Social Computing (INFO90007) Assignment 3 report

Submission by:

GROUP 10 for Assignment 3

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Design and analysis of a social media platform for university students

Abstract

In Today's world, social media is highly prevalent and at the same time very influential. Social media can connect people, help people find jobs, improve one's mental health, help you find better deals, help you sell your business and more. In essence, many such platforms have become part of our daily lives. A social media platform that is designed exclusively for university students can help them connect with classmates, enrol into subjects, and at the same time adjust their study plan all through the dedicated application. More Importantly, this can be very beneficial for students in the first year of college and can significantly improve their mental health and confidence while attending university resulting in improved performance. The application can also help students understand and learn concepts better through collaborative learning creating better results. Through this project, we have designed an all-in-one mobile application "Studentmate" for university students to connect with each other at the same time, help with their studies and study plan. In addition to it, through such an application we have also introduced more features befitting for a university student.

Key words: Social computing, Mobile application, social media application, social networking platform.

Introduction

We live in a world dominated by social media. As a matter of fact, in today's world quite often we make many of our major life decisions based on content in our news feed. Surprisingly, social media has become a trillion dollar a year industry selling our valuable data. With such a huge impact on our lives, people rely on social media to connect with people, to find jobs, to find nearest restaurants, to get to know product ratings and more. Truth to be told, social media have become part of our day-to-day life. Social media are omnipresent, at large and have the scope to create great results with little or less effort involved, through a stable network, they provide different opportunities for different forms of communication. These platforms can allow organisations and individuals to communicate through different ways.

In a university setting, social media can even mean more. With a new digital platform students will be able to connect with their classmates, make new friends, adjust their study plan and enrolment, join student clubs and groups, manage their timetable, chat with their friends, access the news feed, share pictures of a live event at the university or a tour and more. Such an application can be of great significance and immensely helpful to students who are new to a university or are unaware of different procedures at the university. At the same time, student clubs can also post information about live events at their university. Young adults who are also learners, educators are all looking for different ways to understand the phenomena in order to channelize the possibility provided by social media for its application in education. Such a reform, if successful, can greatly reduce the heavy expense involved with education and can also make education possible for everyone.

Users can play online games, watch online videos, listen to music, and read daily news on social networking sites. With a lot of users using social media, social media platforms can have a significant impact on the social life of youth. It is found through studies that social media have a significant impact on a student's mental health. Additionally, Students who use social media more frequently for social purposes tend to have higher levels of well-being than students who use them less frequently. Through the proposed platform "studentmate", students are provided with functions that will help them to send private and public messages, share photos and other media, participate in events, adjust their study plan and more. In other studies, it was found that the social media application had a positive influence on international students helping them with bonding, and maintaining a good relationship with their friends. Students were able to achieve great results in their studies because they were very confident attending the university after using the platform.[1][2][3]

Through the newly designed platform studentmate students will be able to chat with their friends at university, attend fun events and become more involved with the activities happening at the university. The mental health of any student on the platform can be improved through such events. Students will be able to achieve more and feel more confident at the university.

Student mate is a standalone and collaborative application that combines the features of social networking and university related applications making it a personal learning environment (PLE). Students will be able to progress in a given discipline through self and collaborative learning process through the platform with higher amount of autonomy. Social networking tools have gained a foothold in education and have shown value in the learning process according to findings from past studies [4].

Digital technologies and social media are used daily by the current generation of students. It is possible to have a digital medium for learning and socialising. The interactions between students are the most important part of any collaborative learning process. Reassuring a collaborative learning method with the help of social media through a combined source would be the right approach in creating a digital learning environment for students. Through such a way, students will be involved in the process through discussion with their peers, sharing important findings, finding solutions to problems and questions posted by their friends and providing suggestions. As learning mechanisms are triggered through certain interactions among students, a collaborative learning environment will be very suitable to these interactions.[5][6]

In a study conducted by Dominic C. through his work “Taking social media to university classroom”, students who used social media websites found that such platforms helped to learn through collaboration with friends by evaluating their experience by taking into consideration different gains as parameters.[8]

A similar study was organised as part of this project with participants from University of Melbourne and the results are as shown below.

Gains through social media and blogs (number of participants = 10)

Gain	**Percentage of students**			
Platform : Social networking sites like Facebook, Twitter, Wechat, Whatsapp, Discord,	Strongly in favour of	In favour of	In disfavour of	Strongly in disfavour of

Blogs				
Social media assisted me to understand new concepts from my friends along with the slides provided by my lecturer	70	20	5	5
Social media assisted me to take part in discussion sessions regarding my coursework along with my colleagues	80	15	1.5	3.5
Social media helped me reflect and revise what I missed and what was taught in class	70	20	5	5
Social media helped me understand difficult concepts with the help of my friends	60	20	10	10
While publishing my essays and work, I found social media and blogs very helpful	75	10	10	5
Social media and blogs helped share relevant course material related to my subject of interest.	67	23	5	5
Social media and blogs helped me find relevant course material related to my subject of interest.	50	30	10	10
Social media helped me discuss content with my colleagues instantly	55	25	10	10
I was able to learn from friends through social media	58	22	10	10
Social media made the	70	20	5	5

lessons more interactive				
Social media helped me prepare for my exams, helped me manage stress and anxiety and subsequently improved my mental health	90	5	1.5	3.5
I found there is a need for a social media platform dedicated for students attending university like studentmate	80	10	5	5
I think social media should be part of the learning system in a digital world	70	15	10	5
I was able to learn more about my university and its norms, subjects, lecturers, various events, student clubs and more through social media	80	10	5	5
I think social media embedded platform can be very suitable for online course delivery	65	30	1.5	3.5
I was able to find new friends and build a reliable student network through social media	50	30	10	10
I was very confident attending the university after using social media	55	15	15	15
I was able to attend different events at the university which I found through social media and this improved my	70	20	5	5

mental health				
I daily use at least one social media platform while attending my course online	80	10	5	5

According to these findings, the use of social media platforms has helped students improve their learning through collaboration, and socialising with friends. Some of the students have found the social media platform immensely helpful to learn certain concepts better.

