Social Media for the South East Technological University: developing strategies to enhance communication

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1. Abstract

South East Technological university currently has a website available for everybody to access its services. To use all these services every user should have a laptop and internet connection because the website is not fully mobile friendly and services like blackboard, Email, and the library currently redirect them to different platforms. This project aims to bring all these services into a single platform with more user-friendly access in the form of a mobile application. The current system does not connect the students and staff properly to make full use of the available services and a few important options are missing which are essential for a student's development and for good participation in their college life.

With a smartphone and an internet connection, you are 24 X 7 connected to the college. In this project, the users are categorized into Students, Staff and Guests. Unlike the website, this proposed application provides much more useful functionalities which will make college life much easier. For students and staff, there is a chat facility available. Here students and staff can interact in person and in groups. Here the students and staff can know each other better and interact and exchange ideas through groups of like-minded people if they want. Students and staff have access to almost all services provided by the college based on their privileges. Guests might be from any background. Special consideration has been given to guests in this project and it contains a how-to section with videos and PDFs explaining how to use the application. The guest has the option of using chat support with the college's technical team.

2. Introduction

As an international student at SETU, it can be a challenge to know how to navigate the many platforms and repositories for knowledge online. Things like the student portal, the email section, the staff portal, the library, and the file-sharing system on the one drive are all in separate locations online. To access them, students need to have a laptop as most of the platforms are not mobile-friendly. This can be a challenge as it requires a Wi-Fi connection, and it also requires carrying a laptop around, which isn't ideal. If you have a mobile phone, however, you have all the university communication systems connected to you. However, this does not solve the problem entirely, because there is a big communication gap between students and staff, and it is difficult to navigate all the various communication platforms as they are not necessarily linked up. This means that you must log in to portals multiple times. This issue poses a problem for students but is particularly problematic for international students who are also dealing with living in a new country. It can take some time to understand the system.

This project aims to find a way to address this issue. The first step will be to understand the functionality of all the platforms currently used in the University for students, staff, and guests. Once these systems are understood, the aim will be to convert these functionalities onto a mobile platform. Nothing from the laptop version will be lost – it will just be converted to a mobile-friendly system, with some added benefits. The development process will include bringing blackboard, Microsoft 365 mail and all other functionalities together along with the

development of an inbuilt chat system so that students can get support from each other and from staff to build a community. This mobile chat system will also offer students the opportunity to develop other communities within the large community of the student cohort in the university. The system will allow like-minded people to get to know each other and share their interests. For example, if you are interested in fitness, travel, hobbies or art and design, you can share those interests in image, video and text format and invite other students across the university to share their experiences also. The aim is to build a community in those interests and to build richer communities across the campus. Another functionality of this proposed design is to have a space on the system for staff vacancies and assistance for students to find jobs and accommodation. They can assist each other with this. The rationale for this design will be to reduce the communication gap that exists in the current University communication and learning system.

To effectively understand how beneficial this new proposed system might be, we first must look at some of the wider issues affecting communication in Universities as well as the benefits of developing online communication systems in Universities.

3. Benefits of Technology in Education

According to the European University Association, Universities are among the many aspects of society that are being impacted by the digital shift. Universities place a strong priority on themes like digital communication, information sharing, learning, and teaching that are enhanced by technology, research, digital skills, and many other things. In addition to creating the potential for innovation and better management, these advances call for infrastructure and expertise from the workforce. Additionally, they need finance and policy frameworks that consider the interests of universities as both users and creators of digital technologies and methodologies.

During the pandemic, there has been a growth in digitally enhanced teaching and learning, and colleges have quickly shifted to remote learning. Nevertheless, the subject had been on the agenda for more than ten years. A report on the growth of massive open online courses (MOOCs) was released by the EUA in 2013 and its e-learning survey, the first report to compare digital advancements at higher education institutions across the European Higher Education Area, was released in 2014. The availability of brief online courses, or micro-credentials, was one of several new and recent trends that were revealed in the second research done in 2020 as part of the DIGI-HE initiative.

To create a "high-performance digital education ecosystem," the EUA also assists its members in their ongoing strategic development. This is one of the top priorities of EUA's response to the EU's 2020 Digital Education Action Plan. The EUA has long been a proponent of open data access as part of its work on Open Science. It is actively involved in developing skills to assure Findable, Accessible, Interoperable and Reusable (FAIR) data through the FAIRsFAIR Project and is a member of the governing board of the European Open Science Cloud (EOSC).

Additionally, through its most current innovation survey, EUA has gathered information on universities' innovative initiatives for digital transformation.

Sevillano-García and Vázquez-Cano, in their article *The Impact of Digital Mobile Devices in Higher Education* 2014 published in the Journal of Educational Technology and Society, argue that adopting digital technologies serves to promote growth and productivity.

They contend that initiatives to increase digital inclusiveness must be reformulated for two interrelated reasons. First off, because of the economic crisis of 2008, a growing number of poor and low-income families emerged. Second, the federal government is beginning to prioritize the task of creating a solid digital infrastructure that connects all Americans.

There is a wealth of research describing who has access to the Internet, who does not, and if or how this has evolved over time. Researchers started looking into the Internet in the middle of the 1990s, and they have found that usage varies significantly depending on social categorization.

Americans who earn less money and have less education are much more likely to be offline. Demographic discrepancies were clearly visible in an October 2009 federal survey of around 54,000 homes. In 2009, internet connectivity was available in 84% of households with adults 25 and older who had a college education. In comparison, only 28% of homes with adults 25 or older who did not have a high school education had access to broadband.

Sevillano-García and Vázquez-Cano (2014) suggested that the right way to overcome the impact of the economic crisis on higher education was to intelligently adopt digital technologies to develop productive and efficient economic models where technological innovation served to promote growth and productivity.

They also suggested that ubiquitous learning represents a new educational paradigm that, to a large extent, is made possible by new media and digital instruments. Ubiquity and mobility become recurrent principles for educational performance in this century. There is a direct relation between the idea of ubiquitous learning and the ability of mobile devices to provide highly interconnected educational environments.

The development of online learning technologies also helped to facilitate digital literacy in students and offered the opportunity for teaching staff to develop their skills in technology. But this was not always easy. Some members of the lecturing staff along with some mature students are not always familiar with digital literacy and they might require training to support them to see the benefits of online support and learning.

Bearing this in mind, this proposed research project will develop a simple ‘how-to’ manual presented as a PDF with screenshots and text information accompanied by a tutorial video to help those who are unfamiliar with digital platforms to gain confidence and get the best benefits from the system that is being designed to help them.

Despite the issue of digital literacy challenge, overall, the benefits of having online resources and teaching meant that learning is much more accessible.

4. Challenges affecting Technology in Education.

Despite the benefits of online learning, many problems have emerged in the last decade that need to be resolved. Some of these problems provide the primary focus of this research. Most of these problems became acute during the Covid-19 pandemic. For example, in the article *Covid-19: Impact and innovative responses* which were written in the Danish Institute for International Studies Journal (2020), one of the biggest challenges was for teachers to try and maintain contact with students through mobile phones, whether through WhatsApp groups, texting or mentoring over the phone. However, the issue with many contemporary mobile tech solutions is that they presuppose access to the internet, taking the form of apps, video conferencing and other mobile data-driven solutions, thereby alienating those who cannot access them. As has already been noted, access to smartphones is quite uneven across gender, race, age, and socioeconomic groups.

This point is substantiated by Amy Bach, Gwen Shaffer, and Todd Wolfson in their article *Digital Human Capital: Developing a Framework for understanding the economic impact of digital exclusion in low-income communities* which was published in the Journal of Information Policy in 2013. They describe how certain digital technologies can exclude people from lower socio-economic backgrounds. For example, Americans with less education and lower incomes are far more likely to be offline. They used data from a federal survey of about 54,000 households conducted in October 2009. This revealed a glaring demographic disparity:

In 2009, 84% of households with college-educated individuals 25 years and older had broadband access. By contrast, only 28% of households with individuals 25 or older with less than a high school diploma had broadband access. (2013:4)

They also discovered that 14% have accessed the Internet on their cell phones, while 20% of all African American and 25% of Latino non-broadband adopters have accessed the Internet on their cell phones. The ability to connect to the Internet via cell phone makes, in some ways, a home broadband connection less vital. On the other hand, certain functions such as filling out a job application or financial aid form are nearly impossible to accomplish on a phone.

This is an important point and an important set of figures to consider concerning this research because this project proposes that students use their mobile phone networks more than their Wi-Fi to access information. This is more democratic, and they can access the information 24/7 without relying on Wi-Fi connections.

5. Supporting Data

Sevillano-García and Vázquez-Cano, in their article *The Impact of Digital Mobile Devices in Higher Education* 2014 published in the Journal of Educational Technology and Society, surveyed 419 higher education students from three Spanish universities who were enrolled in graduate and master's programs at University Complutense of Madrid, the University of Oviedo and the National University of Distance Education-UNED. The two largest universities in Spain are the University Complutense of Madrid and the Spanish National University of

Distance Education (UNED). Both schools have more than 500,000 students, and UNED is the largest distance learning institution in Europe, serving more than 260,000 students globally. The university degrees chosen were philology in English and Spanish, geography, art, architecture, industrial engineering, pedagogy, social education, biology, and nursing.

In these three universities, a broad digital questionnaire was previously done to identify students utilizing digital mobile devices. Based on their availability and desire to participate, the pupils were chosen. All enrolled students received invites via email when the poll first began, asking them to participate voluntarily and without compensation. As we can see below in Figure 1, a total of 956 questionnaires were sent and using this accidental sample as the basis, a list of 419 students who had DMD was created, to establish the study's target population.

Variables		Total		Educational Model			
				Face To Face		Distance	
		Freq.	%	Freq.	%	Freq.	%
Sex	Men	201	47.97	96	22.91	123	29.35
	Women	218	52.02	123	29.35	77	18.37
Age	18-20	131	31.26	55	13.12	76	18.13
	21-23	145	34.60	67	15.99	78	18.61
	23-25	101	24.10	43	10.26	58	13.84
	≥ 26	42	10.02	19	4.53	23	5.48
Studies	Science	139	33.17	87	20.76	52	12.41
	Social Sciences	181	43.19	87	20.76	94	22.43
	Humanities	99	23.62	48	11.45	51	12.17
Total	419	419	100	219	52.26	200	47.73

Figure 1: Digital questionnaire identifying students who utilise digital mobile devices. A study developed by Sevillano-García and Vázquez-Cano, 2014.

The goal of this study was to quantify the variables that influence college students' use of DMD in EHEA. In this study, which was supported by the Spanish Ministry of Education, they created and used an ad hoc questionnaire called the Scale of Factors that Foster Innovation with DMD (SFFIDMD) among university students (EDU2010-17420-Sub EDUC). Metrics for adoption were developed because of this research, and they can be used to estimate the likelihood that information system efforts will be implemented successfully. One method for discovering characteristics that support ICT deployment, use, and innovation was to collect views, opinions, and attitudes regarding ICT using "ad hoc" questionnaires (Balanskat, Blamire, & Kefala, 2006; Drent, & Meelissen, 2008).

The acceptance of innovation is influenced by a variety of external circumstances, according to several earlier research (Venkatesh et al. 2003; Kearney et al., 2012; Voogt et al. 2013). In this study, the researchers anticipated that the development of digital didactic techniques for higher education may heavily rely on DMDs. With the aid of the LISREL program, they proposed a model which can be seen in Figure 2, that enables the estimation of numerous parameters in intricate interaction structures.

Therefore, the questionnaire included 29 items, to which participants responded using a five-point Likert-type assessment scale. These items were in addition to a variety of descriptive general and academic data, such as age and sex, area of study, and kind of university (face-to-face or distance). The following are the five possible responses: 1 indicates that I completely disagree; 2 that I do; 3 that I don't agree or disagree; 4 that I do; and 5 that I completely agree. When filling out the questionnaire, the students were asked to rate how much they agreed or disagreed with each item.

The SPSS statistical software tool, version 19, was used to evaluate the data that respondents supplied in the questionnaire. The statistical assurances of the questionnaire were investigated. The dimension's item-total correlation was examined to weed out any items with a correlation coefficient of less than 0.2. Additionally, the Cronbach's Alpha Test was used to examine the scale's dependability (.843). The internal structure of the questionnaire was then determined by performing a factor analysis of the questionnaire's major components.

However, a few additional tests were carried out before the analysis as a prerequisite statistical step that ensures correct application: First, the hypothesis that the correlation matrix obtained is not an identity matrix—that is, that substantial interrelations exist between items that support the factor analysis—was tested using Bartlett's test of sphericity. Second, the Kaiser-Mayer-Olkin (KMO) index, which evaluates the acceptability of the data for the factor analysis, was applied. Finally, both individually and collectively, the validity of the elements taken from the questionnaire was examined. The means of the questionnaire components were also compared in relation to sex, age, the field of study (Humanities, Science, and Social Sciences), and primary teaching model (face-to-face or distance). To do this, all variables for independent samples were subjected to the Student's T-test, apart from the study area where a single-factor analysis of variance (ANOVA) was applied.

Proposed structure model

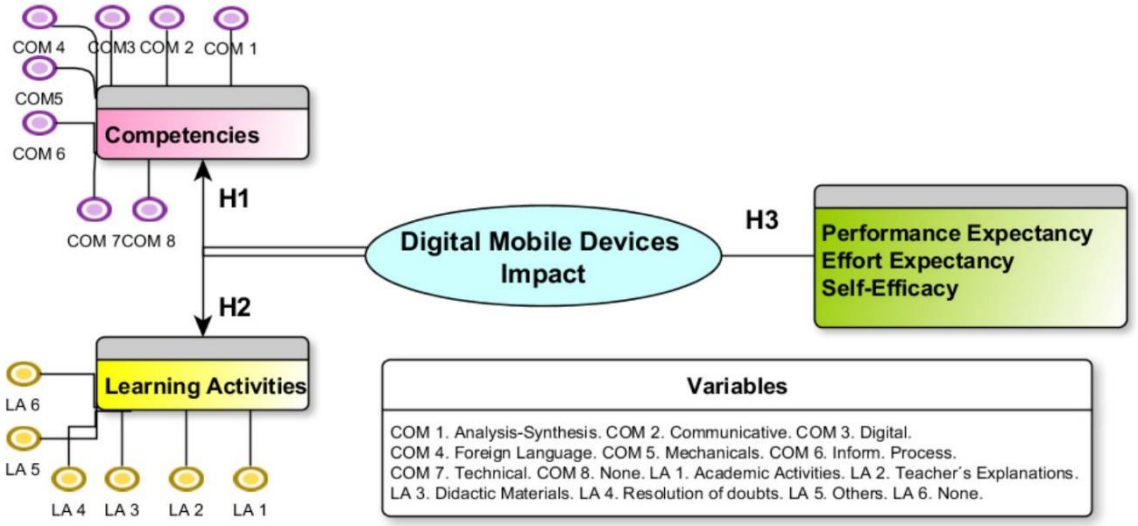


Figure 2: Scale of Factors that Foster Innovation with DMD

The following three hypotheses are proposed:

H1. DMD have a positive effect on the development of generic competencies.

H2. DMD have a positive effect on developing learning activities.

H3. Performance, effort expectancy, and self-efficacy are high when using DMD in Higher Education.

The questionnaire's internal consistency and construct validity are attested to by the results of the statistical tests that were conducted on it. Due to either low discriminatory power or low association with the dimension, none of the items was deleted. When examining the factorial structure of the scale using the Varimax with Kaiser Normalization method for the principal component analysis, it was discovered that Bartlett's test of sphericity (p =.000) and the Kaiser-Mayer-Olkin sampling adequacy measure (.767) was appropriate.

		F1 PE	F2 EE	F3 SE	F4 COM	F5 LA
Total	Mean	2.81	2.73	3.13	3.43	3.28
$N = 419$	Sd	.98858	.89593	.80681	.68131	.70091
Face to Face	Mean	2.51	2.57	2.98	3.22	3.10
$N = 219$	Sd	.97651	.81622	.7999	.73589	.70391
	Sig.	*	*	**	***	***
Distance	Mean	3.02	2.87	3.25	3.59	3.42
$N = 200$	Sd	.80441	.93518	.79713	.58897	.66805
	Sig.	*	*	**	***	***

Note. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$. Performance Expectancy (PE); Effort Expectancy (EE); Self-Efficacy (SE); Learning activities (LA); Competencies (COM).

