 “Account” icon which leads the student to the information regarding their account with Noteable.

1.5 Research Questions

- How has the shift between a more supported educational system affected the transition between sixth form/college to university.
- Where do universities lack the most when it comes to supporting students academically?
- What is the main cause for students to give up on their studies and avoid their academic responsibilities.
- What stops students from reaching out and making friends
- What would give students a boost of moral when tackling the challenges associated with university.

1.6 Project Milestones

1. In-depth and extensive academic literature review, supplemented by a research study conducted through a series of interviews with different target users.
2. List of functional and nonfunctional requirements
3. Working web application that achieves the objectives previously identified
4. Complete report document, comprising of the necessary sub-elements and documentation

1.7 Report Structure

In order to ensure that the document is efficiently set out and easy to understand, it comprises a set of chapters that have broken it down, along with the necessary sub sections in each chapter. The following list outlines the chapters and what they have been used for within the documentation.

Chapter 2: Literature Review – This chapter examines the problem in depth, justifying the proposed solution and outlining how it seeks to resolve the issue. It includes a critical analysis to highlight strengths and weaknesses, laying the groundwork for defining essential requirements.

Chapter 3: Methodology – Building on the literature, this chapter devises a series of targeted questions that will be presented to the intended user base. These questions aim to gather valuable insights to support the solution.

Chapter 4: Requirements and Design – Drawing from previous research and personal expertise, this chapter develops a well-defined set of requirements and a thoughtful design blueprint. These elements will guide the creation of the application.

Chapter 5: Implementation – This section details the complete development of the prototype, including the code and individual components that make up the final product. Illustrations and examples will demonstrate how each piece integrates into the overall application, bringing the research and design to life.

Chapter 6: Testing – The program is then rigorously tested using data from students to ensure functionality aligns with expectations. These tests will also verify whether the specified requirements and objectives have been successfully met.

Chapter 7: Evaluation – This chapter critically reviews the entire project, assessing the application's scope and the effectiveness of the testing phase. It will evaluate how well the requirements were met, while also identifying limitations and opportunities for future improvements.

Chapter 8: Conclusion – The conclusion reflects on the project as a whole, summarizing how it has achieved the objectives set at the outset. It will also highlight key accomplishments and personal goals realized through the development process.

Chapter 2: Literature Review

To help create an extensive and detailed list of functional and non-functional requirements as to aid in the design of my proposed solution, a literature review has been conducted. The purpose of this review is to create an unbiased view on what is needed by students when facing academic challenges and what is already available to them to aid them in their difficulties. This will allow for inspiration for my proposed solution with the further ability to identify the gaps in the current support system related to universities that I can target with my solution.

2.1 Problem

2.1.1 Understanding the importance of students having a present support system throughout their time in education.

In the 21st century it is normal to find universities as the leading upper education system for most adults. Education is something which is constantly acknowledged and implemented in a person's life from early childhood to teenage years. With the normality of education throughout our childhood, it came with a clear support system and structure around it which allowed children to adapt to the expectations that the education system had for them, in turn students did not think of surrendering to the difficulties they faced with school.

When diving into primary and secondary education specifically – we find it to be a place of education where the foundation of a child's success in this time of education is based on the support system which they are within. The awareness of having teachers and peers around them to help them in their time of need is effectively taught and practiced when they enter this new stage of their life. Children's commissioner had looked into children's view on school and found several first-hand accounts of what schools mean to children who have been in this environment, one statement being that "Each child needs an education and teachers that help them achieve any dreams and goals they have, a teacher you feel safe with" (The Big Ambition: Children's views on school, 2024). This sheds light on how important it is to be present in a student's education especially in the place of a teacher. It is incredibly significant to a student to feel capable of achieving their academic dreams and goals with a strong support system which will push them through the difficult times that education can present. Not only do we see the importance of academic support but also the concept of having a space to turn to when there is difficulties in other aspects of a student's life; "when children are facing challenges, whether at school or at home, they want to be able to share these with adults at school, children want to feel safe to share their concerns at schools, they want teachers who they can confide in and places they can go in school when they're struggling" (The Big Ambition: Children's views on school, 2024). The importance of having a safe space to turn to when in education is again emphasised on, education is the main factor of children's lives for several years, and it can come with a lot of challenges, it is sought through even at the earliest stages of education that it is required for students to have a place of support in which they can confide in.

Despite the importance of a support system multiple statistics show that students feel isolated and alone at university, and struggle to find people to turn to when in the need of help – whether this be their teachers or their peers. It is very rare to find students in early education to fail or to leave their education and this is solely due to the fact that they are given a safe space within their education which concludes their time at school to lead to succeeding with a specific qualification e.g. SATs, GCSEs or A-levels. It has been studied that 44% of students surveyed said they experience loneliness during their time at university, that 44% of students were less engaged with their extracurricular activities than they were expecting to be, and a quarter has never engaged at all (Brabner, 2024). The difficulty to adapt to university standard of education when a student's entire academic life has been encompassed with their being a support system built around them where they see familiar faces in their teachers and peers to being in a place with hundreds of students inside of a lecture hall, unfamiliar faces and the inability to find adequate support from their lecturers and tutors. It should

come as no surprise that students face a high level of difficulty adapting to university and the requirements it withholds for students to accommodate to.