Through this paper, we plan to explain how studentmate would serve as an effective personal learning tool for students along with its basic features which will help students share, socialise, communicate and collaborate. More importantly, we have designed an online social system with particular focus on evaluation, and the development of a high-fidelity and functional prototype.

Related Work

Lisbet Pals Svendsen et al. In their work on “How on social-media aided learning platforms motivates students in undertaking authority for their own learning” describes that as student inspiration is coexistent in relation with language and culture learning, the user of apt Information and Communication Technology tools or platforms in the provided scenario would help students in making important decisions as part of greater authority for learning where the result might seem to be with higher impact than the results that can be obtained from a traditional classroom setting.[7]

In a study conducted by Wheeler, the results suggested that implementation of social media in a classroom contributed to reflective learning which suggested that most of the participants who are mostly students were able to improve their skills to think critically about their previous learning, which made them apply previously learned concepts successfully in a real-world setting. The ability to apply learned concepts is important in today's world for a university student and social media platforms like student mate can be very helpful.[9]

Grace Saw in their work on social media for international students, have investigated the use of social media by international students in Australia. Through their study, they could find that many students preferred learning about libraries and other educational services through online platforms rather than conventional methods.[10]

Design Choice

We decided to design a mobile-focused app named “Studentmate” to assist students with their social and university life. The design is inspired by the many social applications available in the market right now. We start the design process by having our five members create sketches with pencil and paper separately. This ensures that each sketch is not limited to the pre-existing idea that other members might share and therefore, broadens the possibilities of the design choices. The sketches can be seen in the figure below.

Image of Sketches

Figure 1. Images of Initial sketches

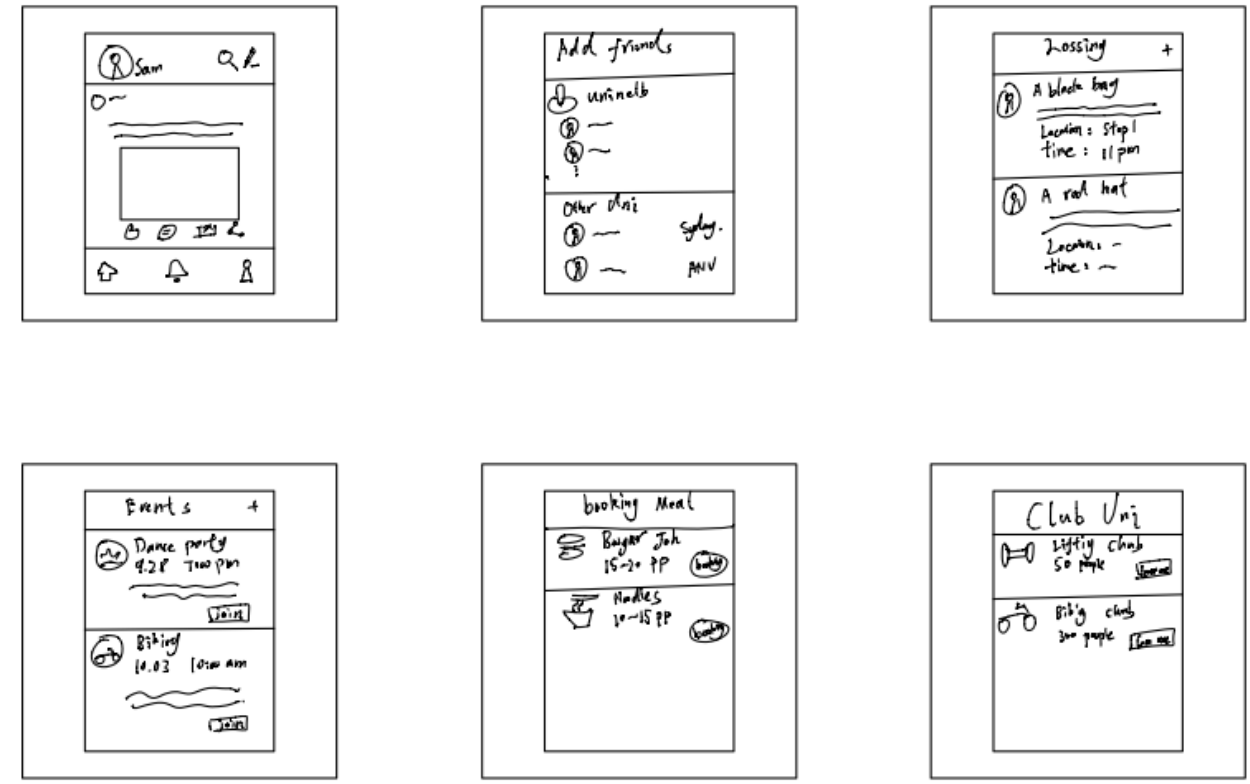

Figure 2. Images of Initial sketches

From the sketches, we decided to pick the standout features from each sketch and made a wireframe from the features that we collectively agreed to use. The features that we decided to implement are newsfeed, direct messaging, inbox page, events page. We focused on arranging these functionalities into an app that makes sense and intuitive that is easily learnable for the user. To achieve this, we create a low-fidelity prototype using a wireframe. The wireframe can be seen in the figure below