Figure 3: Difference between the means for factors (Face-to-face and Distance)

Regarding participant sex, no statistically significant differences were detected. The results (Figure 3) do show significant variations regarding the method of instruction, with distance learning students scoring higher on average for all variables, particularly the item "Enable me to complete activities more rapidly" (t = -3.621; p =.004) in the performance expectation component. I find the DMD to be flexible to engage with, according to "Effort Expectancy" (t = -3.174; p =.001). The item "Using DMD fits into my work style" was included in the category "Self-Efficacy" (t = -3.812; p =.000). In "Learning activities," "Didactic Materials" is the item with the highest load (t = -2.756; p =.017), while "Competencies" has the item "Communicative" (t = -2.489; p =.024).

		F1 PE	F2 EE	F3 SE	F4 COM	F5 LA
Total	Mean	2.81	2.73	3.13	3.43	3.28
$N = 419$	Sd	.98858	.89593	.80681	.68131	.70091
Science	Mean	2.98	2.97	3.21	3.52	3.31
$N = 139$	Sd	.95431	.82100	.80987	.76789	.72361
	Sig.	*	*	**	***	***
Social Sciences	Mean	2.84	2.87	3.19	3.12	3.12
$N = 181$	Sd	.81324	.92134	.77689	.59800	.67890
	Sig.	*	*	**	***	***
Humanities	Mean	2.02	2.69	2.95	2.89	2.92
$N = 99$	Sd	.89876	.92345	.78907	.50134	.60134
	Sig.	*	*	**	***	***

Note. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$. Performance Expectancy (PE); Effort Expectancy (EE); Self-Efficacy (SE); Learning activities (LA); Competencies (COM).

Figure 4: Differences between the means for factors (Science, Social Science, and Humanities)

The means obtained for each study location as seen show variations in the elements that support educational innovation with DMD. According to the study area, those factors with statistically significant differences of over alpha =.05 were found using an analysis of variance (ANOVA). In this regard, it was discovered that there were significant differences between the scores for the factor "Competencies" [Com (2,191) = 9.367, p =.000]. Results for the humanities are marginally worse than those for the social sciences and sciences related to the subject topic (mean: -0.023). We give the percentages connected to generic competences organized by field of study on the highest five-point scale with the intention of examining the precise nature of the variations identified as seen in figure 5.

Generic Competencies	Arts & Humanities	Science	Social Sciences
Analysis and Synthesis	38.14%	45.13%	41.86%
Communicative	29.11%	35.02%	37.87%
Digital	25.71%	32.11%	26.18%
Foreign Language	39.87%	31.13%	39.02%
Mechanical	19.86%	43.25%	37.14%
Information Processing	38.14%	42.07%	43.51%
Technical	21.12%	46.11%	39.75%
None	9.57%	13.00%	12.93%

Note. Cronbach α = 0.87; 5 items; four-point Likert scale (1–5); mean = 5; standard deviation = 0.43; $N = 419$.

Figure 5: Incidence of the area of study variable in the development of generic competencies

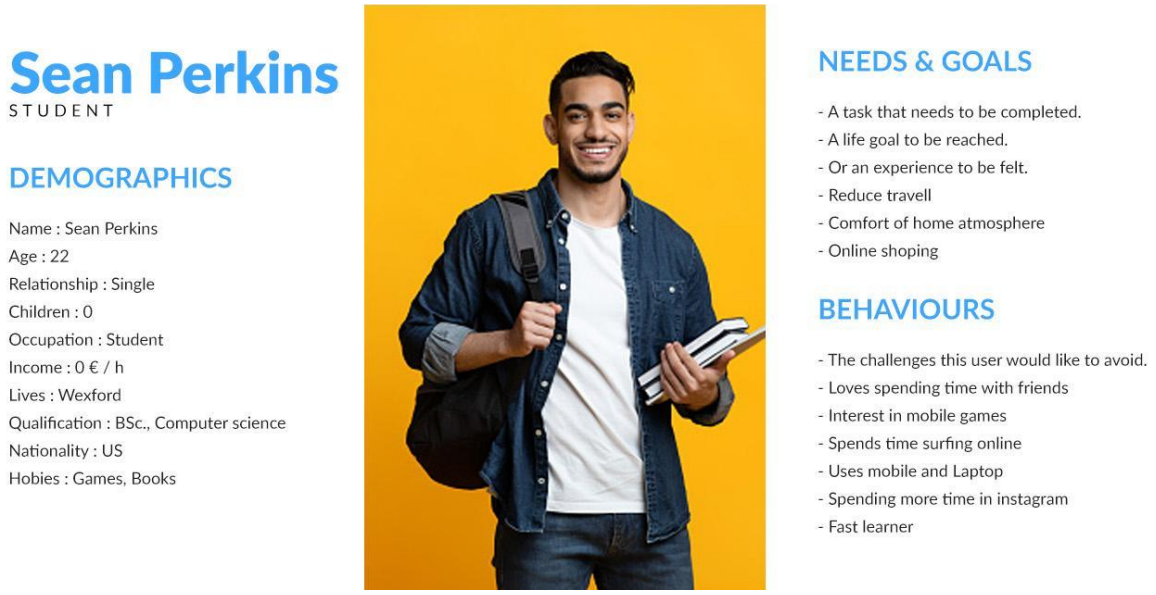
Analysis and synthesis (41.69 percent), information processing (41.24 percent), and foreign language (36.67 percent) competencies showed the greatest effects of DMD across all study categories. The theoretical model of the elements that drive innovation with ICT presented in this study's framework and the factor-based structure that was ultimately obtained agree (Moran, Hawles, & Gayar, 2010; Pachler, Bachmair, & Cook, 2010; Goral, 2011; Eichenlaub et al., 2011; Yoiro, & Feifei, 2012).

6. The proposed design

The data provided above offers some insight into why this research project is current and useful. With this project, you are always connected to the institution if you have a smartphone and an internet connection. Users in this initiative are divided into three groups: students, staff, and visitors. The program, as opposed to the website, offers a lot more practical features that will simplify student life. There is a chat feature available for both faculty and employees. Students and employees can converse alone and in groups here. Here, faculty and staff can get to know one another better, engage, and share ideas through communities of like-minded individuals if they so want. Based on their privileges, students and staff have access to almost all the services offered by the college. The visitors could come from any background. There is a how-to area with videos and PDFs detailing how to use the application, specifically for visitors. The technical support staff at the college is available for interaction with visitors.

7. User Persona

Student



Sean Perkins uses the chat section a lot. He is happy with the functionalities because of the real-time chatting and file sharing. The real-time notification in the app saves time. He is frustrated about the fingerprint authentication because his mobile lacks that functionality

Teacher

Joan Perez
TEACHER

DEMOGRAPHICS

Name : Joan Perez
Age : 26
Relationship : Married
Children : 2
Occupation : IT Engineer
Income : 20 € / h
Lives : Wexford
Qualification : MSc., B.tech
Nationality : Indian
Hobies : Games, Movies

NEEDS & GOALS

- Quick information about things
- All information in single place
- Collect information online
- Reduce travell
- Comfort of home atmosphere
- Online shoping

BEHAVIOURS

- 8hrs job
- Loves spending time with family
- Interest in board games
- Spends time surfing online
- Uses mobile and computer
- Consistent Googler
- Curious about the world around

Joan Perez is very busy having a lot of things to manage in a day. Her major use case with the SETU app is managing time and she is very happy that every option is available on the profile page. She gets a lot of messages and notifications from the student in the chat section which is the only area she struggled to manage with the SETU app.

Business Owner

Ricky Metzger
BUSINESS OWNER

DEMOGRAPHICS

Name : Ricky Metzger
Age : 35
Relationship : Married
Children : 0
Occupation : Business Owner
Income : 1000€ / h
Lives : Wexford
Qualification : MBA
Nationality : US
Hobies : Reading, Cycling, Twitting

NEEDS & GOALS

- Tangible results.
- To have project self manage.
- Or an experience to be felt.
- Reduce travell
- Comfort of home atmosphere
- Online shoping

BEHAVIOURS

- The challenges this user would like to avoid.
- Loves spending time with family
- Interest in twitting peopls
- Spend a lot of time for share trading
- Using mobile a lot
- Spending more time in twitter
- Reading business news a lot

Ricky Metzger is a busy businessman not bothered about other functionalities in the SETU app. He is using the application as a guest for finding a better course for his son who is just graduated. He liked the chat support in the SETU section very use full. And he is not interested in reading news and blogs in the app section.

8. User Journey

Student

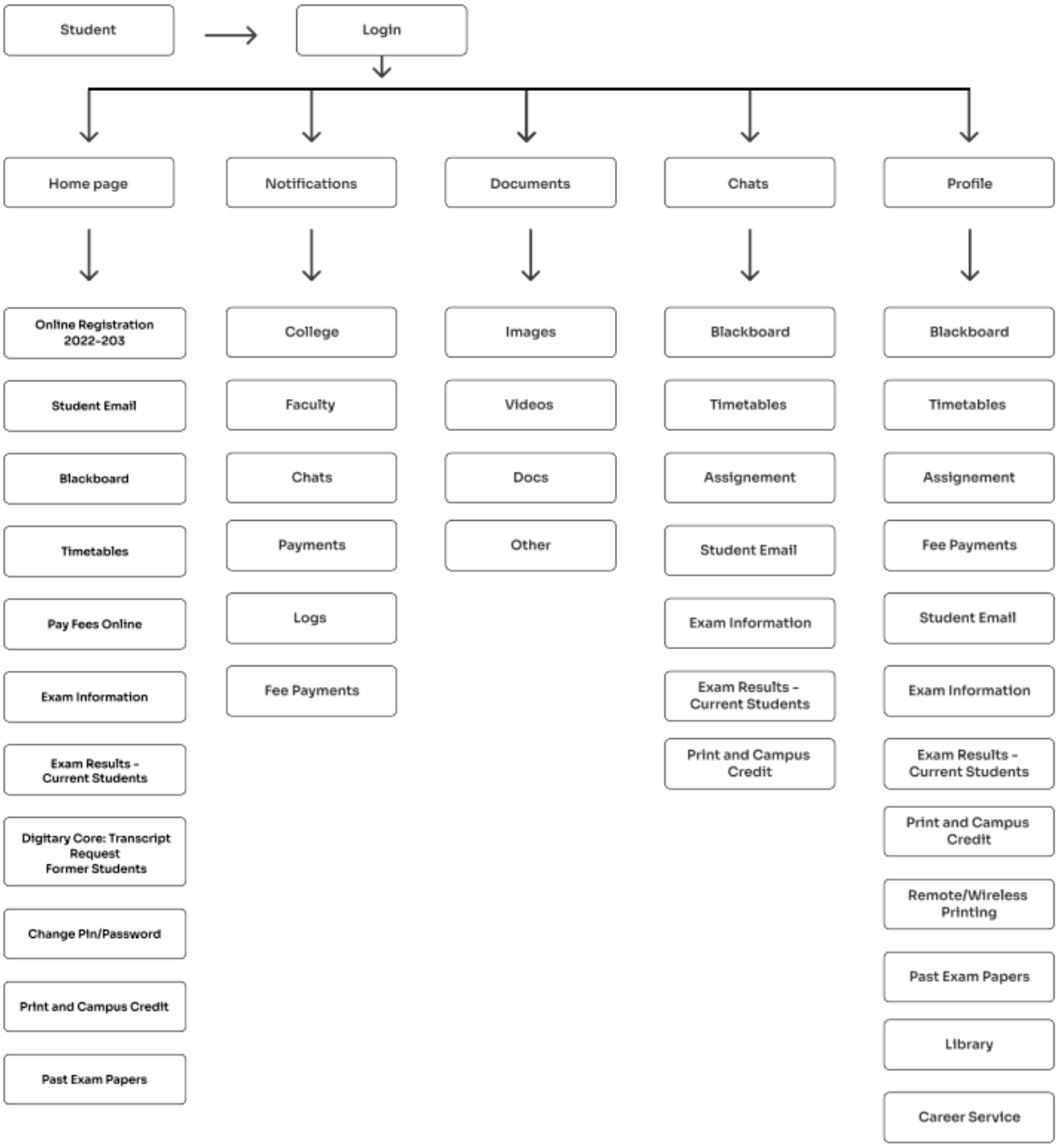


Figure 6: User journey for Students on SETU Connect App

In Figure 6, we can see the user journey of a student on the SETU Connect App. The journey is designed to provide an understanding of the different services the university has for the students. The Home and Profile screens have the main functionalities. The home screen has the Common university services as the Profile screen explains personalised services.

Staff

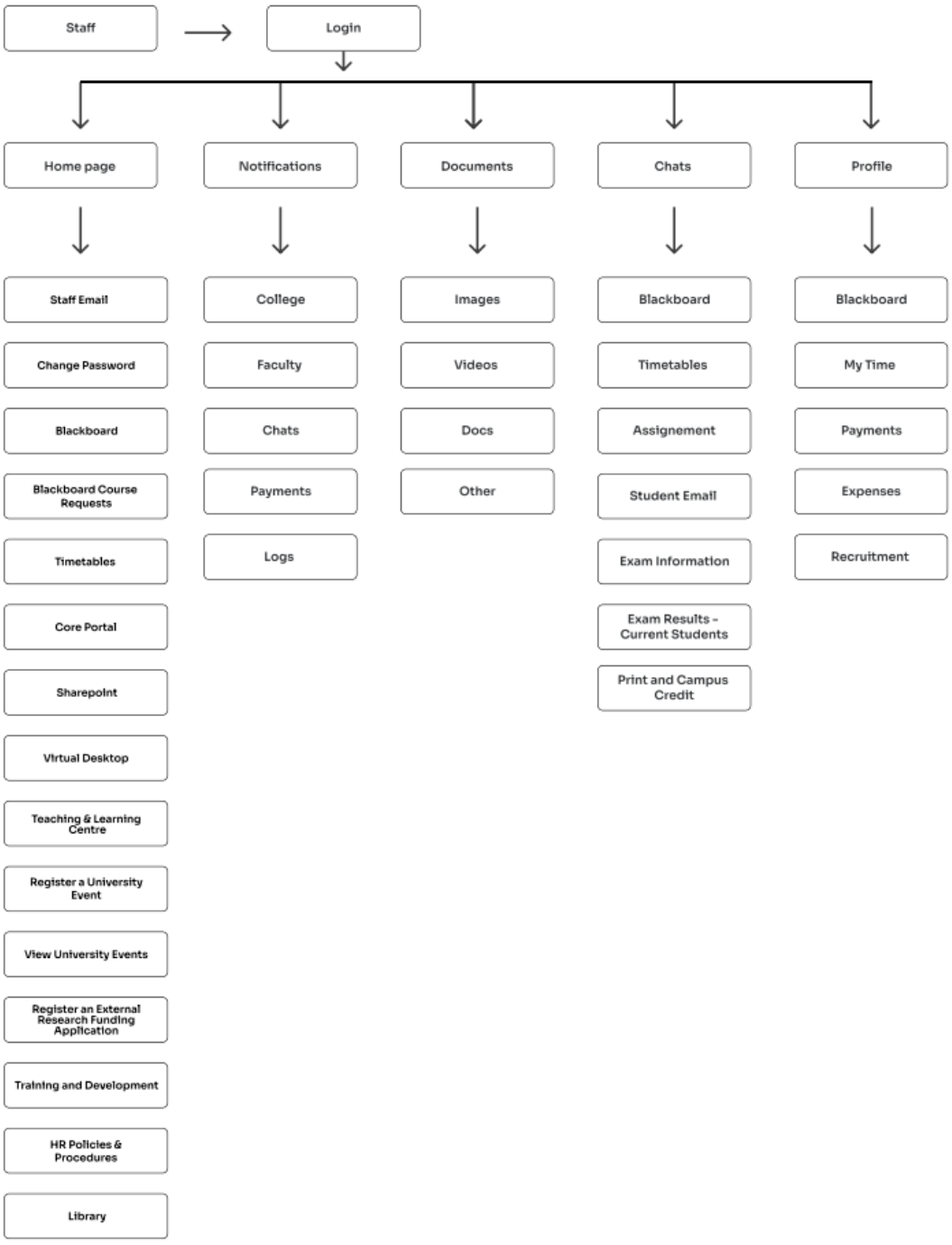


Figure 7: User journey for Staff on SETU Connect App

In Figure 7, we can see the user journey of a staff member on the SETU Connect App. Along with the functionalities associated with staff this section is designed in a way to help students in all their activities.