The significance of support systems in early education is widely recognized, highlighting the essential role that guidance continues to play as students advance in their academic journey. It's often emphasized that higher levels of education bring increased difficulty. This challenge can be viewed from two perspectives: not only does the subject matter become more complex, but students may also experience a decrease in direct support from teachers and peers. However, while the curriculum's demands grow, this progression of difficulty is a fundamental expectation within education. Advancing from one academic year to the next naturally introduces new challenges, yet success remains achievable largely due to the comprehensive support provided by educators and the accessibility of resources within the school environment. Studies outside of the UK also emphasise on the feelings of loneliness and isolation which create a setback in the studies of students and their success in university. It has been shown that 53% of college students reported that they are concerned with the feeling of loneliness and 47% reported they are concerned with feeling isolate, GAITHERSBURG, Md. (August 9, 2022). A further statistic of over 60% of college students report having felt overwhelmed and anxious, a 50% increase from 2020, GAITHERSBURG, Md. (August 9, 2022). A higher statistic of nearly three-quarters (71%) of students say they tend to feel anxious about their classes and schoolwork (Global Education News, 2023), on top of this 44% say they have trouble meeting new people and making friends (Global Education News, 2023). Whilst students feel anxious regarding their workload, it is easier to maintain stress levels when there is an environment on which you can lean on for support and guidance in times of difficulty or overwhelming feelings and thoughts.

Several interventions have already been made in attempt to shape university to be more facilitating to the needs of students and their success. Such issues have been shed light on by Eline Sneyers in her review of higher education stating, "Mentoring can be seen as a situation in which a more-experienced member of a higher education institution maintains a relationship with a less-experienced, new member and provides information and guidance" (Eline Sneyers, 2016). Shedding light on the support that the role of mentoring holds in the education system, allows students to have someone within university to go to for support – whether it be in an academic context or a emotional one. Mentors usually have the role of guiding students when they are in the middle of a difficult situation, they are pivotal in a students experience with higher education as they present themselves as a type of support for students, especially students who are vey new to the world of university and don't have familiarity with a support network provided by the university. The use of mentoring if not successful in a university setting can also be found in Noteable, through the use of tutoring, whilst it isn't directly situated with the university itself there are still options of working alongside a tutor who can assist with academic support and also assist students the same way a mentor could assist if there are university graduates. Certain past experiences do play a heavy role in being able to support students who are in the place which the tutors were also in themselves.

Further studies of peer support have been conducted, peer tutoring and academic integration has been studied in the "impact of Student Support Services and Academic Development Programmes on Student Outcomes in Undergraduate tertiary study: A synthesis of the Research". The study paper highlights "peer contribution to academic and social integration into an institution is important in achieving positive outcomes". Which shows the importance of implementing peer support in education, universities who have implemented this have found great success in their students' academic performance. (Prebble et al., 2004) Further statements in the research paper shows exactly the success rate of peer tutoring and group tutoring towards education. Astin (1996), reporting on his major multi-institutional study in the United States, observes, "perhaps the most important generalization to be derived from this massive study is that the strongest single source of influence on cognitive and affective development is the student's peer group" (p. 126) (Prebble et al., 2004). The outcome of peer tutoring and group work tends to have an increased success rate in the academic performance of students as it removes the feelings of isolation and loneliness in university when looking at how student feel when approaching their education alone. It also allows students to socialize and find peers to work without outside of their allocated peer work which pushes for further academic support and success. Noteable intends to implement peer support as its number one priority for students who struggle with their education and do not know where to find support,

especially from their fellow students. Sharing notes amongst peers and having the means to communicate with the other students allow a support network to grow and for a system of academic knowledge to be accessed and used to its best potential for struggling students.

The final way that universities implement academic support to students is peer mentoring. Whilst mentoring has been covered, peer mentoring can prove as a very success way of allowing students to support one another. Certain students can find subjects or assignments easier to grasp than other students, which paves a path for universities to integrate this level of support for students. Anne Arundel Community College used more experienced peers to provide support in a variety of courses. The intervention involves regularly scheduled study sessions between mentor and student. The mentors demonstrate and assist with study strategies such as collaborative problem solving and graphic representation of abstract concepts. Peer mentors enrol in a training course that gains them academic credit and are paired with an experienced teacher who advises on issues that arise. Wolfe (1996) found the intervention led to significantly better retention rates and grades compared with those who did not (Prebble et al., 2004). When outlining the impact of student mentoring, it is clear how successful and useful it is for students who need that support which they have gotten throughout their years within education. We see how having a solid support system allows students to evolve within their studies and facilitates them with what they need in order to get the best grades in university whilst also not feeling lost or overwhelmed with their education. Noteable also implements peer mentoring which allows students to gain knowledge and advice from their fellow students who allow them to gain understanding within their difficulties. It pushes for the same outcome of increased success within the degree and a push for higher graduation rates, when finding the correct support system, which Noteable intends to create.