Image of Wireframes

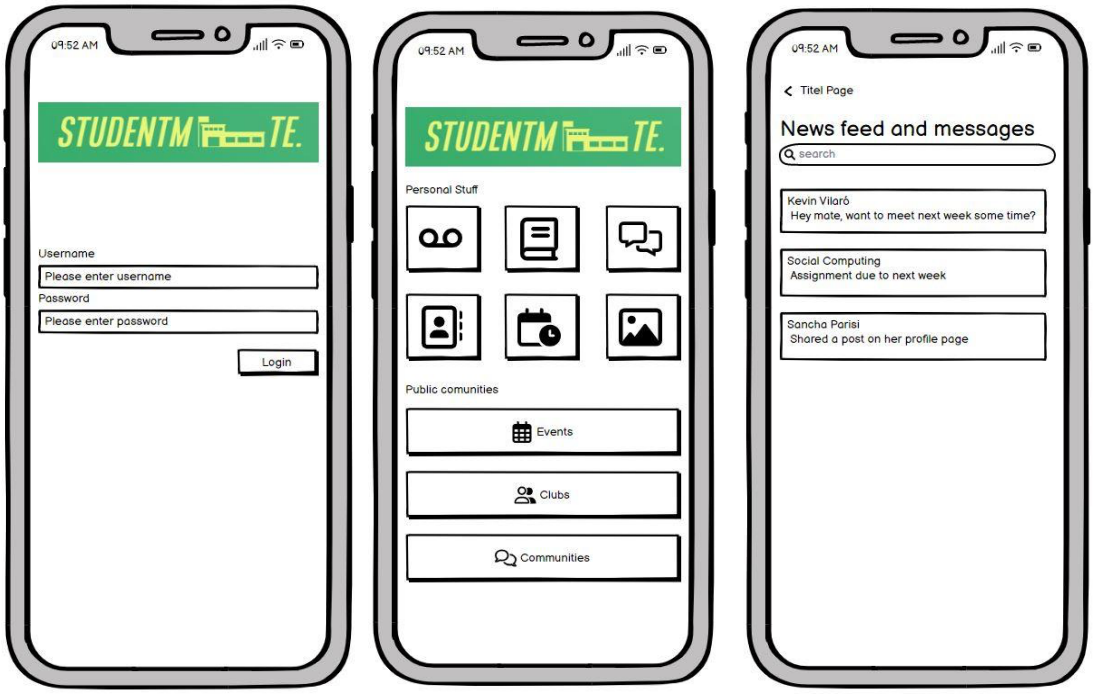

Figure 3. Images of Wireframes

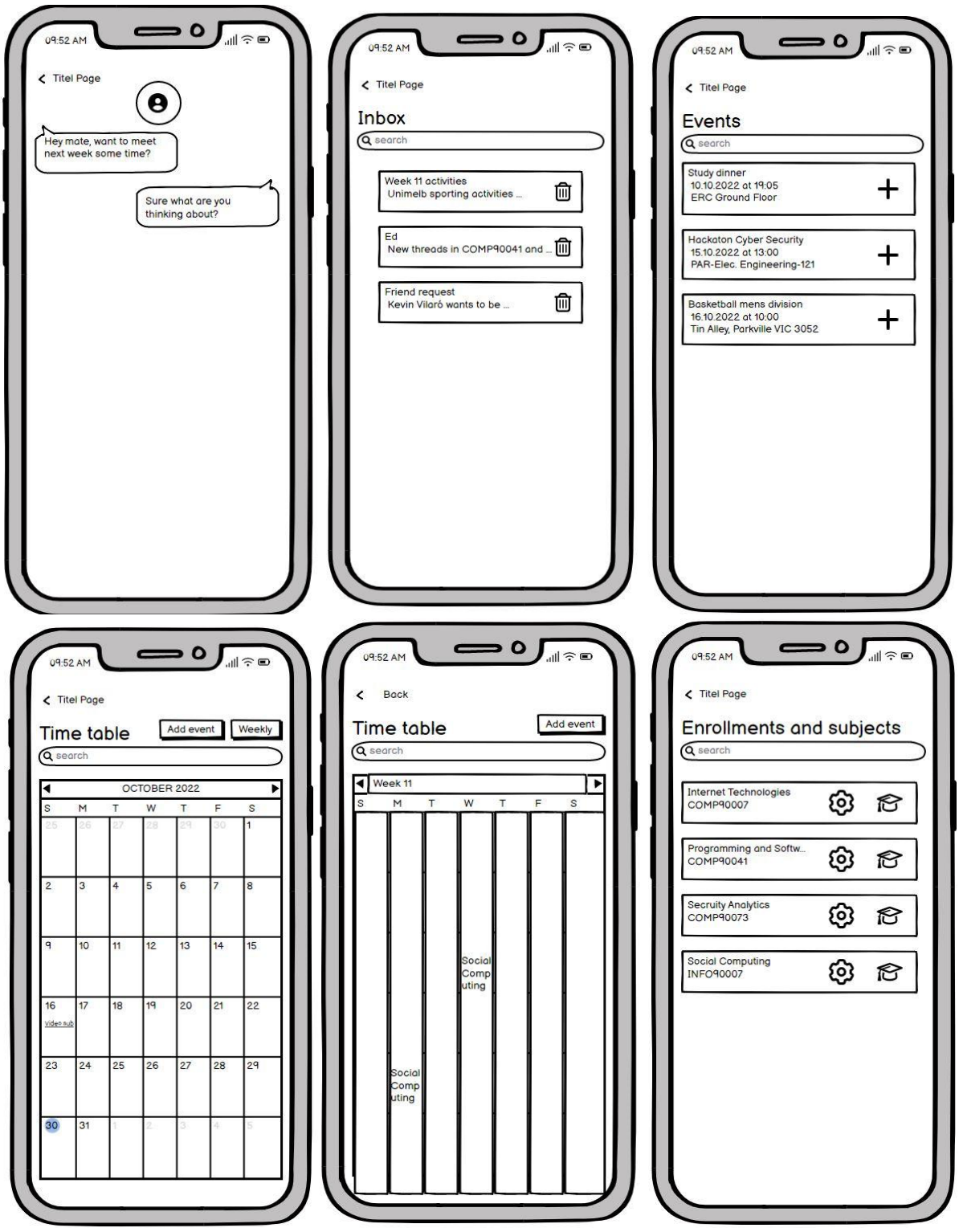

Figure 4. Images of Wireframes

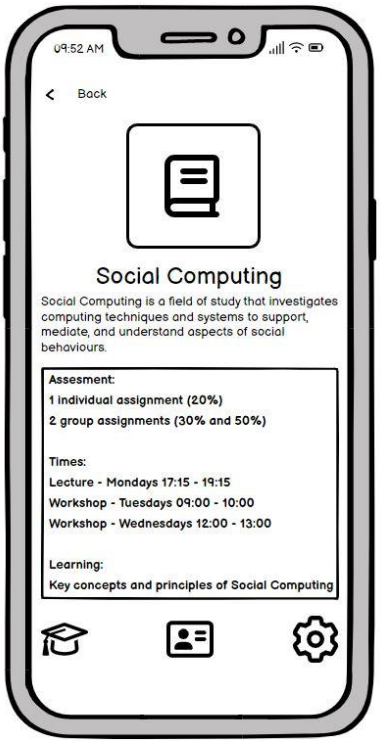

Figure 5. Images of Wireframes

After evaluating the wireframe, we moved on to the next stage which is to create our initial version of the high-fidelity prototype. We used mostly the same design that we used in our wireframe, with the focus on selecting the thematic colours for our app as well as creating accessible buttons and links to each page to make the prototype interactive.

At this stage, we realised that our wireframe does not take into account the connection between each page and therefore, we have to adjust and create more buttons and links between each page to make sure that the user can navigate between pages freely. Another adjustment that we took into consideration when turning our wireframe into the high-fidelity prototype was to adjust the number of details that we put into each page. This prevents users from getting overwhelmed and overloaded with information in each page and eases their viewing experience as well as eases their navigation through the app.