Guest

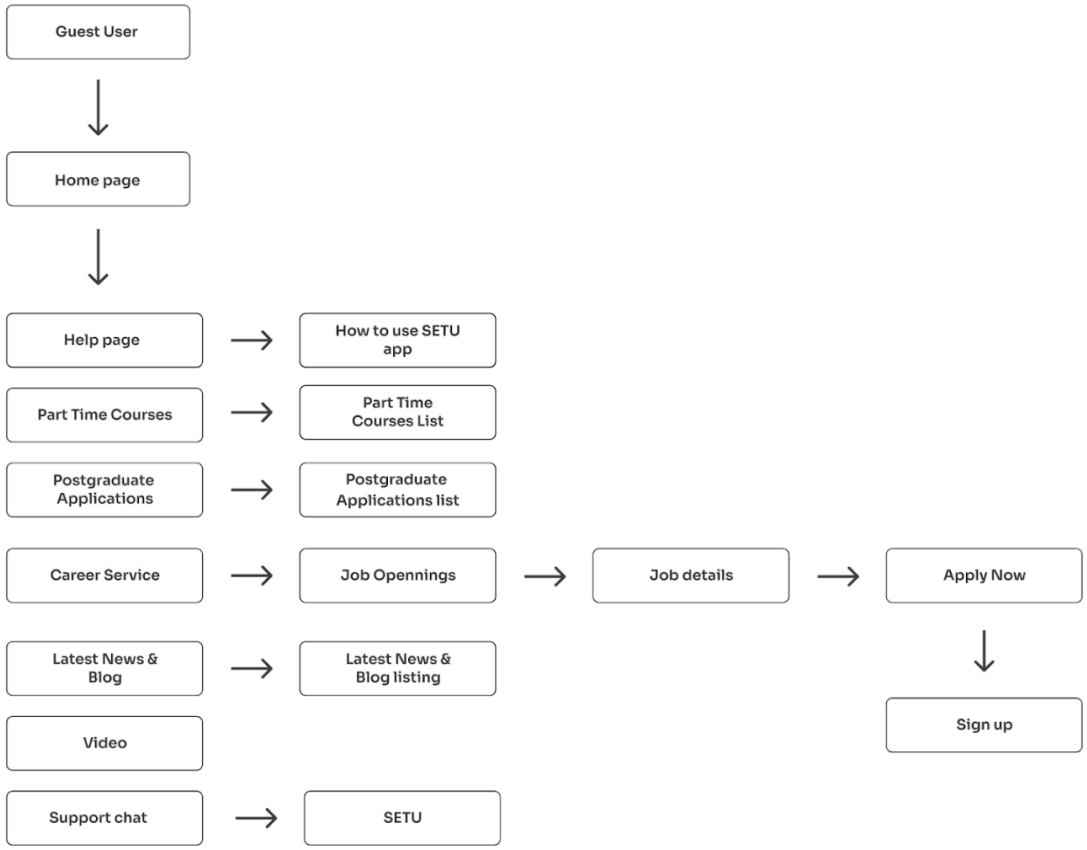


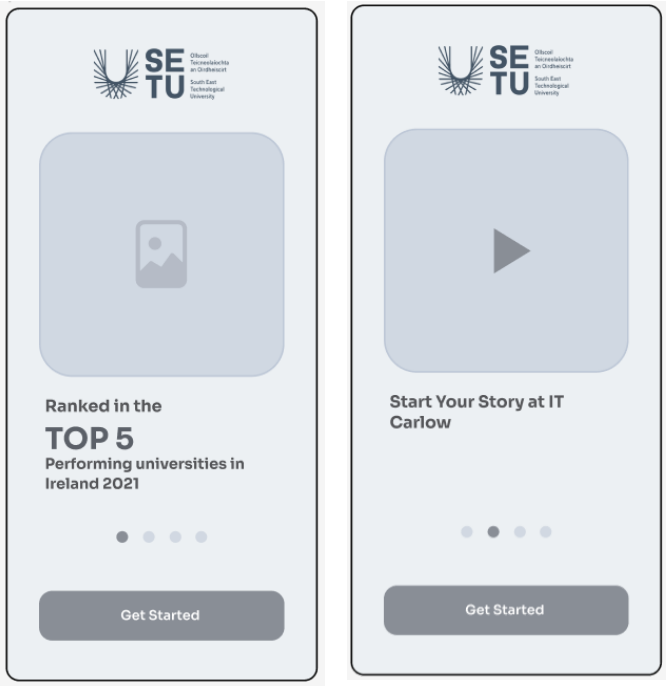
Figure 8: User journey for a Guest User on SETU Connect App

In Figure 8, we can see the user journey of a guest user on the SETU Connect App. Guest users don't have many privileges in the App. The section is designed to consider all types of adults. Those who are technically not sound has a 'How to section' to guide them in the App usage.

9. Low Fidelity Screens & References

9.1 Welcome Screen

Figure 9: Welcome Screen wireframe



In Figure 9, we can see the welcome screen designed as a solution for this research paper. It consists of illustrations, captions videos and descriptions and is based on the university and courses offered. The rationale for designing it this way is to inform the user about the university, its history, facilities, courses, and possibilities after the study. The welcome screen consists of multiple slides which explain all the above to convey the information. The slide with video will be an easy and effective way to convey a lot of information easily and clearly.

Figure 10: Welcome Screen reference template

This reference template for the welcome screen is a good example because it's simple and neat. From this template, the inspiration for different slides on a single screen developed along with illustrations, captions, and text descriptions. The video on a different slide is the improvisation of this idea.

https://www.cmarix.com/blog/wp-content/uploads/2020/10/Career-Guidance-Apps.png

Figure 11: Welcome Screen reference template that is less effective

https://image.shutterstock.com/image-vector/design-mobile-app-ui-ux-260nw-1721386600.jpg

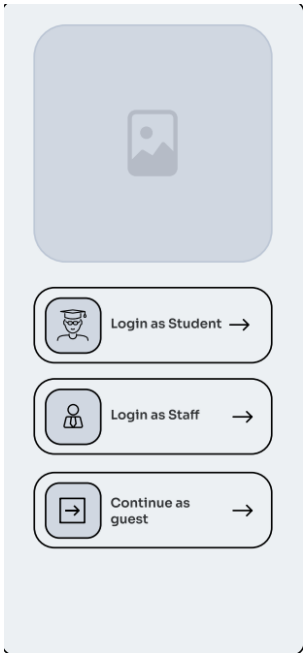
The welcome screen seen in figure 3 does not work as a good design because it is directly going for the registration/login without giving much information about the service. The challenges for some of these types of designs are it fails to inform the user about the basic idea of the application/service.

Even if the application is for a university and the feel should be professional, users should get an overview of the service they are providing before registering for the service. The welcome screen gives a chance to demonstrate the achievements and track record of the institution and the user gets a chance to know the University, courses, student life and other general information. Directly pushing to the registration is not the desired approach because the user is registering without basic knowledge.

There are several examples of non-user-friendly applications. SETU Connect is different from them in several aspects. This app considers adults of almost all ages and types of users who wish to learn. The app has a HOW-TO section focused on those who are not good with electric gadgets. It explains how to use the App using Videos and PDF. If we take the example of our current University portal the student must go to different places on the web to access all services associated with the college and it is not necessary to carry around a laptop and Wi-Fi connection to access. If you have this App on your mobile and have an internet connection, you are 24 X 7 connected to the University's services.

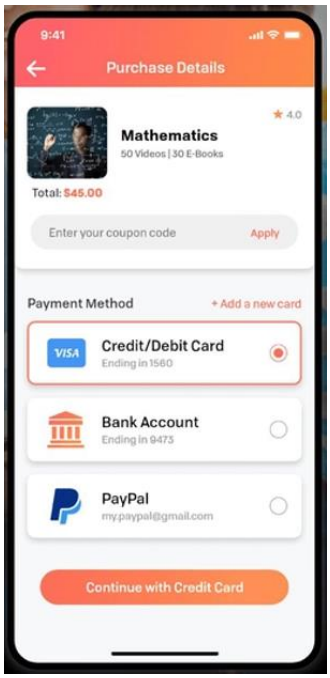
9.2 Login Screen

Figure 12: Login Screen wireframe



The log-in screen designed as a solution for this research paper consists of three sections, which are Student, Staff and Guest. The interface for students and staff has similarities and has more privileges compared to a guest user.

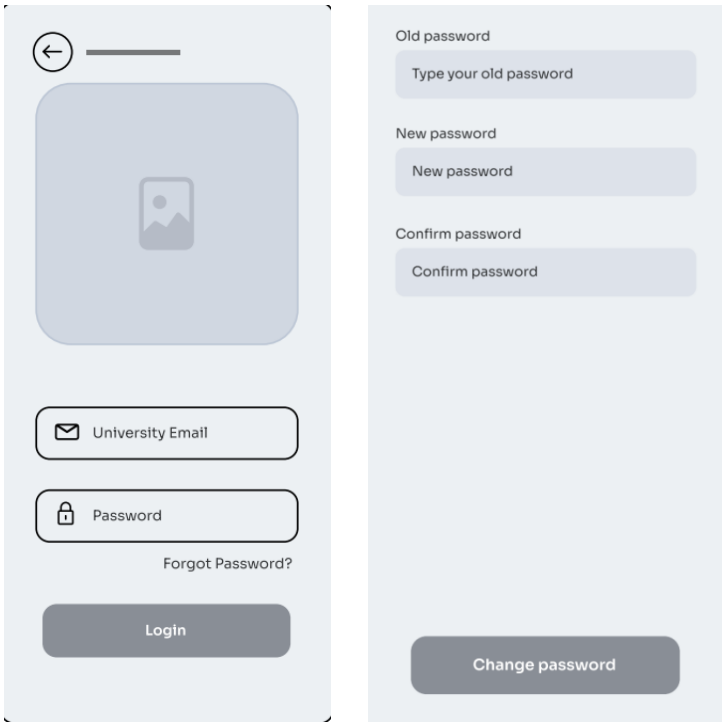
Figure 13: Login Screen reference template



The reference template is a purchase screen. The idea of different sections of login is inspired by the template seen in Figure 13.

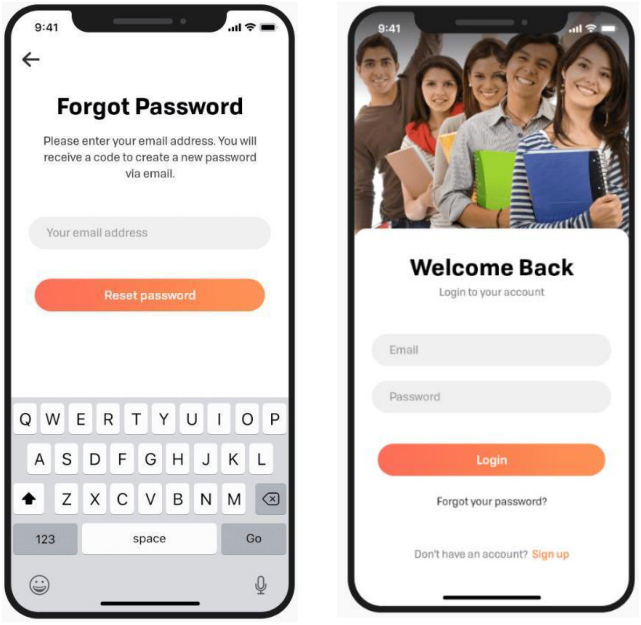
https://items.epicpxls.com/uploads/photo/153ab920e1f688dcc78978f72556a2c7

Figure 14: Staff / Student Login wireframe



Staff and students use the same login screen which will redirect to corresponding sections based on the email category.

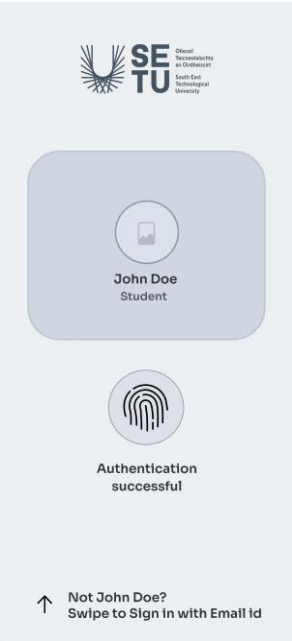
Figure 15: Staff / Student Login reference template



The wireframe is almost the same format as the reference. A section with a Forgot password option is included with an old password text box option for more security.

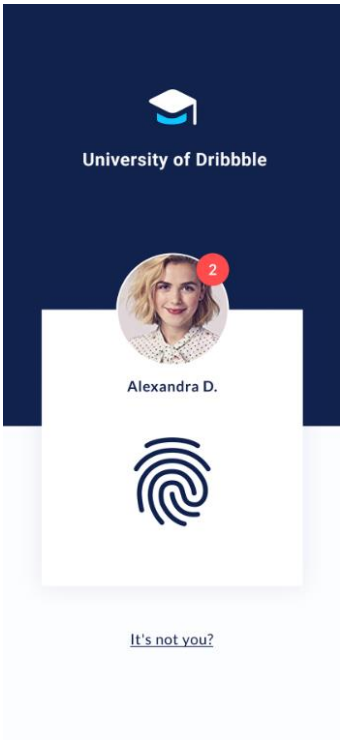
https://items.epicpxls.com/uploads/photo/7e2b3bb897a12686e355453eb675d1a8

Figure 16: Staff / Student finger scan screen wireframe



The finger scan is available only for staff and students for more secure access. They can enable this option from profile settings. On this screen, if the user is different or the finger scan is not working the user has the facility to sign in using their email id.

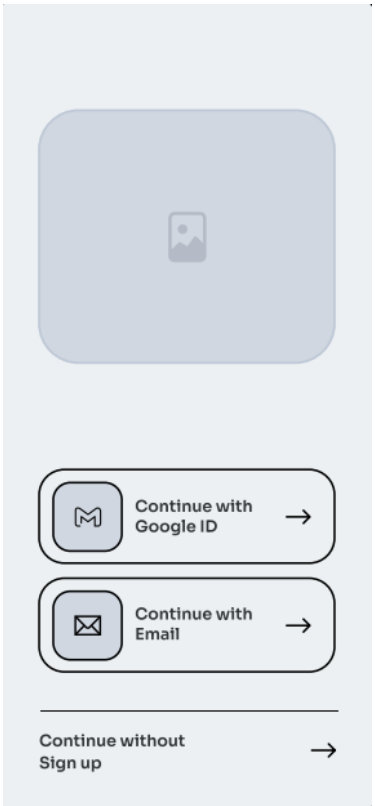
Figure 17: Staff / Student finger scan reference



Finger scan is available only for staff and students for more secure access. They can enable this option from profile settings. On this screen, if the user is different or the finger scan is not working, the user has the facility to sign in using their email id. There is a ribbon showing how many unchecked alerts are there, which is a useful feature.

https://dribbble.com/shots/11877920-University-App/attachments/3503251?mode=media

Figure 18: Guest login wireframe



The guest login has the facility of Google account sign in, email sign-in for those who don't have a Google account and can continue without signing in for general information gathering. The after-login screens of this section contain How-To modules which have Videos and PDFs explaining how to use the App for those users who are not good with electronic gadgets.