In summary, when you look at education as a whole and look back at how it was introduced to students, it is clear that the basis of success within education is derived from a foundation of support. It is what students look for at the earlier stages of school all the way through to their upper education at university. Support is the pinnacle of success, and it is what drives people to overcome their faced difficulties. Further accounts of already implemented methods of academic support have clearly outlines the success of peer-to-peer support and peer mentoring/tutoring which has allowed students to progress in their education with confidence and success. It is something that should not ignored nor overlooked when addressing the overall issue with the support system within university and how the support of teachers and peers play a part in finding the finish line at university; Noteable plays a part is incorporating the solution of a strong support system within student's time at university.

2.2 Existing solutions

Studydrive

Studydrive supports students by offering an extensive digital platform where they can share academic resources, access study materials, and find support in a collaborative environment. Designed to enhance academic success, the platform allows students to upload lecture notes, summaries, and past exam papers to help their peers. Studydrive also partners with universities and companies to provide career opportunities and job insights, facilitating connections between students and employers. The platform's mission centres on empowering students and fostering a supportive, knowledge-sharing community. However, one of the potential drawbacks which students could state is that there could be premium option that the website withholds. For a platform which is made to solely help students progress in their education, it can be a huge setback for them to put a price on that success – not all students are in the financial position to pay for the luxuries that the premium version provides. The premium feature doesn't clearly state what It provides either, only focusing on the “exciting new feature” tailored to the students need. So the overall consensus of studydrive focuses on its platform being one that provides notes and other resources to help student further in their career but also have other features which drive away form the main aspect of supporting students – such as the premium version, internships/job offers and cv support etc.

Some of Studydrive's key features include:

- ➔ **Community-Based Resource Sharing:** Studydrive enables students to share study materials, like lecture notes and past exams, with each other. This creates a collaborative learning environment where students from various universities can access relevant resources to help them prepare for exams and assignments.
- ➔ **Job and Internship Portal:** The platform provides a job board that connects students with companies offering internships, graduate roles, and other job opportunities. This feature is particularly valuable for students looking to gain work experience or secure a job post-graduation.

Studocu

Studocu is an online platform designed for students to share and access study materials, such as notes, exam papers, and assignments. It offers a large database of documents uploaded by students from various universities around the world. The site allows students to upload their own materials, helping peers who may need additional resources for studying. Users can find and download academic content relevant to their courses, while also participating in community-driven educational support. However, to access premium content, users may need to pay or subscribe to the platform. This, like the previous platform explored, can be seen as a potential drawback as their premium version offers a very different experience to the students seeking help who also do not have this premium option. Whilst Studocu's platform does provide users to access documents, upload their own and share the uploaded documents with others, there are still limitations to the overall functionality of the website; as their premium version allows students to have full access to all documents without any limitations, they also have exclusive materials which are set specifically for premium students only, more download opportunities and additional features like faster content discovery.

Some of Studocu's key features include:

- ➔ **Study Material Sharing:** Users can upload and share lecture notes, assignments, and study guides with fellow students.
- ➔ **Document Access:** Non-premium users can access a selection of documents uploaded by others, but with some limitations.
- ➔ **Search Functionality:** Studocu allows students to search for specific study materials within a wide database.
- ➔ **Study Groups:** Users can join study groups for collaboration on subjects and exam preparations.

Nexus notes

Nexus Notes is an online platform offering verified study materials created by top students worldwide. It allows users to search, download, and access notes for various courses and topics. The platform leverages AI tools to generate quizzes, essays, and templates, helping students improve their study efficiency. Nexus Notes also provides a marketplace where users can upload their own notes to earn money. However, Nexus Notes has limitations for free users, such as limited access to downloadable notes, AI features, and personalized study tools. The platform's full functionality, including unlimited downloads, essay generation, and premium AI tools, is restricted to premium members. Additionally, there may be a limited selection of notes based on the subjects or courses available, and users must rely on other students for contributions. The difference in the premium version gives students a different experience to other students and can in a way deprive them of the help that they are looking for, not all users are willing to pay a fee to get help for their university level education which already holds great financial weight onto them.

Some of Nexus Notes key features are:

- ➔ Note Sharing: Students can Note Sharing: Students can upload and download notes for various courses.
- ➔ Study Community: Users can interact with peers for collaborative learning.
- ➔ Premium Features: Premium members have access to advanced tools like AI-powered study aids, and unlimited note downloads. Upload and download notes for various courses.

Docsity

Docsity is an online platform that allows students to share and access academic resources, including study notes, summaries, and academic materials. It supports a wide range of subjects and aims to create a collaborative environment for students to help each other with their studies. Users can upload their notes, access those from others, and benefit from a community-driven knowledge exchange. Some features are available for free, while premium services offer additional benefits like more exclusive content. The drawback of premium services persists in this platform too, whilst Docsity advertises itself as a platform which helps students progress in their education, it also proves that it creates a barrier between the students and their ability to get the full potential of help in which the website can provide.

Some of Docsity's key features:

- ➔ Study Materials: Access to shared notes, summaries, and academic documents across various subjects.
- ➔ Student Collaboration: Community-driven knowledge exchange, where students can upload and download resources.
- ➔ Premium Access: Additional resources and features are available through a premium subscription.
- ➔ Q&A Section: Students can ask academic questions and receive answers from the community.