Images of Initial High-fidelity Prototype

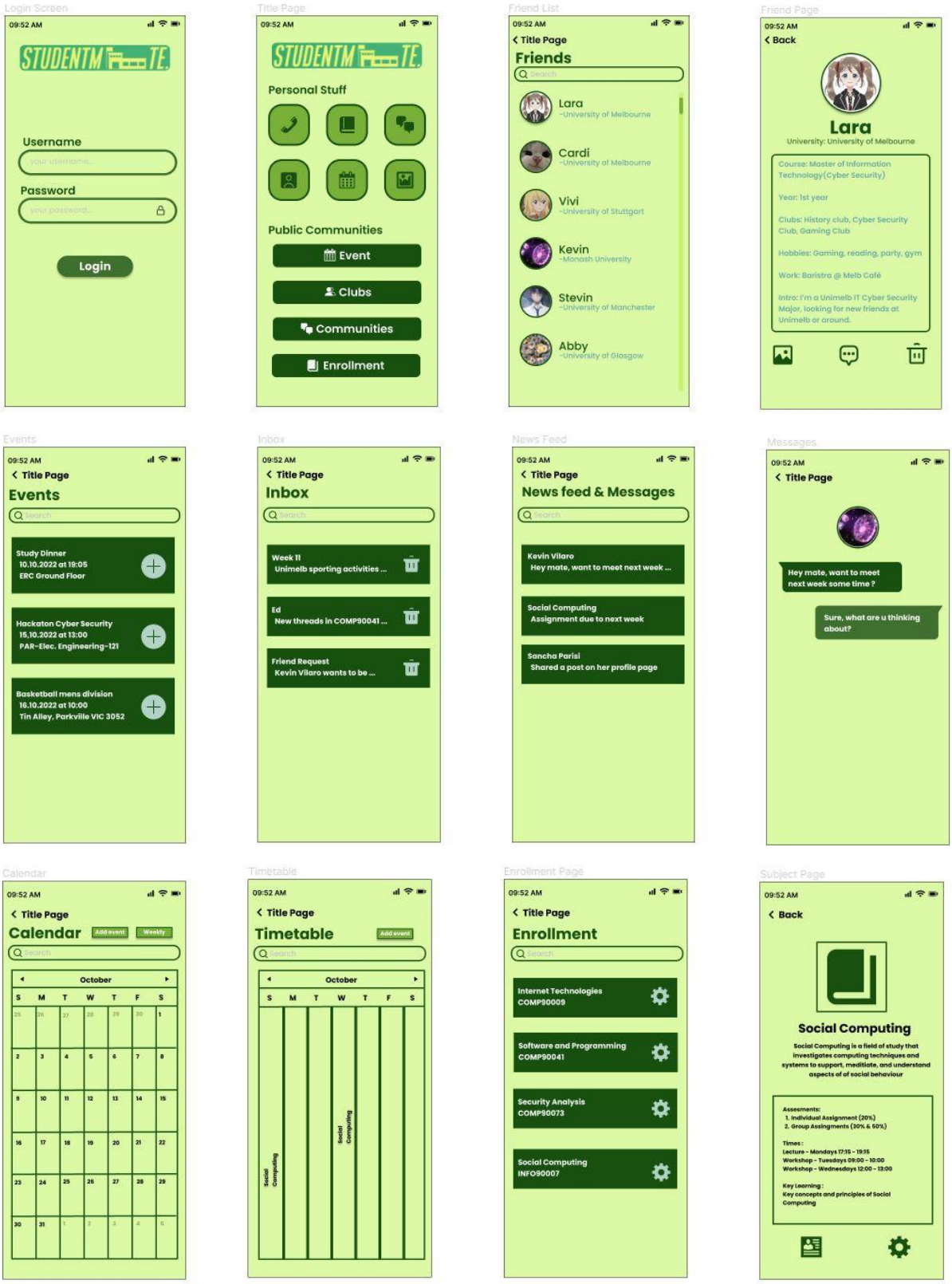

Figure 6. Images of Initial High-Fidelity prototype

After the completion of our initial version of high-fidelity prototype, we evaluated our prototype according to the evaluation criteria and protocol to create the second version of the high-fidelity prototype. This process will be discussed in the next section.

Evaluation Methodology

For our evaluation, we used both query techniques in the form of interviews and questionnaires as well as cooperative evaluation to evaluate our initial version of the high-fidelity prototype. In this section, we will dive deeper into the details and explain our choice of methodology for the evaluation.

Observation Techniques - Cooperative Evaluation

For observation techniques, we managed to perform cooperative evaluation with 5 students from University of Melbourne, which are the target demographic and user for this initial prototype. We performed the cooperative evaluation with two of our high-fidelity prototype designers. By performing it with the designer, the participants are able to ask questions regarding the design or the purpose of the features during the session. However, the designers themselves have to avoid giving any hints or guidance during the session to prevent participants from being influenced by the designers' perspective. The advantage of using cooperative evaluation as compared to other observation methods such as thinking aloud is that users are less constrained during the session as well as the possibility of clarification when participants are confused. However, cooperative evaluation sessions are best to be done in person. In this project, we are fortunate enough to have the access to be able to perform cooperative evaluation sessions in person.

Query Techniques - SUS Questionnaires

For our query techniques, we opt to use the System Usability Scale (SUS) questionnaire to evaluate our initial version of the high-fidelity prototype. The reasoning behind our choice to use the SUS questionnaire is to set a benchmark for the standard of our initial high-fidelity prototype and to judge how far away is our initial version from the acceptable standard of a usable system prototype. The SUS questionnaire provides us with ratings of our initial prototype, which can be classified into five different ratings. These five different ratings are excellent (>80.3), good (68-80.3), good (68), poor (51-68), awful (51<). The different ratings allow the designer to have an initial idea of the overall evaluation of the entire prototype and a gauge of users' expectations when improving our initial prototype into the second version. While the rating system is great at giving the designer an initial idea and a sense of users' expectations of

the system, the lack of personalised and detailed feedback from the participants may cause designers and developers to feel lost at times if it is not paired with other evaluation methods. However, with the availability of our data and feedback from cooperative evaluation, both the SUS questionnaire and cooperative evaluation provide us great tools for developing and improving our initial prototype into the next one. Our evaluation results and improvements to our initial prototype would be discussed in the next section. [11][12]

Results and discussion