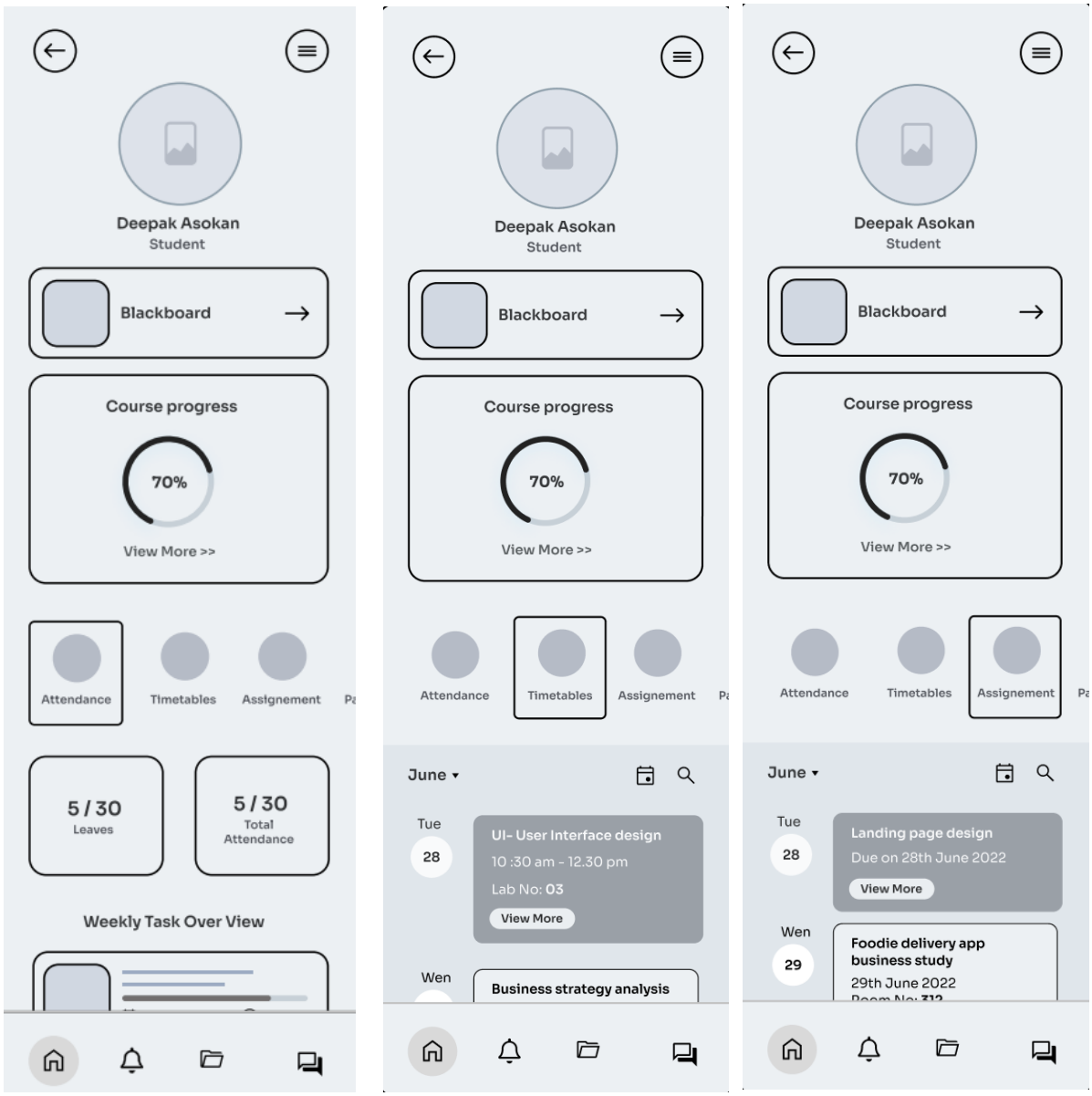
Figure 19: Guest login reference template

The Reference template contains an additional option of Facebook sign-in which is omitted in the University App for a more professional approach.

https://items.epicpxls.com/uploads/photo/a6bee3dfb5a324633c442da8353c4ded

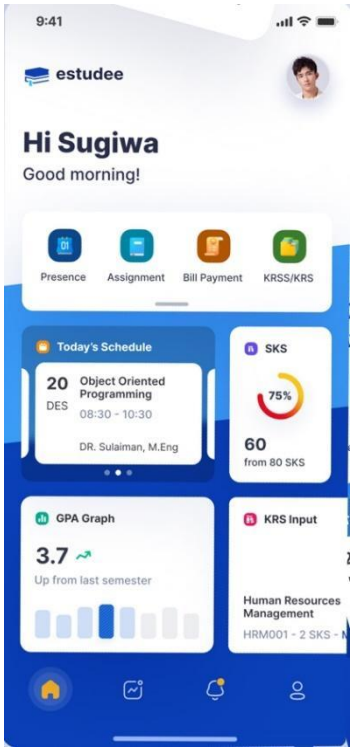
9.3 Profile screen - Student

Figure 20: Student profile wireframe



After login, the student profile is the main screen where all information about a student should be displayed. Few options like blackboard and course progress are highlighted because those are important functionalities. Detailed course progress can be viewed by tapping the view more option in the course progress section. All the remaining options for students are arranged as slidable tabs. The reason to arrange it like that is to show all details related to a particular option on a single page to reduce redirection and for better UX. Home, Notifications, files, and chats are the bottom navigations

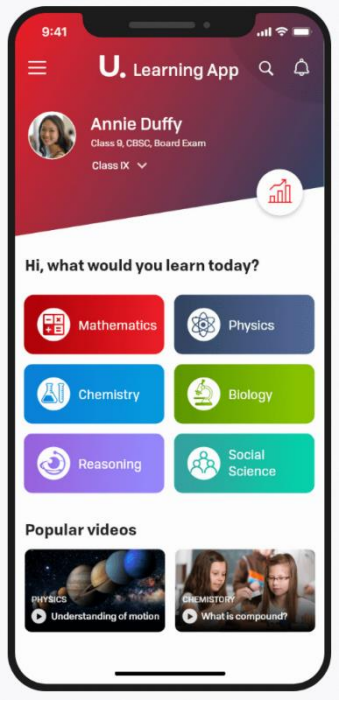
Figure 21: Student profile reference template



The Reference template contains all the major components required for the student profile and is well organized and user-friendly. The main options are converted to tab elements to display more functionality on a single screen. Course progress has also been given more importance.

https://cdn.dribbble.com/users/434324/screenshots/16442102/media/5e6ebf5284073fec2e81a373a8e22f16.png?compress=1&resize=1600x1200&vertical=top

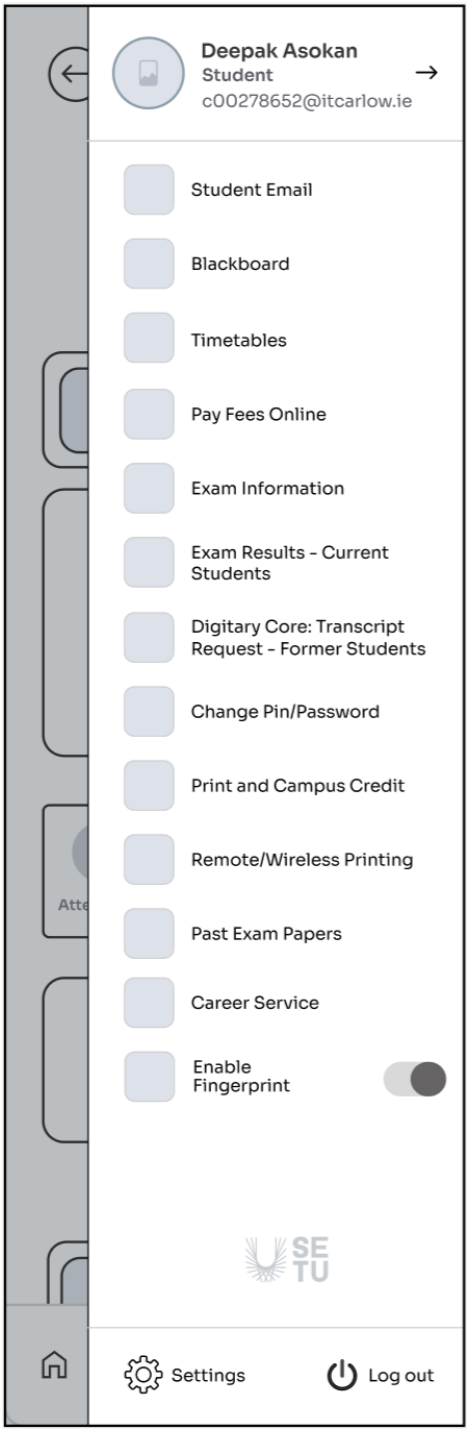
Figure 22: Student profile poor example



The given example is not a good practice because the main options redirect the user to another screen also the design and the colour theme chosen is not professional. Not much information can't be conveyed here because of the poor UX design, which is covered in the developed wireframe.

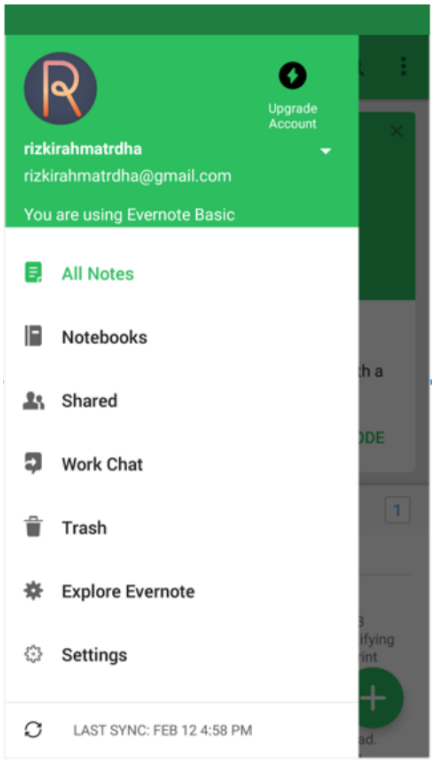
https://items.epicpxls.com/uploads/photo/96745f90430779c38350e92ddccda9fd

Figure 23: Hamburger menu



All the other important services available for a student which are not shown on the main screen are included in the hamburger menu section. For more security a fingerprint option has been included

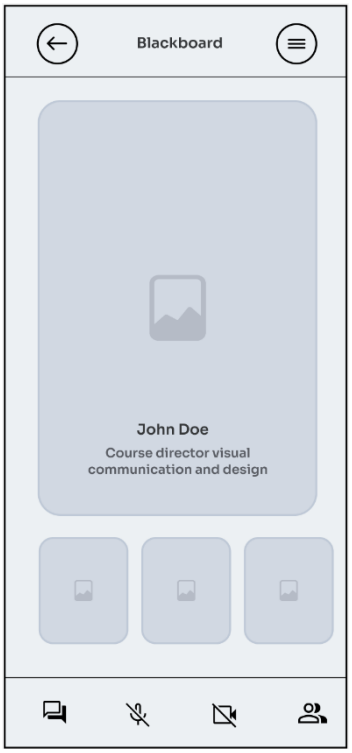
Figure 24: Hamburger menu reference template



Since there are so many services to be listed for students, this reference taken is a good one.

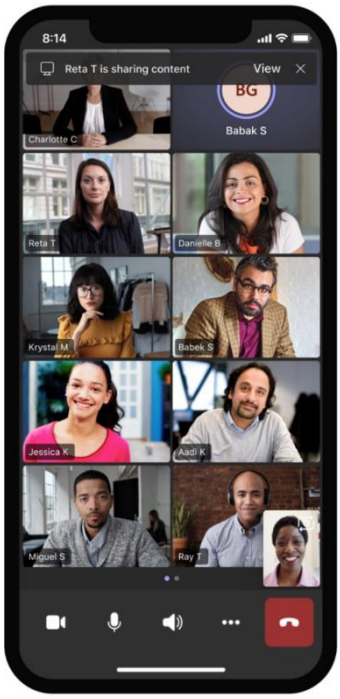
https://miro.medium.com/max/1400/1*ojSlEGkTBV0WBwdStNemLQ.png

Figure 25: Blackboard



Blackboard is a platform that allows students to join the online class. All the required features like enable/disable mic, camera, view members, and chat are included in the bottom navigation

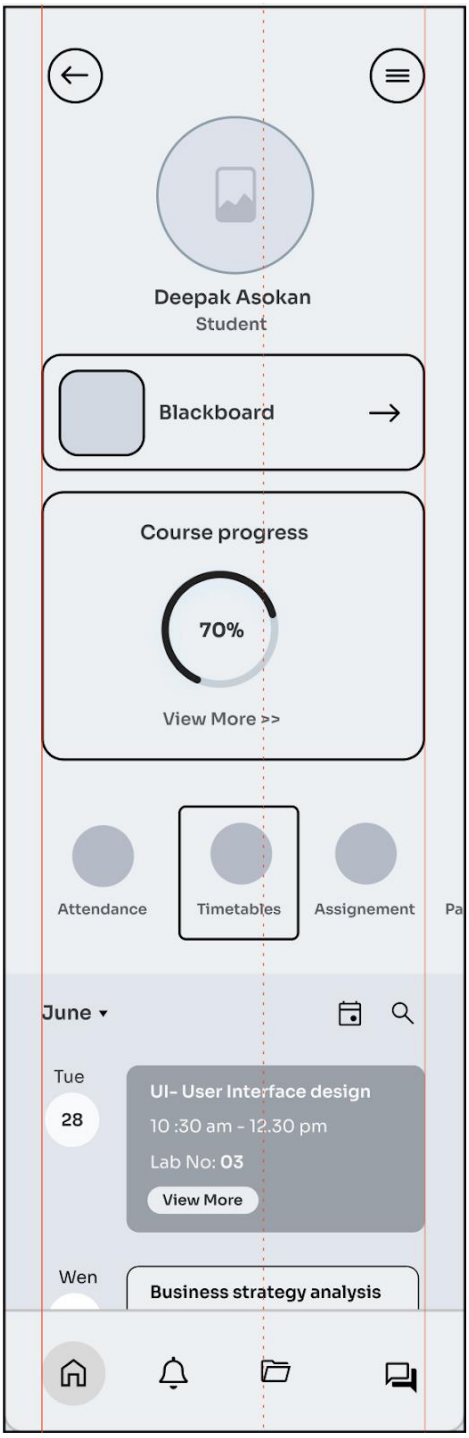
Figure 26: Blackboard reference template



Since there are so many services to be listed for students, this reference taken is a good one because of the clear and ordered alignment.

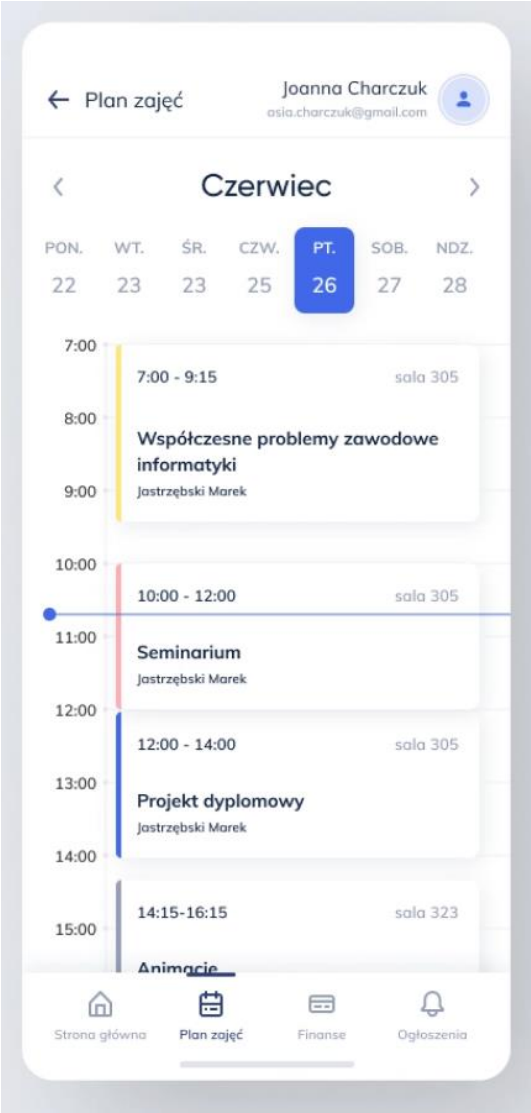
https://www.windowslatest.com/wp-content/uploads/2021/06/Microsoft-Teams-large-layout.jpg

Figure 27: Timetables



The timetable is the area where students can find classes and other tasks like assignments and be able to filter the section by date and search.