Existing Solutions Comparison Table

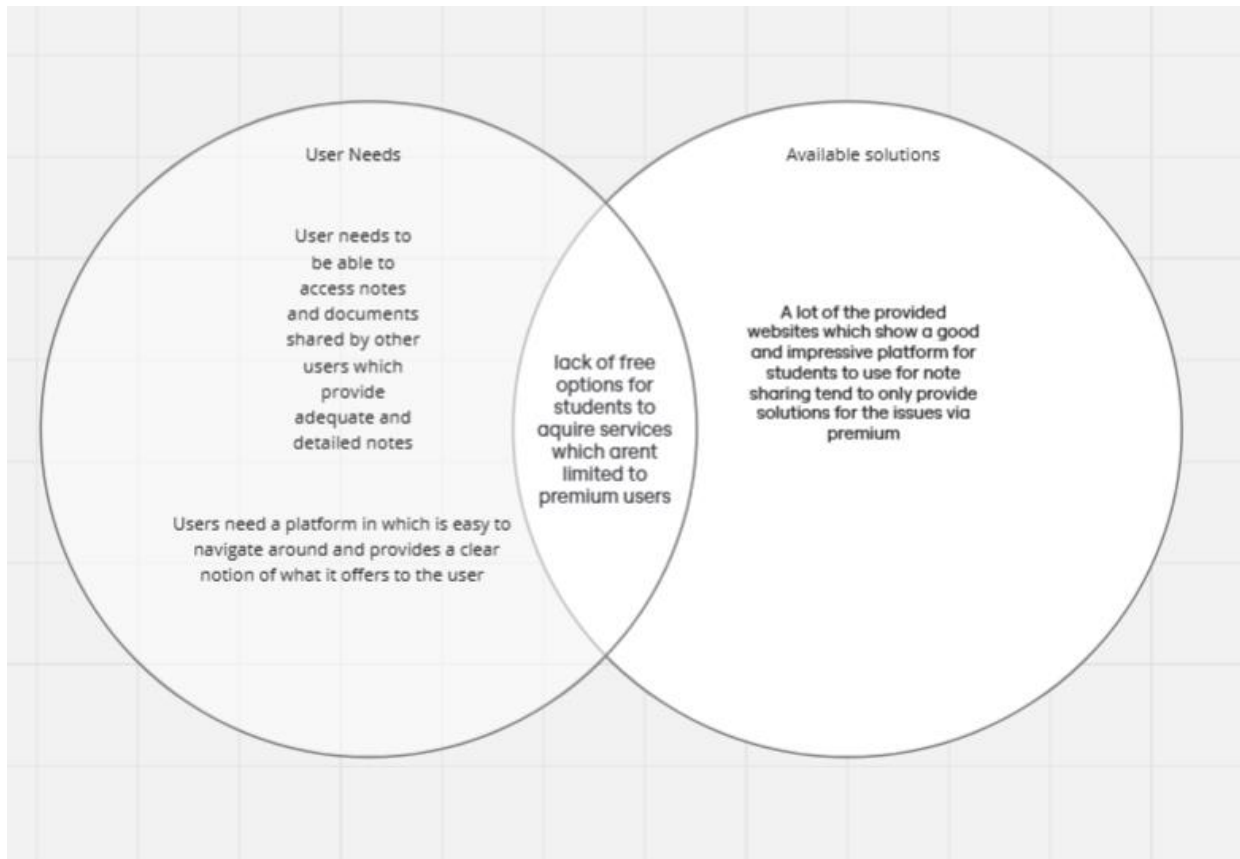
Web Application	Features	Drawbacks	How My App Was Influenced
Studydrive	<p>Community-Based Resource Sharing: Studydrive enables students to share study materials, like lecture notes and past exams, with each other. This creates a collaborative learning environment where students from various universities can access relevant resources to help them prepare for exams and assignments.</p> <p>Job and Internship Portal: The platform</p>	<p>Premium version creates a clear setback for users who do not have it – creating their experience on the website different from those who do – which in turn leads to more support given to one user than to the other</p> <p>There are several features not only sharing notes such as the internships and the cv review which</p>	<p>Incorporate a small job board which helps students navigate their life after graduation but doesn't take away from the main focus of what the Noteable app was made for.</p>

	<p>provides a job board that connects students with companies offering internships, graduate roles, and other job opportunities. This feature is particularly valuable for students looking to gain work experience or secure a job post-graduation.</p> <p>Web (desktop and mobile browser)</p> <p>Mobile apps for IOS and Android</p>	<p>can draw away from the main role of the website which is to help student's excel in their education.</p>	
Studocu	<p>Study Material Sharing: Users can upload and share lecture notes, assignments, and study guides with fellow students.</p> <p>Document Access: Non-premium users can access a selection of documents uploaded by others, but with some limitations.</p> <p>Search Functionality: Studocu allows students to search for specific study materials within a wide database.</p> <p>Study Groups: Users can join study groups for collaboration on subjects and exam preparations</p> <p>Web (desktop and mobile browser)</p> <p>Mobile apps for IOS and Android</p>	<p>To access premium content, users may need to pay or subscribe to the platform. Which can be seen as a potential drawback as their premium version offers a very different experience to the students seeking help who also do not have this premium option.</p> <p>their premium version allow students to have full access to all documents without any limitations, they also have exclusive materials which are set specifically for premium students only, more download opportunities and additional features like faster content discovery.</p>	<p>Incorporate study groups for students to not only have 1-1 help but also help in a group setting Noteable which can also create a more reliable space for supporting students in their education, in case the peer sharing the notes is not currently available.</p>
Nexus Notes	<p>Note Sharing: Students can Note Sharing: Students can upload and download</p>	<p>Nexus Notes has limitations for free users, such as limited access to downloadable notes,</p>	<p>Incorporate AI tools which allow students to find further support in their education and allows</p>