The evaluation was conducted with 5 independent test subjects for both the observation and the querying technique. Based on the feedback and the results of the evaluation the final iteration of the design process was done. The high-fidelity prototype was enhanced based on the user feedback and major changes were implemented.

The cooperative evaluation was run by using the high-fidelity prototype and going through the application with potential users gathering improvement points. In general, the results were quite extensive. The feedback of the users were not only about detailed specifics but also overall issues with the design of the software. The full feedback of all test subjects can be found in the appendix A, while this report just provides a short summary of the feedback. One overall point of improvement was the chosen colour scheme. The users thought it might look more consistent to modern social media applications when the application was in a black and white style. The green colour scheme felt irritating and a bit unprofessional. Furthermore, the initial design had no navigation bar, since we thought users might not need it in order to navigate through the application.

The feedback of multiple users was that they felt a bit confused and lost during the navigation of the application and one user even suggested the idea of a navigation bar. This result was also closely linked to the title page and the user impression, that the title page was arbitrary and confusing. All the buttons and the general layout of the personal items were too complex and overall, not very pleasant to watch at. The idea of using the title page as navigation hub failed and users suggested an overview of the current feed as title page combined with a navigation bar for managing further functionality. This approach fits more the design of current social media applications and is therefore easier for the user to get into and understand. Another big topic of discussion was the calendar and time table section.

Our first iteration of the high-fidelity prototype had them specifically divided to provide an overview of the classic time table known by users from the University of Melbourne timetable,

while the calendar should reflect an overall monthly overview of all the events a user has signed up to. This split felt confusing for the majority of our test subjects and will be changed.

The main idea was to combine both and make it possible to switch between a weekly and monthly view. This idea is also increasing the ease of use since many other applications use this calendar style. The initial idea was designed to split between subject timetable overview and free time and fun events. Since the application is aimed to combine university matter and social media and private matter a combination of the calendar views is important. This change also makes it easier for users to handle the calendar and check for potential collisions. These were the major feedback points, but furthermore a few smaller issues were found. One issue was a missing edit event button in order to make changes to already existing events. Furthermore, the logo was too abstract for a user to understand the meaning of the word. Another suggested change was the renaming of “key learning” text to “intended learning outcomes”. On the login page, users should be able to reset their password, read about privacy policies and get help like on login screens on other platforms.