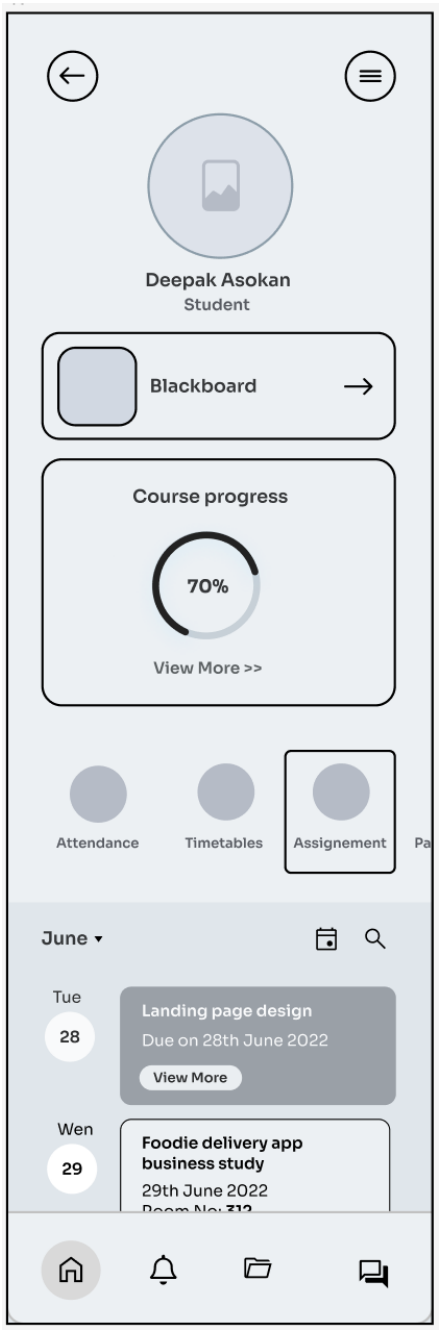
Figure 28: Timetable reference



The reference calendar perfectly displays the arrangement of information in a simple way.

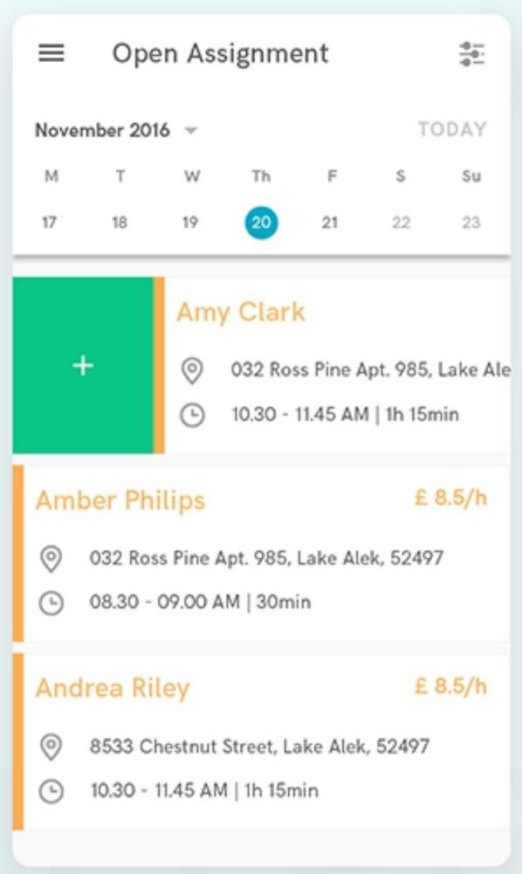
https://dribbble.com/shots/16807260-European-University-in-Warsaw-application

Figure 29: Assignments



The assignment section design is like the timetable section.

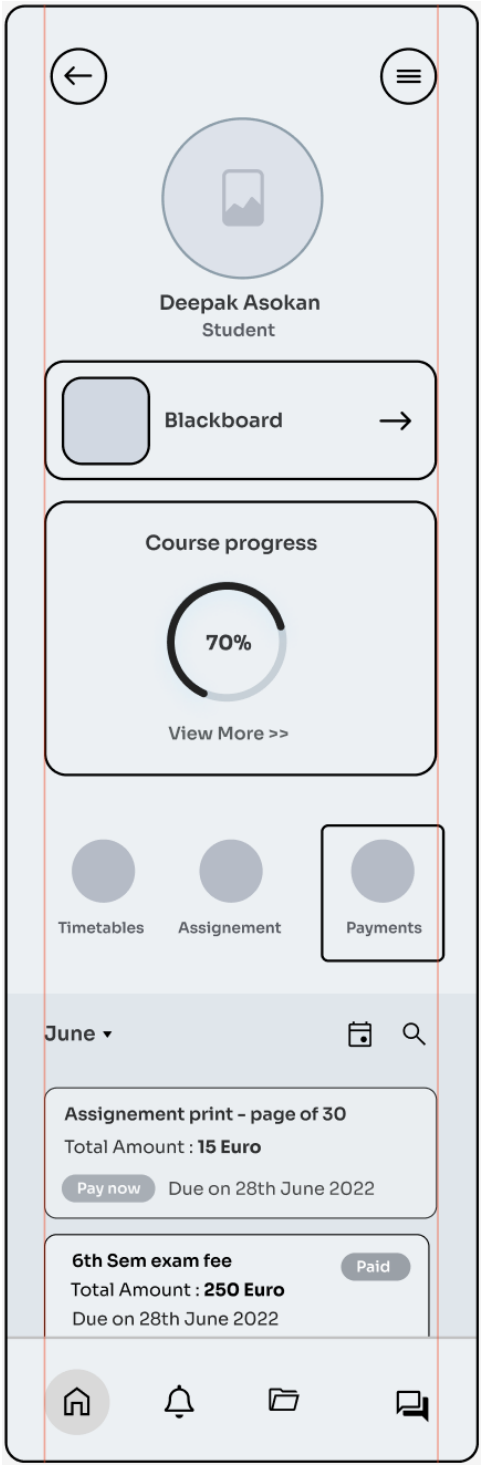
Figure 30: Assignments



The design of this section is similar to the calendar.

https://dribbble.com/shots/3272236-Helpr-Android-App-Open-Assignments-View

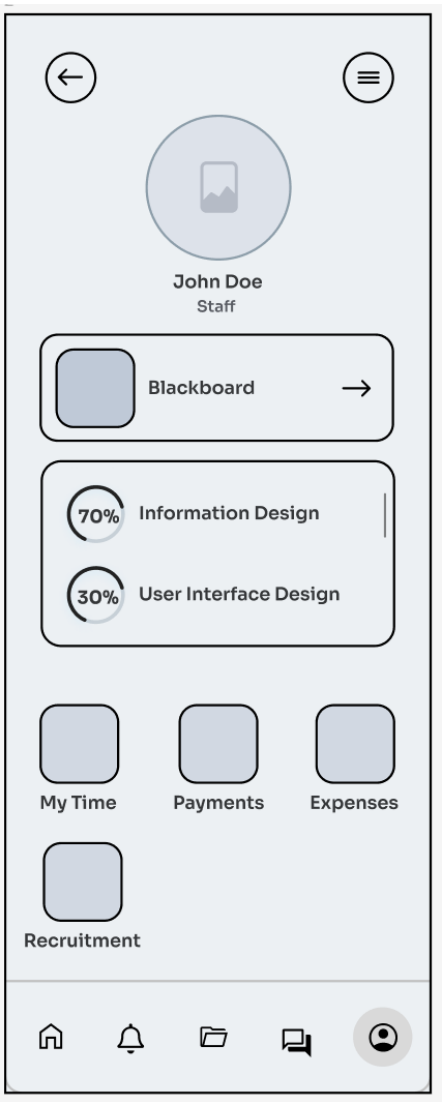
Figure 31: Payments



Students can view and manage all the payments with the SETU App from this tab. Also, can be able to pay the fee online.

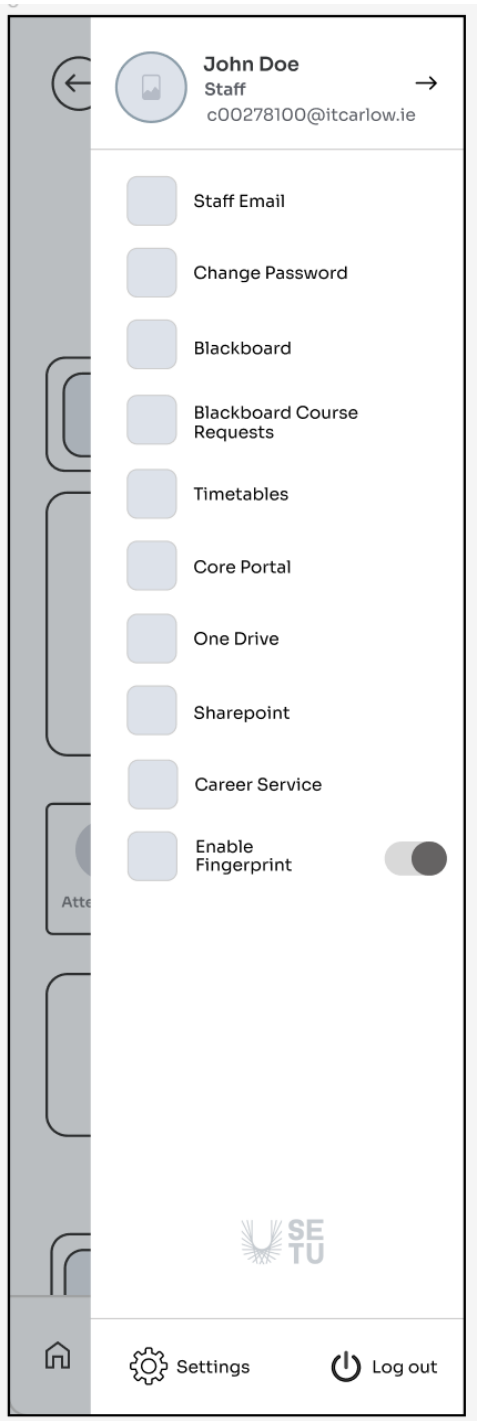
9.4 Profile Screen - Staff

Figure 32: Staff profile wireframe



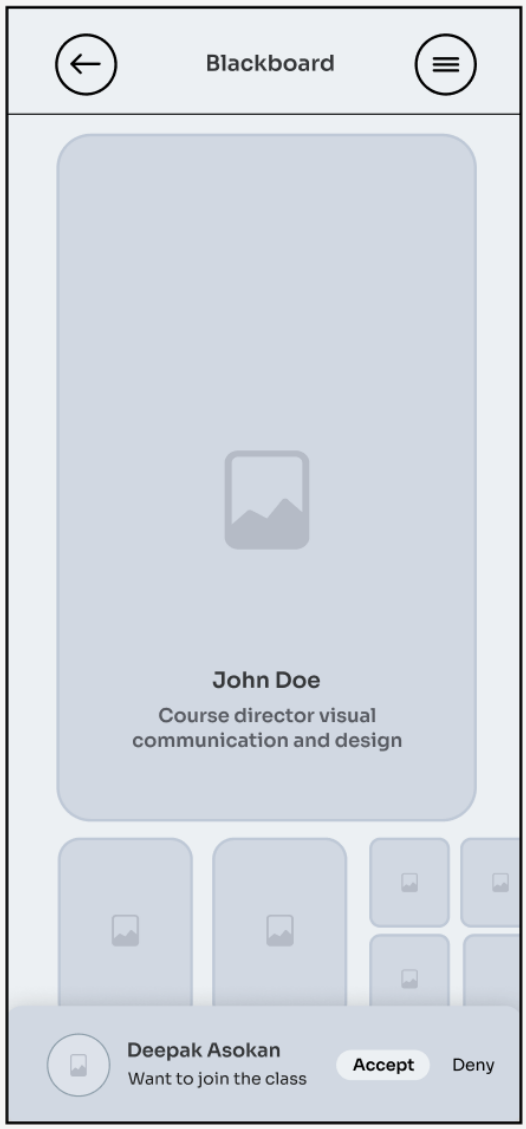
After login, the staff profile is the main screen where all information about staff should be displayed. Few options like blackboard and class progress are highlighted because those are important functionalities. All the remaining options for staff are arranged as slidable tabs. The reason to arrange it like that is to show all details related to a particular option on a single page to reduce redirection and for better UX. Home, Notifications, files, and chats are the bottom navigations

Figure 33: Hamburger menu



All the other important services available for staff which are not shown on the main screen are included in the hamburger menu section. For more security fingerprint option has been included.

Figure 34: Blackboard

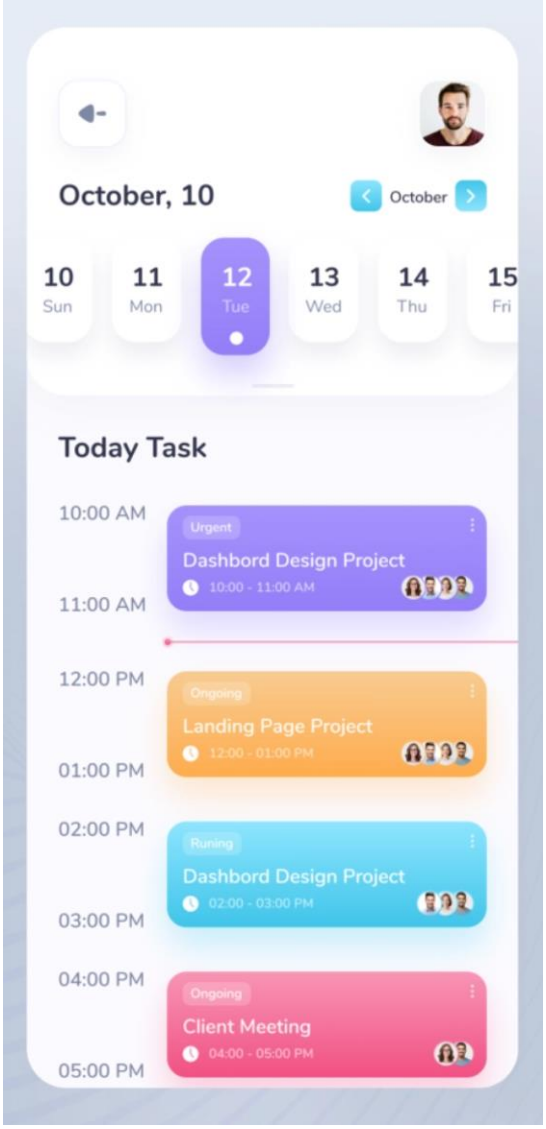


Staff can easily start an online session that he created before. Only the student accepted by the staff can join the classroom also the staff can able view all the students joined in the classroom.

Figure 35: My Time

Staff can also create and update their time from this page to filter by date and search for easy access.

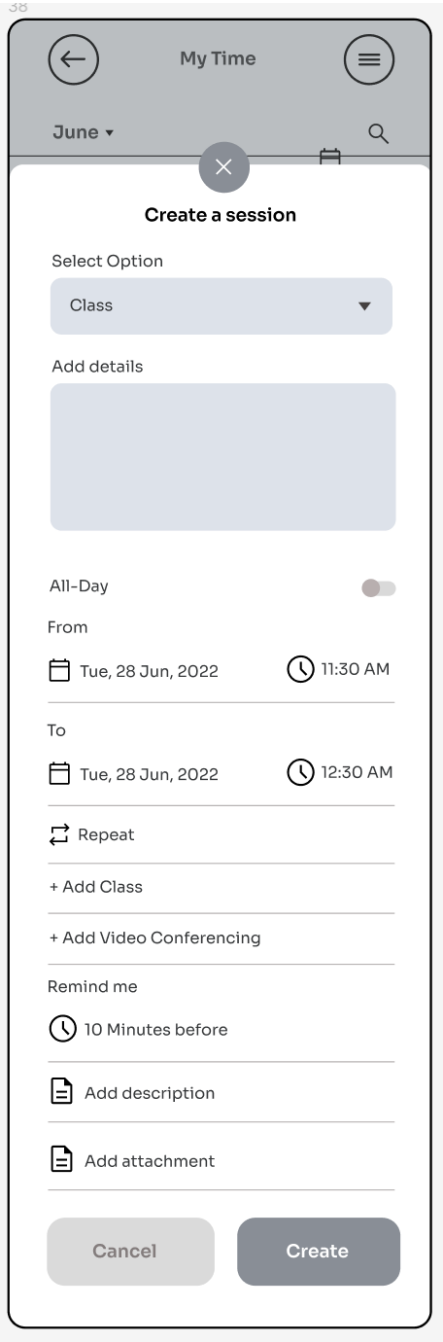
Figure 36: My Time reference



Student and staff has the same calendar design.