	<p>notes for various courses.</p> <p>Study Community: Users can interact with peers for collaborative learning.</p> <p>Premium Features: Premium members have access to advanced tools like AI-powered study aids, and unlimited note downloads. Upload and download notes for various courses.</p> <p>Web (desktop and mobile browser)</p> <p>Mobile apps for IOS and Android</p>	<p>AI features, and personalized study tools. The platform's full functionality, including unlimited downloads, essay generation, and premium AI tools, is restricted to premium members.</p> <p>Additionally, there may be a limited selection of notes based on the subjects or courses available, and users must rely on other students for contributions.</p>	<p>them to get faster support if students or tutors are not available at the time</p>
Docsity	<p>Study Materials: Access to shared notes, summaries, and academic documents across various subjects.</p> <p>Student Collaboration: Community-driven knowledge exchange, where students can upload and download resources.</p> <p>Premium Access: Additional resources and features are available through a premium subscription.</p> <p>Q&A Section: Students can ask academic questions and receive answers from the community.</p> <p>Web (desktop and mobile browser)</p> <p>Mobile apps for IOS and Android</p>	<p>Some features are available for free, while premium services offer additional benefits like more exclusive content.</p> <p>The drawback of premium services persists in this platform too, whilst Docsity advertises itself as a platform which helps students progress in their education, it also creates a barrier between the students and their ability to get the full potential of help in which the website can provide.</p>	<p>Have a further focus on student collaboration and allow Noteable to incorporate a community driven atmosphere which gives students the feeling of support around them, which further lets them rely on Noteable to help them in their education.</p>

2.3 Research Gap

The research gap I have found is that a lot of the websites studied tend to create very basic and limited free version of their platform whilst also having a premium version which give users a different experience on the website, the limited access to documents and features create a big issue in the notion of what the website is made for and what it provides for students, in a way falsely advertising their application.



2.4 Summary

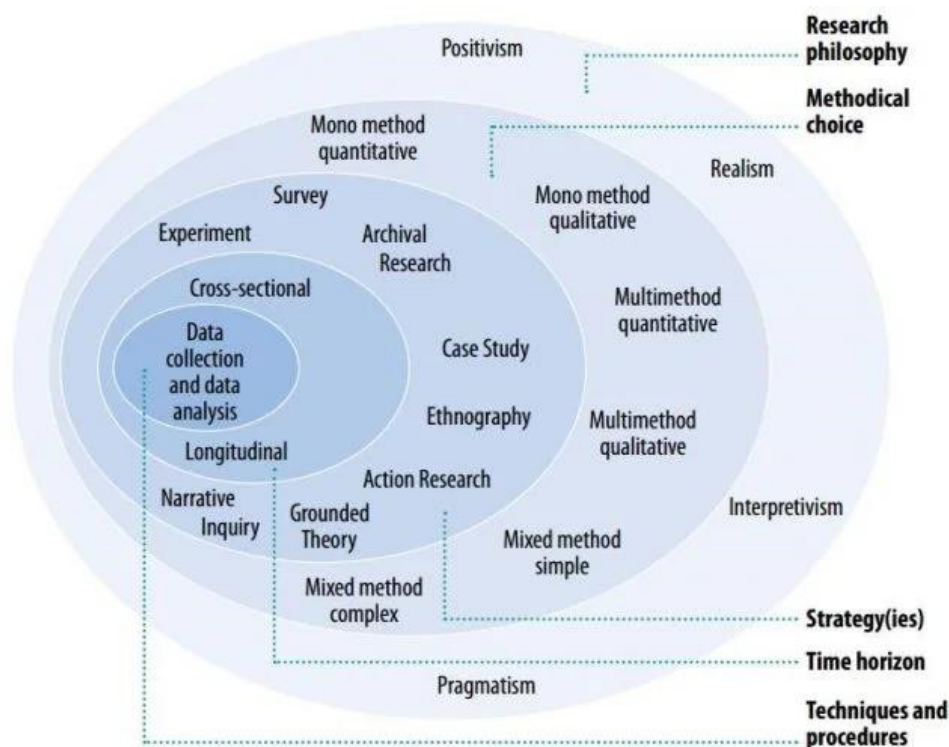
It is more than clear that a lot of the websites which provide a service for students to improve in their education to so, but only to a level with several limitations. There is an ongoing pattern of applications which withholds features that give students the ability to excel in their education that is behind the premium service. If a user is to come to the website for help and support, it would be negligent of the web application to withhold factors of the website which make a big difference in the users experience and how much it actually helps the student with their progress in their studies.