In addition to that, the test subjects were irritated by the order of the friends list, and by the displayed names. To make it easier to understand the order was changed to alphabetical order and the full names and not names are shown. Furthermore, users can add new friends directly and the dash in front of their names is now deleted. At last, the message page should have the name of the individual on top and a typing box/keyboard should be added.

Again, the SUS was conducted with five independent test subjects. The overall score was 66.5 % which is poor, whereas the highest score was 82.5 and the lowest score was 55.0. In general, this result shows that major improvements needed to be done in order to make the application user friendly. Going into detail the application had mainly issues in being too complex and not easy to use on a first glance. The test subjects reported that it was confusing and even support of a technical person was needed in order to understand the system. Of course, in order to get users to use the application the ease of use must be very high. Furthermore, users were not particularly confident using the system and needed some try and error to understand the system. The reason may be because of functions being a bit different to known applications. The idea to create a more independent application led to confusing and irritating users. The changes made to the application for the final iteration were done also keeping ease of use in mind. The goal was to more closely mimic existing applications to make it easier for users to adapt the new system and behaviour.

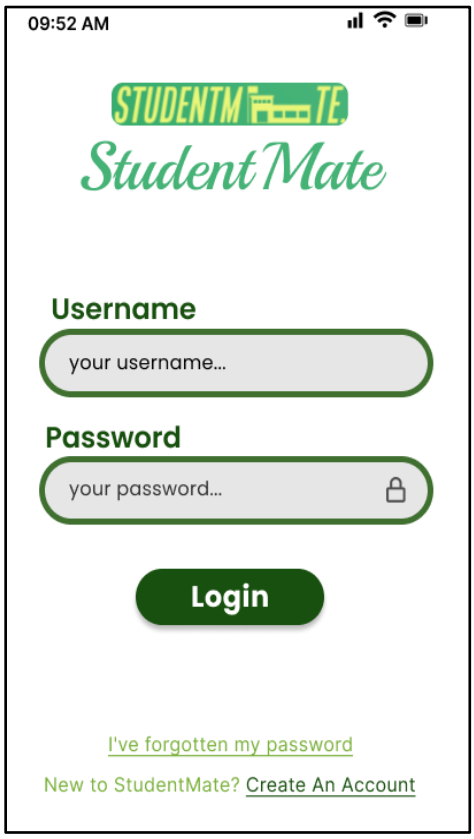

Figure 7. Interactive High-fidelity prototype on Figma

Link to the interactive prototype on Figma:

https://www.figma.com/proto/zOe6wzFjR0ySN8FHbYVMu2/90007-A3-2.0?page-id=0%3A1&node-id=1%3A6084&viewport=-761%2C875%2C0.4&scaling=min-zoom&starting-point-node-id=1%3A6084