https://dribbble.com/shots/17475125-Task-Management-App-Design

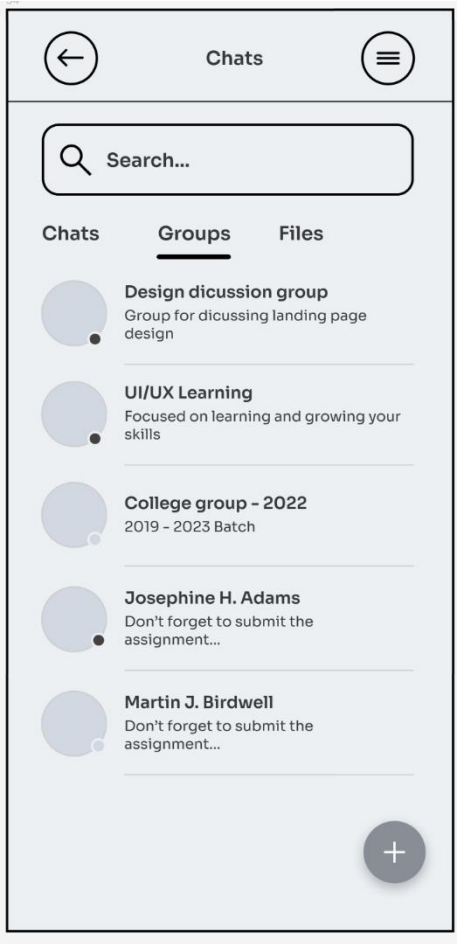
Figure 37: Create a session



Staff can be able to create different sessions like classes and assignments from this screen and they also are able to assign a particular classroom from the dropdown. Also, all additional details can be added from here. Once a session is created all the students will get a notification

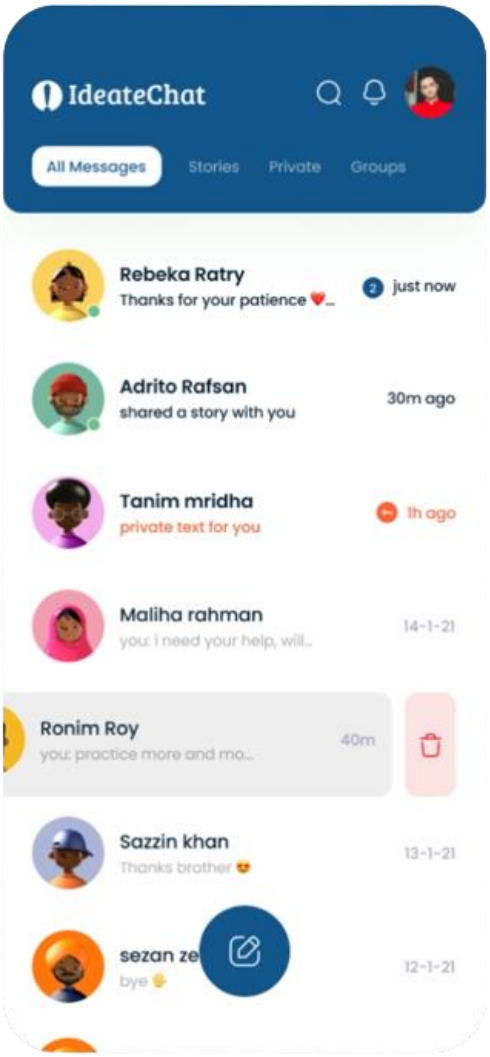
9.5 Chat – Student & Staff

Figure 38: Chat List



Staff and students can be able to communicate and share files through the chat section where students/staff can easily add new members by their university email id. Real-time communication enables the students and staff to engage more in studies.

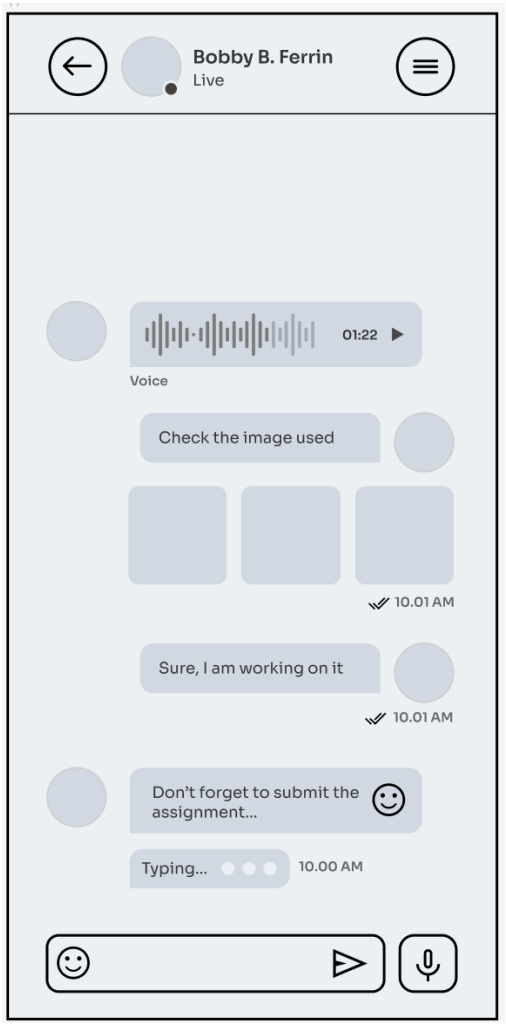
Figure 39: Chat list reference



The reference template for the chat section is a good example because it is simple and neat and contains all the required options like the chat list and the tabs. The top tab is useful to separate chats, groups, and files.

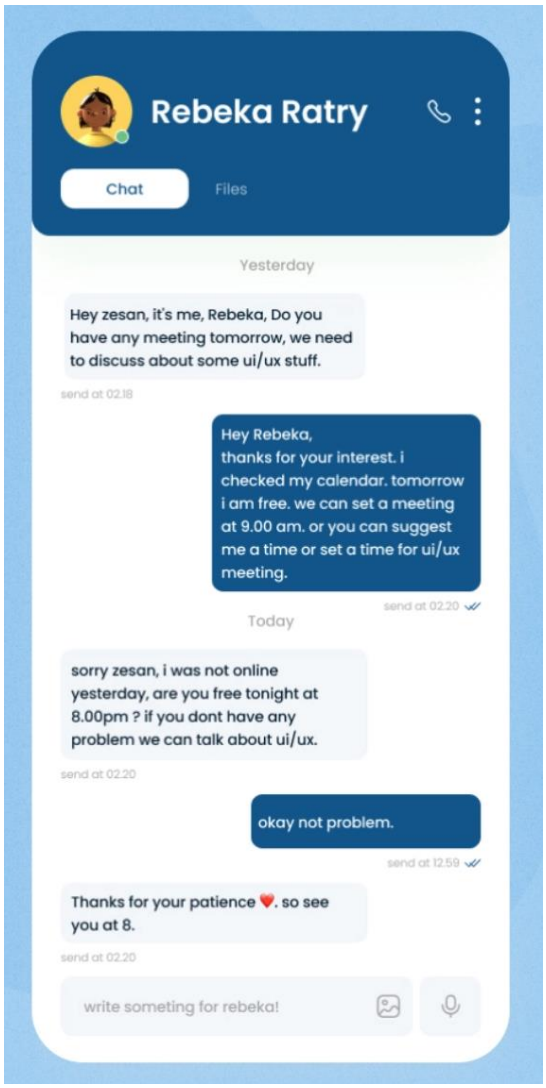
https://dribbble.com/shots/14938384-Messaging-app-ideate-chat

Figure 40: Chat – Main Screen



The chat screen is the main screen where staff and students can communicate in real-time also the chat section does support audio and file sharing for seamless communication

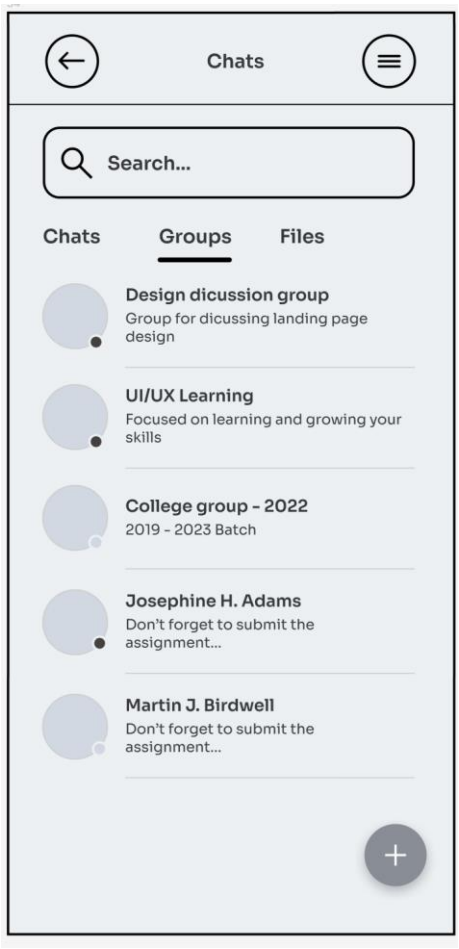
Figure 41: Chat - main screen reference



The reference template for the chat main screen taken is straightforward. This perfectly fits the requirements. From this reference, screen sends and received messages can easily be distinguished by the color used.

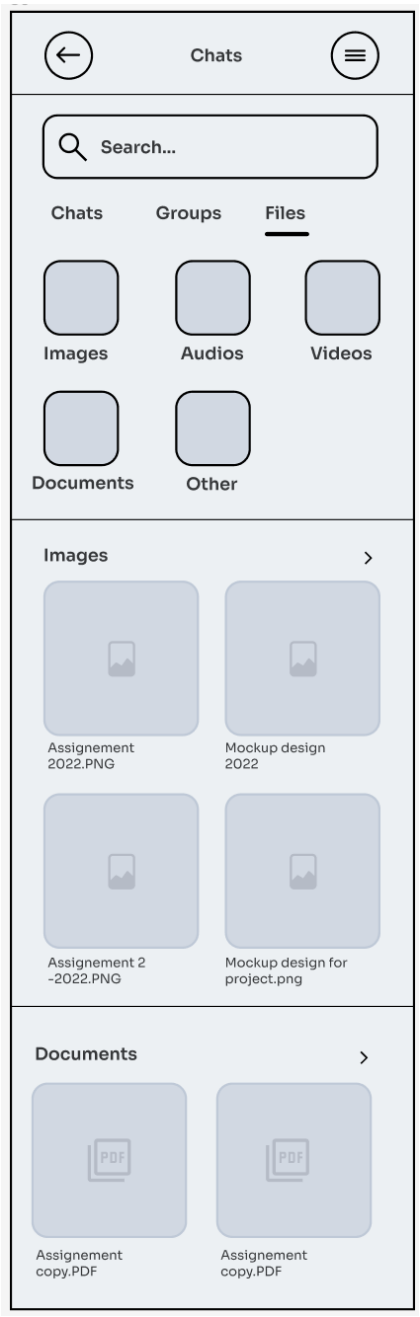
https://dribbble.com/shots/14938384-Messaging-app-ideate-chat

Figure 42: Chat - Groups



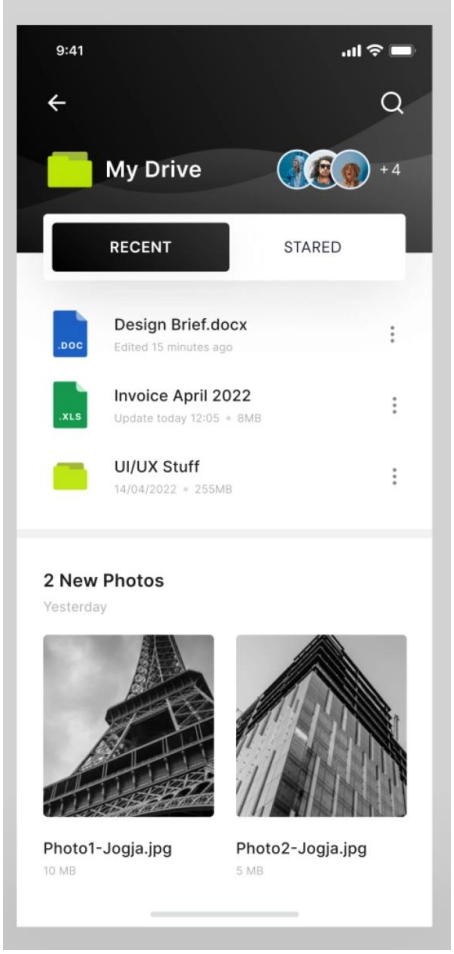
Staff and students can create multiple groups by using the university email id provided by the college. They can create multiple groups and invite students and staff into it for group communications.

Figure 43: Chat - Files



The file tab section is for managing files that are shared by students and staff. On this single page, the preview and search options are added for easy file searching.

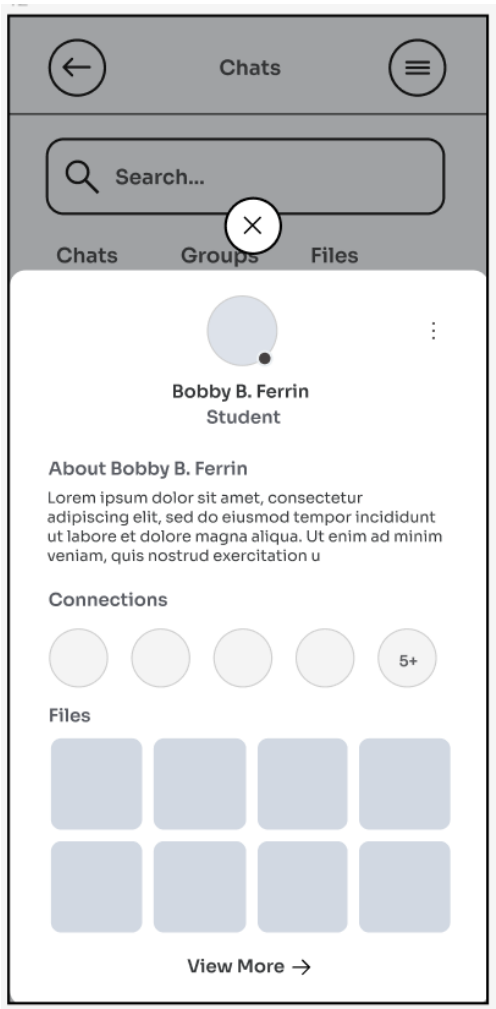
Figure 44: Chat - Groups



The reference template taken exactly matches our requirement because on a single page all the files can be seen and able to manage (delete, copy and paste, etc.) Also, the page fits inside a tab

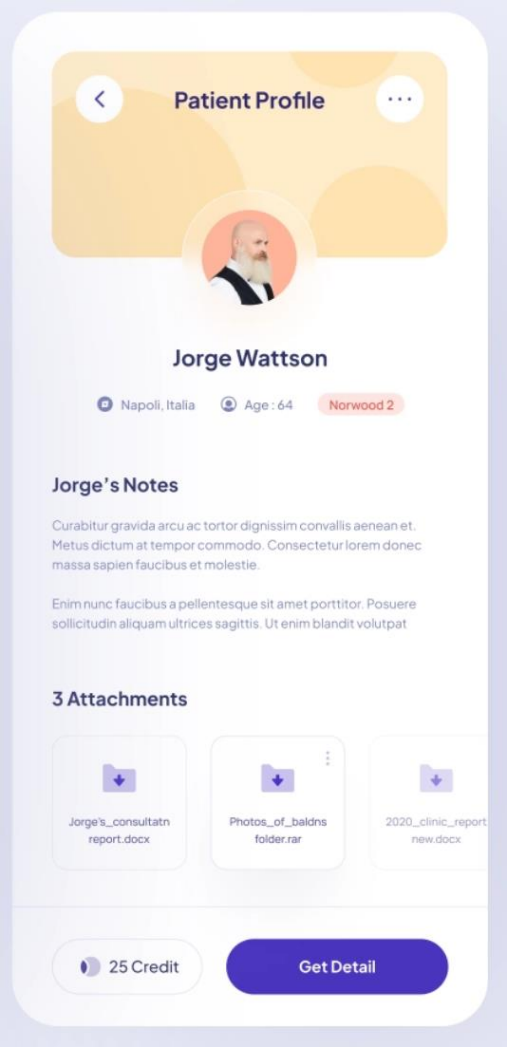
https://dribbble.com/shots/18325114-Fileo-File-Manager-Apps

Figure 45: Chat - Group - details view



In this chat section, a detailed view of each user and the group is a required functionality as it is very important for the user to give back the details of the group and people with which they chat. Tapping over the group icon or a person will bring this popup.