Chapter 3: Methodology

3.1 Methodology

3.1.1 Research Methodology and the Research onion model

The primary research for this report will be conducted through surveys, with the goal of gathering comprehensive information necessary to identify both functional and non-functional requirements for Noteable. Insights gained from these surveys will inform the design and functionality of the application by clarifying users' needs and expectations. Additionally, I will analyse features implemented in other successful applications to identify best practices and further refine the requirements for Noteable. This research process will follow the layers of the research onion model, using an interpretivist approach. Since this study is qualitative, the survey questions are designed to elicit detailed, unique responses from participants. I will apply deductive reasoning to interpret these responses and assess their alignment with findings from the literature review, ensuring that the application design is both user-centered and research-informed.



Research Prospect. (n.d.). Chapter 3: Dissertation methodology example. Retrieved November 27, 2024, from <https://www.researchprospect.com/chapter-3-dissertation-methodology-example/>

Moving through the layers of the research onion (as shown in Figure 1), the study will employ a mono-method qualitative approach, focusing on surveys designed to gather subjective, detailed responses from participants. Once ethics approval has been obtained from Queen Mary's ethics committee, I will be able to distribute the surveys, collect responses, and analyse the data. From this research, I can deduce the essential features that Noteable should include, based on the needs and preferences of students seeking peer support and academic networking.

3.2 Primary Data Gathering

TBA

3.3 Analysing The Data

TBA

3.4 Risk Register

ID	Risk	Probability	Impact	What happens if it occurs	Mitigation	Real Life Applications
1	Lack of user engagement	Medium	High	Users may not actively use the platform, making it ineffective as a networking tool	Conduct user testing and incorporate feedback to improve usability and appeal	User adoption and active engagement are crucial for networking apps
2	Data privacy and security issues	Medium	High	Sensitive user information could be exposed, leading to loss of trust	Implement strong security protocols (e.g., encryption, regular audits)	High-profile data breaches in social apps lead to reputation damage
3	Technical performance issues (e.g., slow loading times)	Medium	Medium	Slow performance could frustrate users, leading to decreased usage	Optimize code and use performance monitoring tools	Users may switch to faster, more reliable alternatives
4	Difficulty scaling as user base grows	Low	High	The app may not handle a large number of concurrent users, causing crashes	Plan architecture with scalability in mind, consider cloud-based solutions	Similar apps that fail to scale see declines in user satisfaction
5	Limited functionality compared to competitors	Medium	Medium	Users may prefer more feature-rich applications, reducing Noteable's appeal	Conduct competitor analysis and prioritize essential features for academic networking	Competitor analysis is critical to staying relevant

6	Misalignment with user needs	Low	High	The app might not meet users' needs for academic networking and support	Conduct thorough user research to align the app's features with user expectations	Users may seek alternative tools that better fit their needs
7	Poor user interface (UI) and experience (UX) design	Medium	Medium	Users may find the app confusing or unpleasant to use, leading to low engagement	Invest in UX research and testing to refine design based on user feedback	User-friendly design is essential in apps where users frequently interact
8	Inadequate moderation of user content	Medium	High	Unmoderated content could lead to spam or inappropriate posts, reducing the app's credibility	Implement content moderation guidelines and tools to monitor user activity	Apps with poor moderation can see a drop in user trust
9	Legal and compliance issues	Low	High	Unmoderated content could lead to spam or inappropriate posts, reducing the app's credibility	Ensure compliance with legal standards from the start and conduct regular reviews	Apps with poor moderation can see a drop in user trust
10	Dependency on third-party services	Medium	Medium	Unmoderated content could lead to spam or inappropriate posts, reducing the app's credibility	Have backup solutions or alternative providers to minimize disruptions	Outages in dependent services can negatively impact app performance

Chapter 4: Requirements + Design

Once ethics approval has been obtained from the ethics committee, the survey process can commence. After sufficient information has been gathered from the survey responses, the proposed solution can include a set of functional and non-functional requirements. Functional requirements are designed to meet the needs and preferences of users for the system. Non-functional requirements focus on ensuring the platform is stable and maintainable. Both types of requirements will serve as criteria for evaluating the project's success and determining how effectively it meets its goals.



TechTarget. (n.d.). MoSCoW prioritization. Retrieved from [techtarget.com](https://www.techtarget.com)

To prioritize each requirement, I will apply the MoSCoW prioritization method. At the top of the hierarchy is the "must have" category, which includes essential requirements that the project needs to implement fully to ensure its success. These requirements must be given the highest priority.

The "should have" category includes requirements that are important to the application and contribute significantly to its success, though they are not as critical as the "must have" features.

The "could have" category consists of less vital requirements that are not essential for the project's success but can enhance the product and help attract a broader audience.

Finally, the "will not have" category includes features that will be excluded from the current project scope but may be considered for future development as the project evolves.

4.1 Requirements

The requirements outlined will be reviewed at the end of the project to ensure the final solution aligns with the original design. This evaluation will confirm whether the program fulfils the intended purpose of the collected data, as these requirements are directly derived from the research conducted earlier in this document.