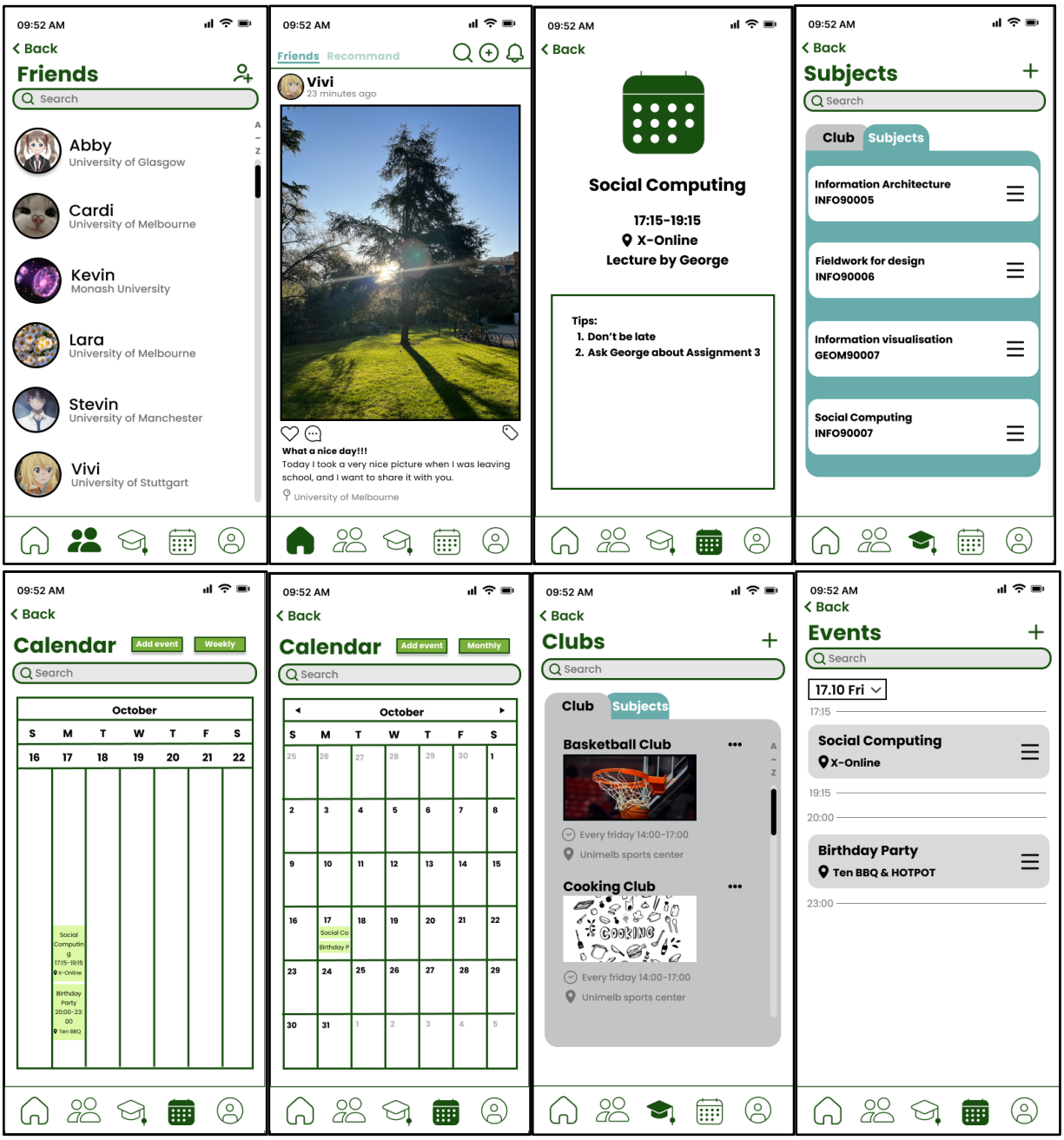

Figure 8. Interactive high-fidelity prototype on Figma

The results of the first evaluation were not great which is why before final implementation at least one further evaluation should be conducted. This iteration should particularly focus on the changes made to the system and check if the improvements actually improve the ease of use of the system. The goal of the evaluation should be finding out if the updates increase the likelihood of users understanding and using the system. If the system still proposes major issues these

issues should be fixed in a following iteration of design. After the designing, the system should be implemented and backed up with a sufficient backend.

The goal must be to get the system up and running and draw users in to use the system. Since the social functions heavily depend on users it is important to reach a critical mass in order to keep the application relevant. It is important to get the universities to join the system and try to get people's attention by providing a service that no other application is providing.

Without the support of universities and without the critical mass cannot be reached and the system is not self-sustainable. For this, a social network analysis might be a good idea. The focus should be on providing interesting friend options, maybe even events and clubs for users in order to provide a purpose of use. Even graph theory might be applicable in order to find users which connect to many people in the social application and create a strong and meaningful network of users. It is very important to get users to share the application with friends and colleagues in order to draw more people in and create a social network. Once the critical mass is reached the system is self-sustainable and further improvements can be done in order to keep a steady increase and provide better user experience.

This design will increase the ease of use and will make it possible for new users to quickly adapt to the new system. In order to reach a critical mass, it is important to work together with the universities and students to provide the best possible platform. Final design and implementation must be evaluated further and improvements must be done iteratively. In general, the system is relevant for students and research shows that a system is important for student motivation. Design and implementation done iteratively will solve issues for users and make it possible to reach critical mass quickly.

Results from Evaluation [11][12]

Cooperative Evaluation:

P1

1. The position of real-time should be changed, it is positioned too close to the top left corner.
2. On the “title page”, the number of icons is so many. Moreover, the “timetable” and “calendar” icons are confusing.
3. On the “title page”, the icon of “telephone” cannot be interactive.
4. On the “events page”, users cannot edit the events directly.
5. On the “friend page”, the position of three icons should be lower than before.

6. A navbar should be built, which should be displayed at the bottom of each page.
7. On the “message page”, the name of the individual who is chatting with users should be shown, and a typing box or keyboard should be added at the bottom of the page.

P2

1. On the “timetable” page, the text should be oriented horizontally rather than vertically.
2. On the “Friend” page, the three icons are confusing, especially the “image” icon. Furthermore, the “share” function should be added.
3. On the “Friend” page, the introduction of the friend is too official, some emojis may be added.
4. During the “Friend List”, friends should be listed in alphabetical order.
5. During the “Friend List”, the full name and note name should be shown.
6. During the “Friend List”, users can add new friends directly.
7. On the “calendar”, some events should be added.

P3

1. The logo is so abstract, users know the name of this app difficulty.
2. On the “Title page”, the “calendar” and “timetable” icons are confusing, the “calendar” and “timetable” should be merged and add a new function “reminder”.
3. Near the arrow icon, the text “title page” should be changed to “back”.
4. On the “message page”, the name of the individual who is chatting with users should be shown.
5. On the “subject page”, the two icons are confusing.

P4

1. On the “Friend List”, the “-” in front of the name of the university should be deleted.
2. Near the arrow icon, the text “title page” should be deleted.
3. On the “calendar” page, the “weekly” function should be interactive.
4. The logo should be interactive. For example, when users click on it, then the app jumps to the home page.
5. The system is too monochromatic, all green is too unpleasant.

P5

1. Homepage and profile should be on one page.
2. On the “Title page”, the text “personal stuff” is not suitable, it can be changed to “dashboard”.
3. On the “Events” page, the icon “+” should be changed to “Triple horizontal bar” which means this event can be edited.

4. On the “calendar”, some events should be added. And when users click these events, then the app jumps to the “events” page.
5. On the “Login page”, add forgot password, privacy policy, help, remember password (like the Unimelb login screen).
6. On the “timetable” page, the text should be oriented horizontally rather than vertically.
7. On the “Enrolment” page, “key learning” should be changed to “intended learning outcomes”.