Figure 46: Chat - Group - details view reference

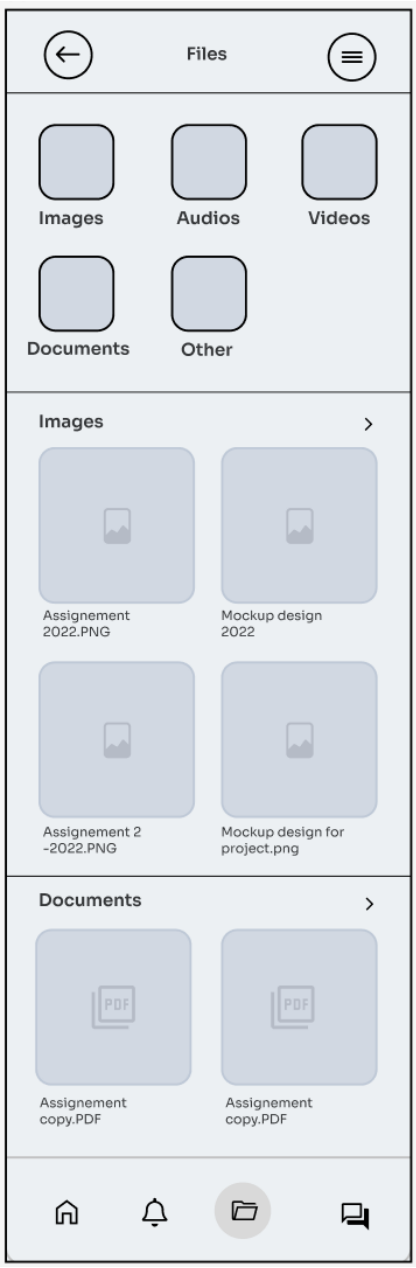


This reference is simple and suitable to fit in a popup so that there is no need to navigate between pages to get details about the group/person. So, the reference taken is a good design that suits work with the app perfectly.

https://dribbble.com/shots/15053744-Dashboard-Mobile-View

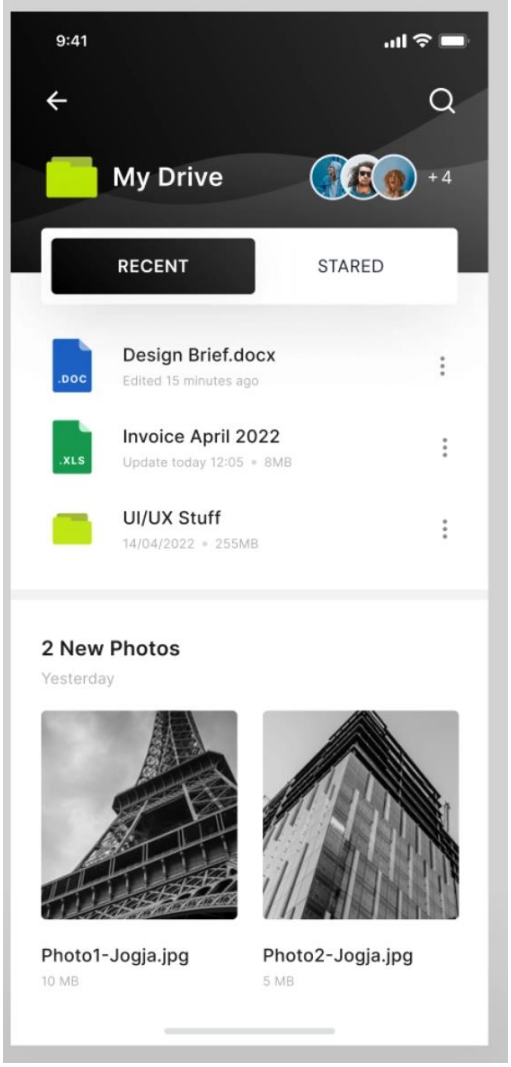
9.6 Files - Student & Staff

Figure 47: Files Screen



All the files that are uploaded or downloaded from the application are managed separately on the file page located at the bottom navigation. Once the file is downloaded or uploaded by the staff or students can be found here.

Figure 48: Files Screen Reference

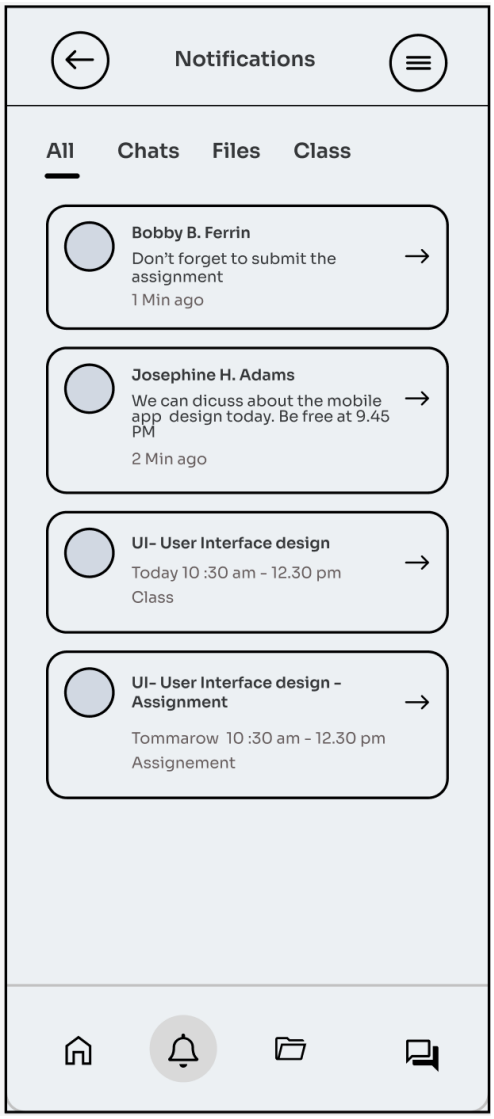


The reference template taken here exactly matches our requirement because on a single page all the files can be seen and able to manage (delete, copy and paste, etc.) Also, the page fits inside a tab.

https://dribbble.com/shots/18325114-Fileo-File-Manager-Apps

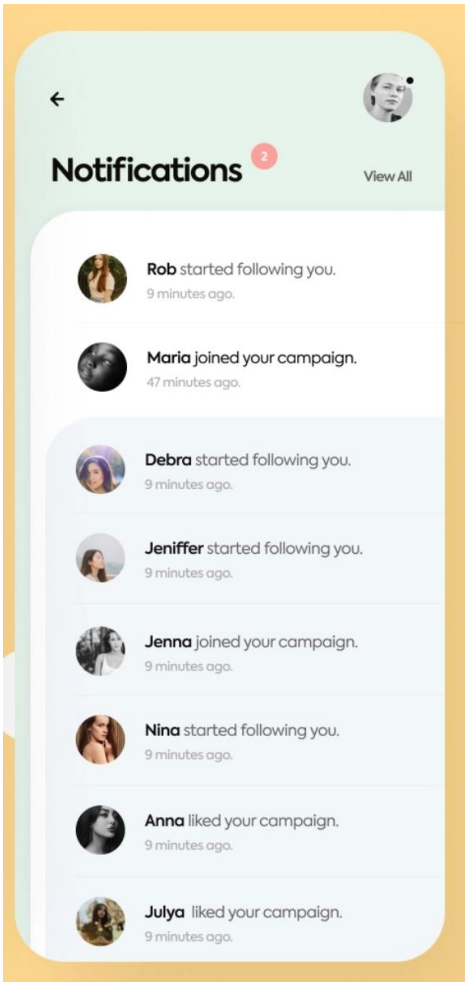
9.7 Notifications - Student & Staff

Figure 49: Notifications



Notifying the Students/Staff is very important to keep them engaged with the application. Also, it acts like a reminder so that the Student / Staff never miss their class or assignments, etc.

Figure 50: Notification Reference

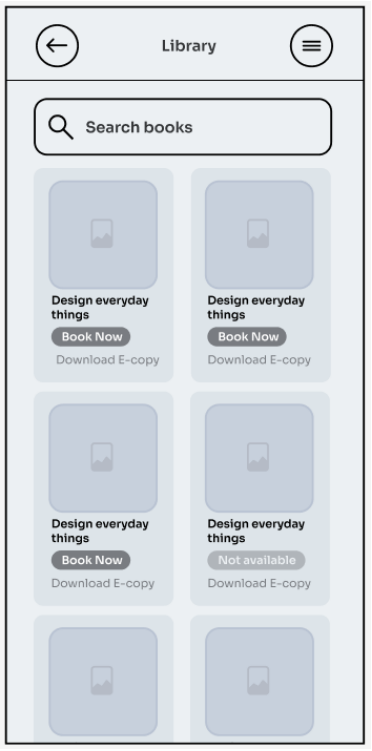


As per the requirement, the notification is a very important part of the application and the reference taken matches the requirement. A simple list of notifications is enough for the students/staff to get a reminder about the upcoming college activities.

https://dribbble.com/shots/8123429-Simple-Welcome

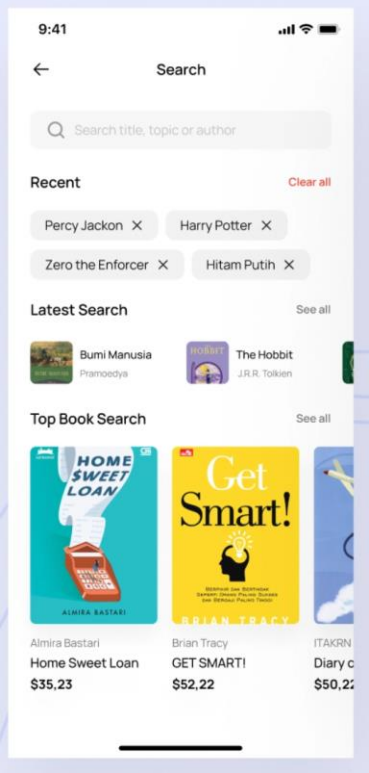
9.8 Library - Student & Staff

Figure 51: Library Screen



The library can be accessed by students/Staff from the hamburger menu at the top. From this page, the student/Staff cab able to register/hold a book from the library.

Figure 52: Library Screen

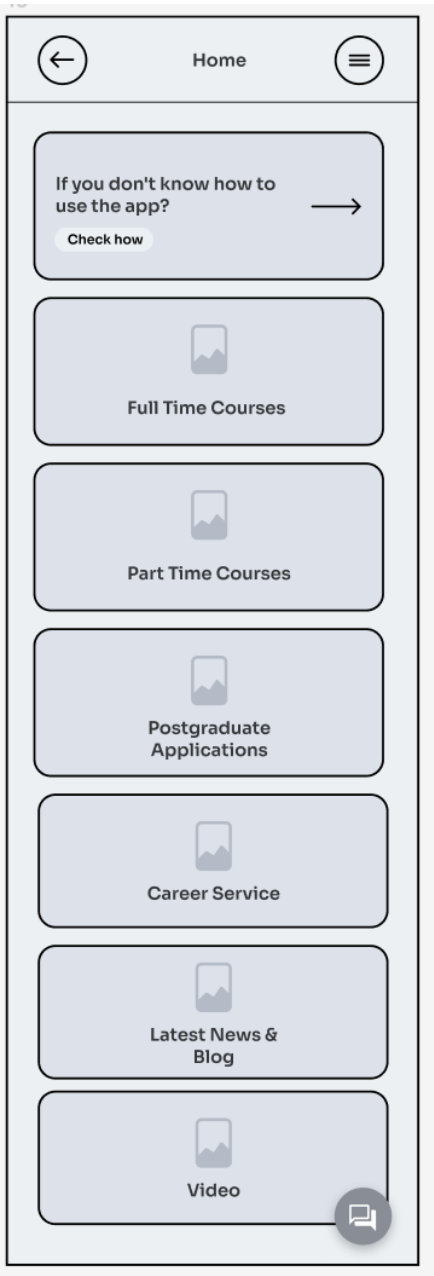


For the library page registering/ holding a book required a simple approach. Where the reference taken is exactly what the library page required where the user can search and see the book they are looking for.

https://dribbble.com/shots/18627406-BStore-V2-Online-Book-Store

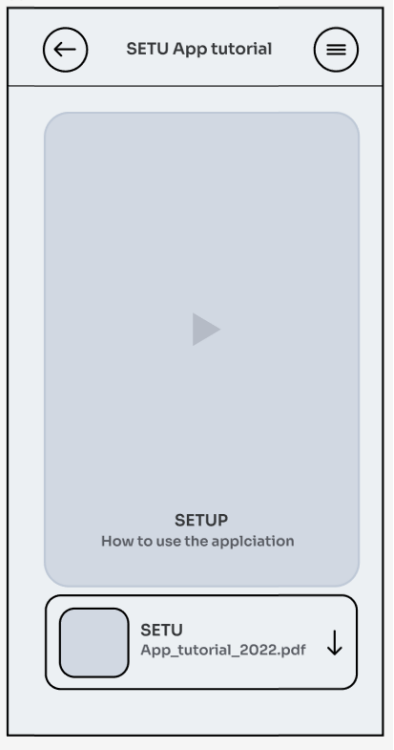
9.9. Guest User

Figure 53: Guest User Home



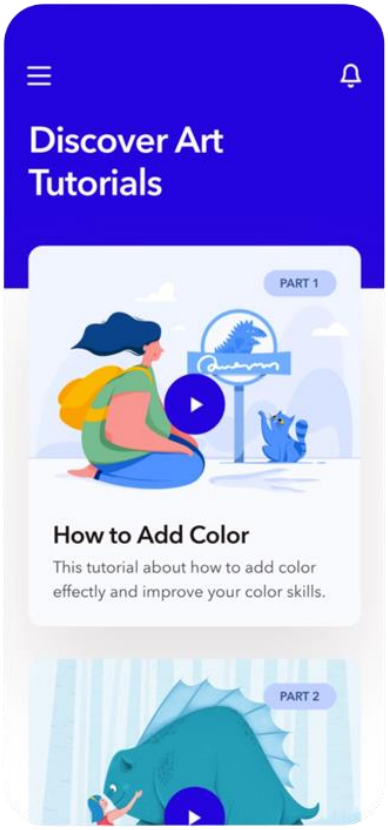
Most of the guest users are coming to this application mainly for searching the courses and to know about the college. That's why the guest user land on this home page where no menu is found at the bottom. All the required options like "how to use the app and view the courses are listed as separate cards.

Figure 54: SETU App Tutorial



Guest users can navigate this app tutorial page from the guest user home page where the users can find tutorials about how to use the app and can be able to download it as a PDF.

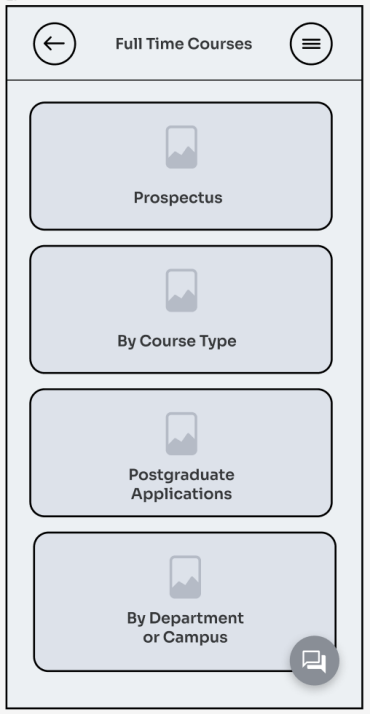
Figure 55: SETU App Tutorial Reference



The reference taken is a simple card view for the tutorial videos list. Since there are so many videos to be listed for guest users the reference taken is a good one.

https://dribbble.com/shots/6414586-Illustration-Art-Tutorial-Mobile-App

Figure 56: Full-Time Courses



Page for displaying the full-time courses where the guest user can see the course and its details.