4.1.1 Non-Functional Requirements

ID	MoSCoW Priority	Requirement	Measure	Notes
1	Must Have	The application must have a Graphical User Interface	Manual testing	To ensure the user is able to interact with the information that is displayed
2	Must Have	The system must be secure and protects the user's data with HTTPS	Manual testing	To ensure that important data isn't accessed by unauthorised users
3	Should have	Source code must be high quality and efficient with correct use of comments, indentation and variable names	Self-checking	To ensure the code is easy to read and understand for expandability and maintenance

4.1.2 Functional Requirements

ID	MoSCoW Priority	Requirement	Measure	Notes
1	Must Have	The application must have an authentication system (sign up/sign in)	Manual Testing	Users must be able to sign in or sign up to use the application
2	Must Have	The application must have the Note page	Manual Testing	Users must be able to access the Notes page
3	Must Have	The application must have a journal page	Manual Testing	Users must be able to access their journal page which holds Notes relating to them
4	Must Have	The application must have a settings page	Manual Testing	Users must be able to access the applications settings
5	Must Have	The application must have a search bar	Manual Testing	User must be able to search certain documents

5	Should Have	The application should have integration with an AI Chatbot	Manual Testing	AI support bot which helps user with their work
6	Should Have	The user should be able to leave comments on certain note documents	Manual Testing	User should be able to leave any comments to the author or other users on the relevant note document
7	Should Have	The user should be able contact other users on the application	Manual Testing	User should be able to contact other users via messaging system
8	Should Have	The user should have a daily task page	Manual Testing	User should be able to view and edit their listed daily tasks
9	Could Have	The application could integrate live time chatting	Manual Testing	The user could receive live time responses
10	Could Have	The application will give users the option to log in with external authentication	Manual Testing	The user could log in using external authentication
11	Will Not Have	Users can see live notes	Manual Testing	User will not be able to see other users write notes live

4.2 Design

4.2.1 Use Cases

Use cases illustrate how a user will interact with the system. They can also serve as a basis for testing, allowing us to evaluate the system's functionalities and ensure the specified requirements are met. Below is a use case diagram that demonstrates user interactions with the application I have designed.

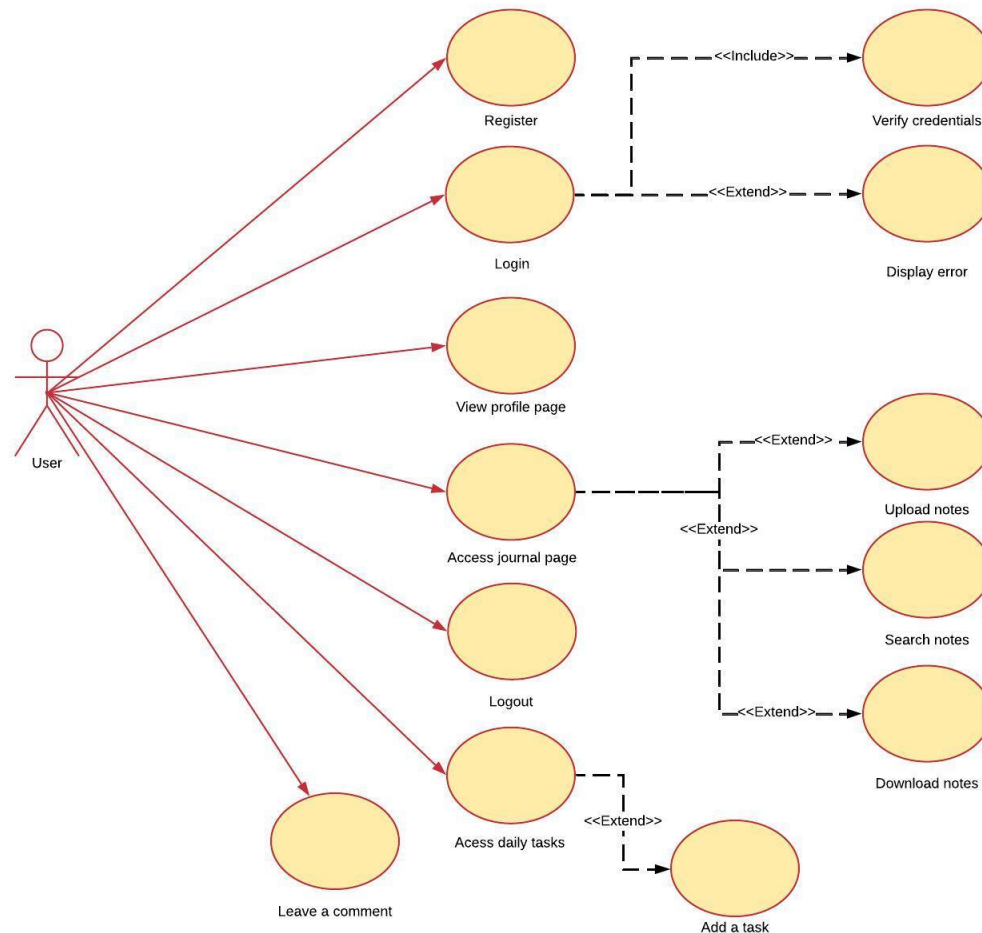


Figure 3 – Use Case Diagram

Figure 3 illustrates the basic use case diagram for the application. Within the diagram there is one actor – the user.

The user has access to all the basic functionalities that the application has to offer. They go through the login authentication which can either verify the credentials or present an error. The user is also able to log out of the application. Other functionalities they can access is their profile page, journal page and daily tasks page. The journal page allows them to upload notes, search notes or download notes. The comment function is available for users in order to communicate with other users on the web application.