SUS:

The average score is 66.5, which is poor. [15]
The general guideline on the interpretation of SUS score:

SUS score	Grade	Adjective Rating
>80.3	A	Excellent
68-80.3	B	Good
68	C	Okay
51-68	D	Poor
<51	F	Awful

The calculating formula:

- X = Sum of the points for all odd-numbered questions – 5
- Y = 25 – Sum of the points for all even-numbered questions
- SUS Score = (X + Y) x 2.5

P6:

System Usability Scale (SUS)	Strongly Disagree (1 point)	Disagree (2 points)	Neutral (3 points)	Agree (4 points)	Strongly Agree (5 points)
1. I think that I would like to use this system frequently.				✓	
2. I found the system unnecessarily complex.		✓			

3. I thought the system was easy to use.			√		
4. I think that I would need the support of a technical person to be able to use this system.			√		
5. I found the various functions in this system were well integrated.		√			
6. I thought there was too much inconsistency in this system.		√			
7. I would imagine that most people would learn to use this system very quickly.				√	
8. I found the system very cumbersome to use.				√	
9. I felt very confident using the system.		√			
10. I needed to learn a lot of things before I could get going with this system.		√			

Calculating SUS score: SUS score = 55, which is poor.
*(SUS score = (X + Y) * 2.5, X = (4+3+2+4+2)-5 = 10, Y = 25-(2+3+2+4+2) = 12)*

P7:

System Usability Scale (SUS)	Strongly Disagree (1 point)	Disagree (2 points)	Neutral (3 points)	Agree (4 points)	Strongly Agree (5 points)
1. I think that I would like to use this system frequently.				√	
2. I found the system unnecessarily complex.	√				

3. I thought the system was easy to use.				√	
4. I think that I would need the support of a technical person to be able to use this system.				√	
5. I found the various functions in this system were well integrated.				√	
6. I thought there was too much inconsistency in this system.	√				
7. I would imagine that most people would learn to use this system very quickly.			√		
8. I found the system very cumbersome to use.		√			
9. I felt very confident using the system.				√	
10. I needed to learn a lot of things before I could get going with this system.	√				

Calculating SUS score: SUS score = 75, which is good.
*(SUS score = (X + Y) * 2.5, X = (4+4+4+4+3)-5 = 14, Y = 25-(1+4+1+2+1) = 16)*

P8:

System Usability Scale (SUS)	Strongly Disagree (1 point)	Disagree (2 points)	Neutral (3 points)	Agree (4 points)	Strongly Agree (5 points)
1. I think that I would like to use this system frequently.					√
2. I found the system unnecessarily complex.					√

3. I thought the system was easy to use.					√
4. I think that I would need the support of a technical person to be able to use this system.	√				
5. I found the various functions in this system were well integrated.					√
6. I thought there was too much inconsistency in this system.			√		
7. I would imagine that most people would learn to use this system very quickly.				√	
8. I found the system very cumbersome to use.	√				
9. I felt very confident using the system.					√
10. I needed to learn a lot of things before I could get going with this system.	√				

Calculating SUS score: SUS score = 82.5, which is excellent.
*(SUS score = (X + Y) * 2.5, X = (5+5+5+4+5)-5 = 19, Y = 25-(5+1+1+3+1) = 14)*

P9:

System Usability Scale (SUS)	Strongly Disagree (1 point)	Disagree (2 points)	Neutral (3 points)	Agree (4 points)	Strongly Agree (5 points)
1. I think that I would like to use this system frequently.			√		
2. I found the system unnecessarily complex.				√	

3. I thought the system was easy to use.			√		
4. I think that I would need the support of a technical person to be able to use this system.		√			
5. I found the various functions in this system were well integrated.		√			
6. I thought there was too much inconsistency in this system.	√				
7. I would imagine that most people would learn to use this system very quickly.		√			
8. I found the system very cumbersome to use.			√		
9. I felt very confident using the system.			√		
10. I needed to learn a lot of things before I could get going with this system.	√				

Calculating SUS score: SUS score = 55, which is poor.
*(SUS score = (X + Y) * 2.5, X = (3+3+2+2+3)-5 = 8, Y = 25-(4+2+1+3+1) = 14)*

P10:

System Usability Scale (SUS)	Strongly Disagree (1 point)	Disagree (2 points)	Neutral (3 points)	Agree (4 points)	Strongly Agree (5 points)
1. I think that I would like to use this system frequently.			√		
2. I found the system unnecessarily complex.		√			

3. I thought the system was easy to use.			√		
4. I think that I would need the support of a technical person to be able to use this system.	√				
5. I found the various functions in this system were well integrated.			√		
6. I thought there was too much inconsistency in this system.			√		
7. I would imagine that most people would learn to use this system very quickly.				√	
8. I found the system very cumbersome to use.		√			
9. I felt very confident using the system.			√		
10. I needed to learn a lot of things before I could get going with this system.		√			

Calculating SUS score: SUS score = 65, which is poor.
*(SUS score = (X + Y) * 2.5, X = (3+3+3+4+3)-5 = 11, Y = 25-(2+1+3+2+2) = 15*

Conclusion

Today, social media is reaching every part of our lives and digital classrooms are getting more common. The pandemic has accelerated development of online lectures and tutorials and even allowed for fully remote work in some sciences. Sadly, the collaboration and learning group experience of students comes short, which is why it is important to bridge the gap between university and social media. Closing the gap will increase productivity, learning outcomes and fun for many students. It creates a social space for students to gather and build groups, attend events and join clubs. Current social media apps lack direct integration and search functionality for students and especially students from the same university. The provided system will solve this problem.

The design process went through different iterations starting with low fidelity sketches and ideas and went on to more sophisticated concepts. After that, the first high fidelity prototype was created with some basic functionality. Two different evaluation techniques were conducted and many problems with the initial design were found. These problems were then analysed and implemented. The final design combines known functionality from social media apps with the student portal functionality.

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