4.2.2 User Interface (UI)

The user interface is a crucial aspect of the design process, as understanding how users will interact with the system is essential for the project's success. Initially, I will create a mock-up of the welcome page to visualize its layout and how it presents data.

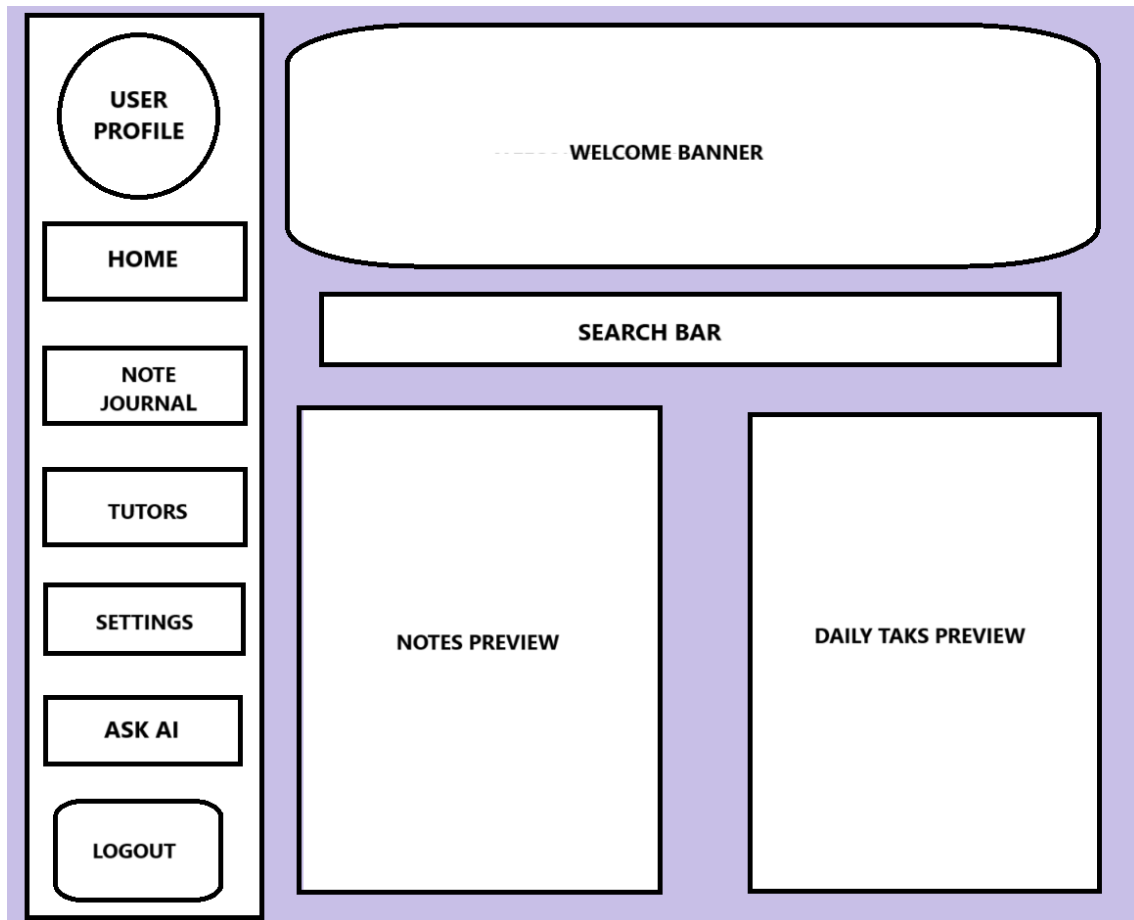


Figure 4 – UI Mock-Up

Figure 4 showcases the mock-up for the UI, representing the initial dashboard the user will encounter. This dashboard provides access to various features of the application, allowing users to interact with them. For example, users can view their saved notes or check their daily tasks. If they need specific information, they can use the search bar on the dashboard to quickly locate what they need.

On the far-left side, a tab bar is included, displaying all the other pages users can navigate to. Each tab leads to an HTML page containing data and information relevant to the tab's title. The tab bar remains visible and accessible at all times, ensuring a clear and intuitive navigation experience throughout the web application.

4.2.3 Development Environments

Visual studio code and visual studio are my chosen IDEs for the project as they are what I am most familiar and comfortable with using. I believe it meets all of my projects needs and will allow the development of my web application to be done smoothly.

The coding language I have chosen to use will be JavaScript for the frontend and with the addition of the VUE framework and for the backend I will be using C# with the .Net Framework.

4.3 SDLC

The project will adopt the Software Development Life Cycle (SDLC) to structure the workflow and methodology used in implementing the final solution. By following a systematic approach, the project will ensure efficient planning, design, development, testing, and deployment of the web application.

An Agile methodology will be utilized for most of the project to facilitate iterative development. This approach allows regular engagement with the target audience, enabling their feedback to shape the development process. By incorporating user opinions and addressing criticisms throughout the project lifecycle, the web application can be refined to meet user needs more effectively.

To ensure version control and collaboration capabilities, the program will be stored in a private GitHub repository. This setup provides enhanced security, preventing unauthorized access while safeguarding against data loss by avoiding reliance on a single computer. Additionally, it ensures that previous versions of the code are retained, allowing for rollbacks if necessary and enabling seamless future development.