Figure 57: Full-Time Courses Reference

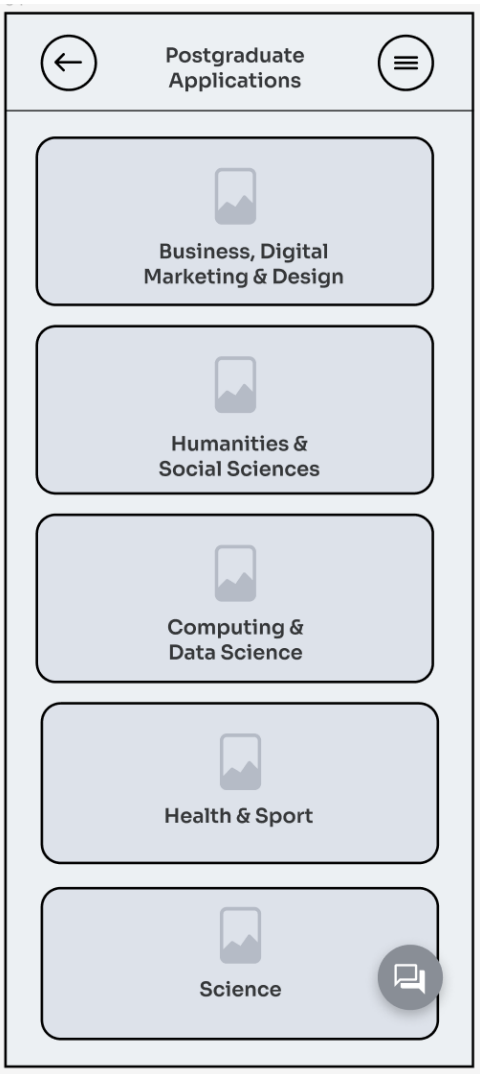
The reference taken is a simple list view for the curses with its details. The reference taken is work well with the application.

https://dribbble.com/shots/16526550-Education-Online-Course-Mobile-App

Figure 58: Part-Time Courses

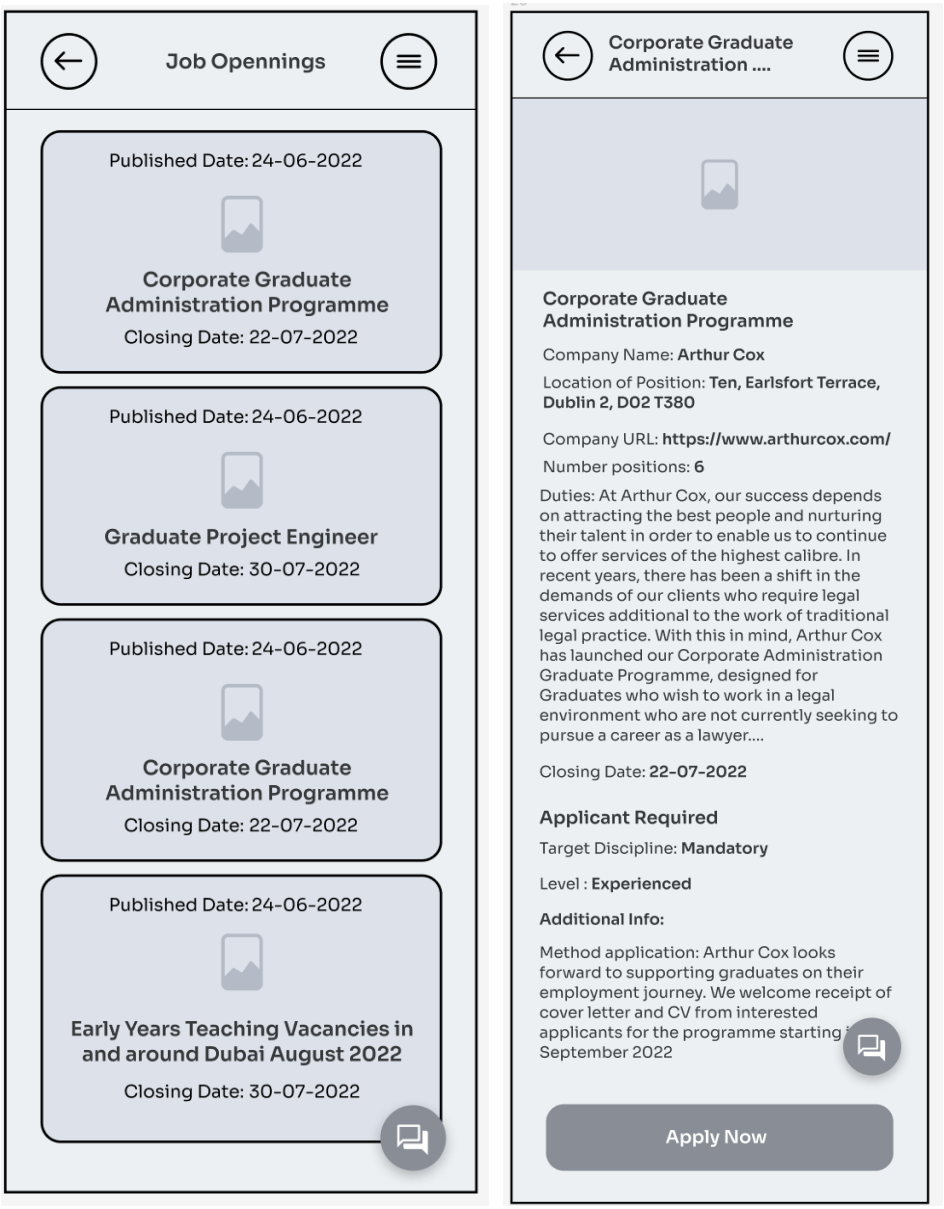
A page for displaying the part-time courses where the guest user can see the course and its details.

Figure 59: Postgraduate Applications



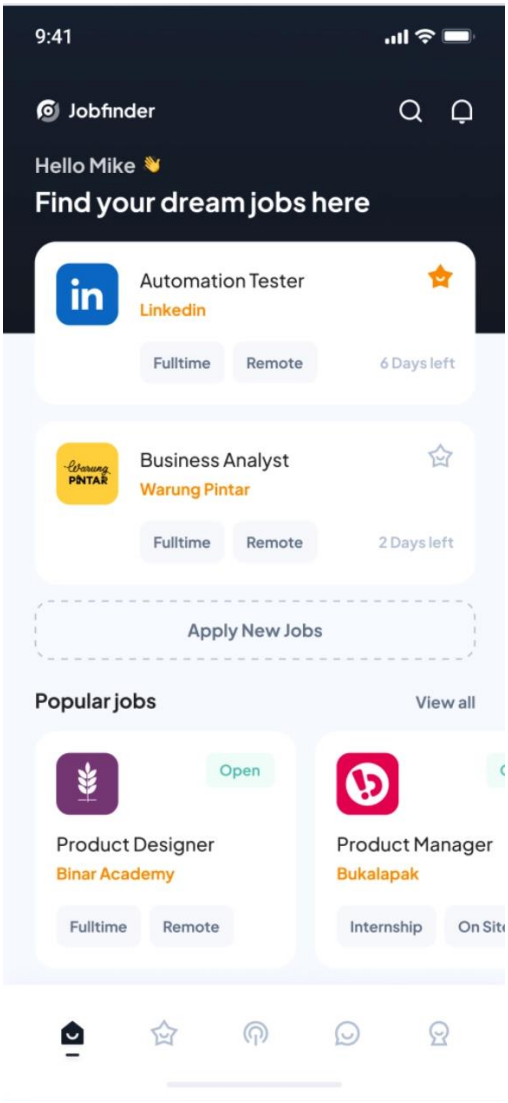
A page for displaying the Postgraduate courses where the guest user can see the course and its details.

Figure 60: Career Services



Guest users can be able to access job openings from the hamburger menu at the top. From this screen, guest user can easily apply for any job opening by viewing its details.

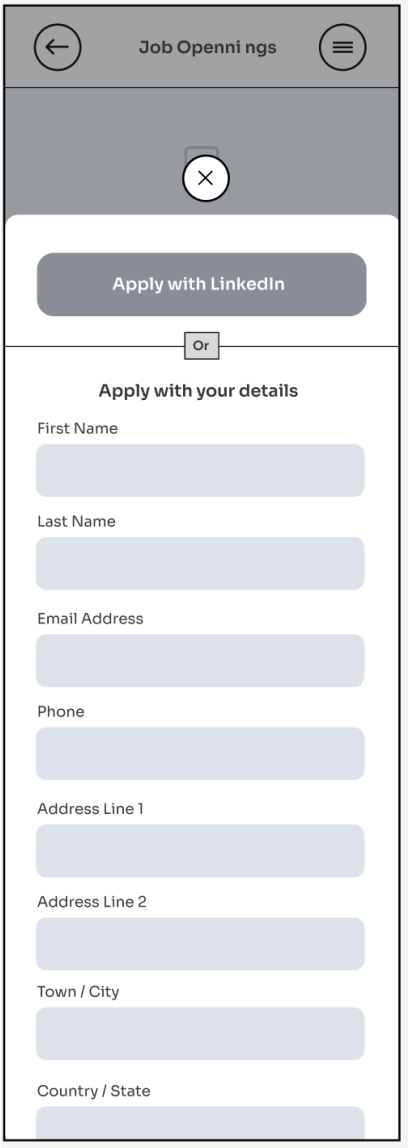
Figure 61: Career Service Reference



The reference taken is a simple card view for the job opening list. Since there are so many jobs to be listed for guest users the reference taken is a good one.

https://dribbble.com/shots/16795117-Jobfinder-Job-Finder-App

Figure 62: Career Services – Job Applications

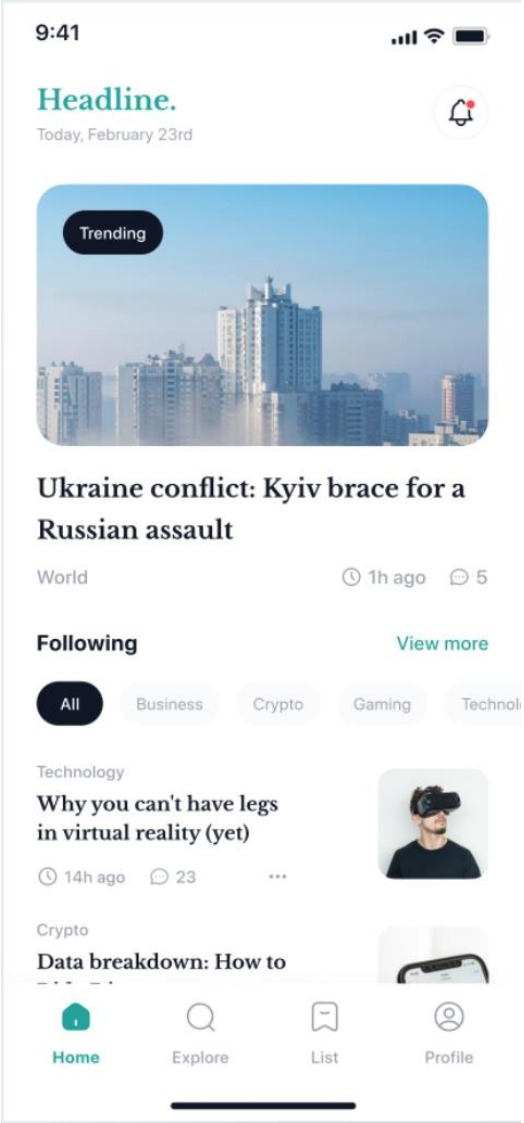


Guest users can easily apply for any job opening either by using their LinkedIn account or by giving their details.

Figure 63: Latest News & Blog

The latest news and blog can be accessed from the main home page for the guest users. All the college related news is listed here.

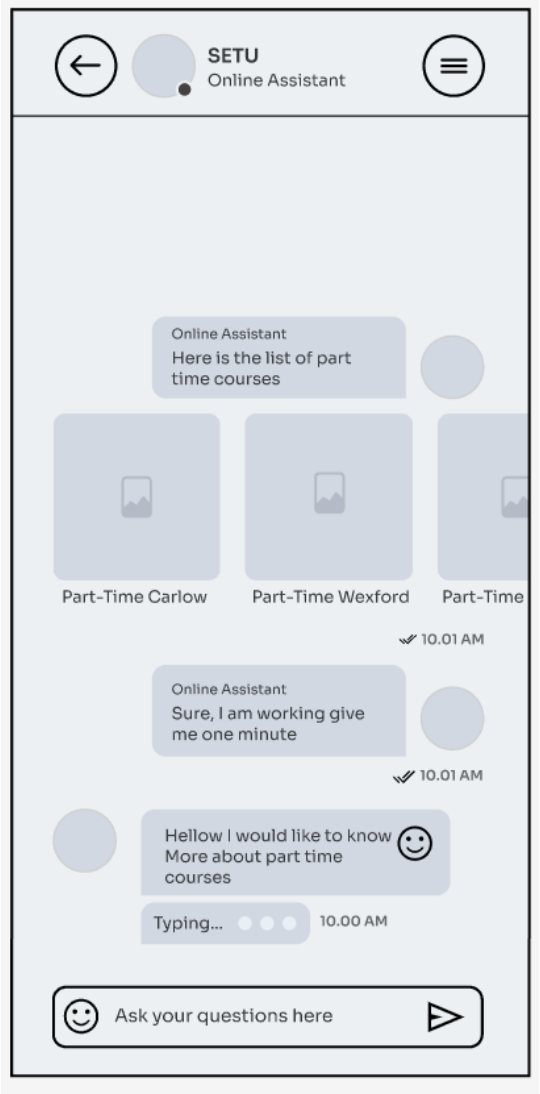
Figure 64: Latest News & Blog reference



The reference taken is a simple card view for the news and blogs. Since there is so much news to be listed the reference taken is a good example and the tabs on the page can be used for separating different news

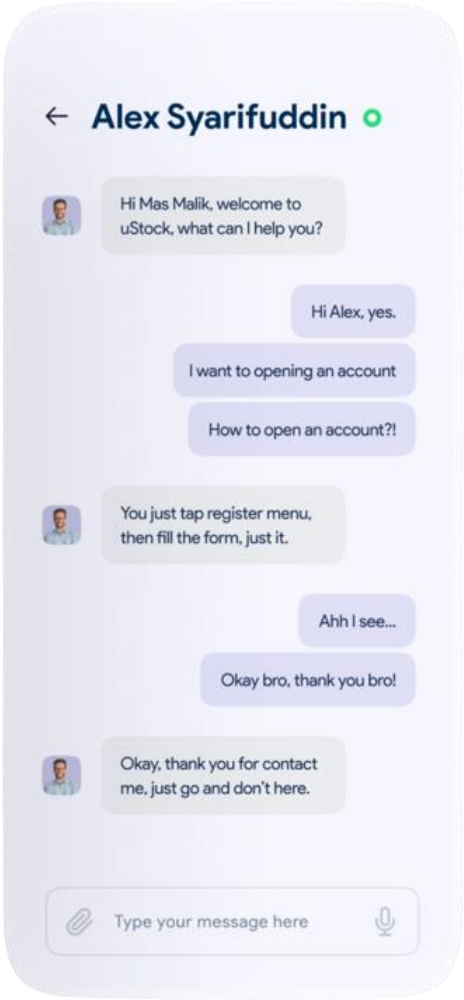
https://dribbble.com/shots/17780122-Headline-News-App-UI-Kit

Figure 65: SETU Chat Support



Guest users can easily enquire about all the college-related topics in the SETU chat support. This page can be accessed from the guest user home page.

Figure 66: SETU Chat Support Reference



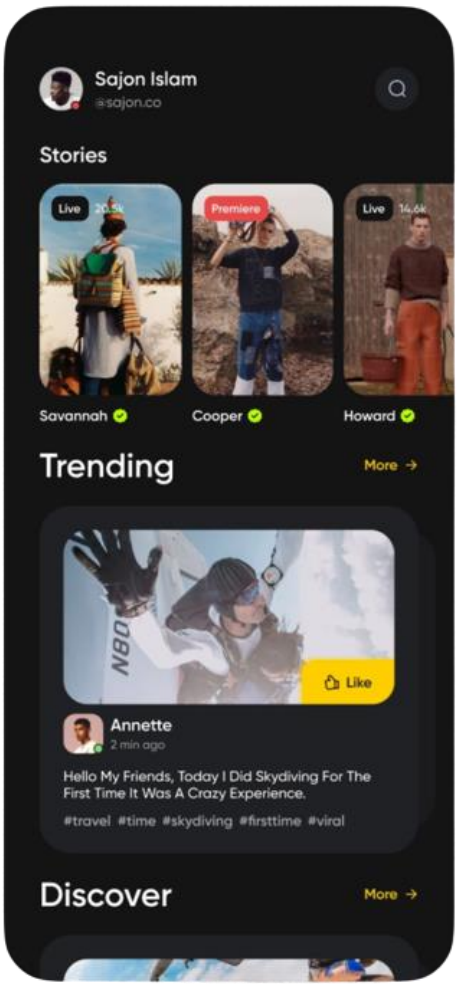
The reference taken is a simple chat page which is a good design for the application chat section where users can easily separate received message by the color changes in the sections.

https://dribbble.com/shots/15103778-uStock-Message-Support

Figure 67: About Videos

This video list page can be accessed from the guest user's home page. All the videos related to the university are listed here where the guest users can easily understand the university and its culture

Figure 68: About Videos Reference

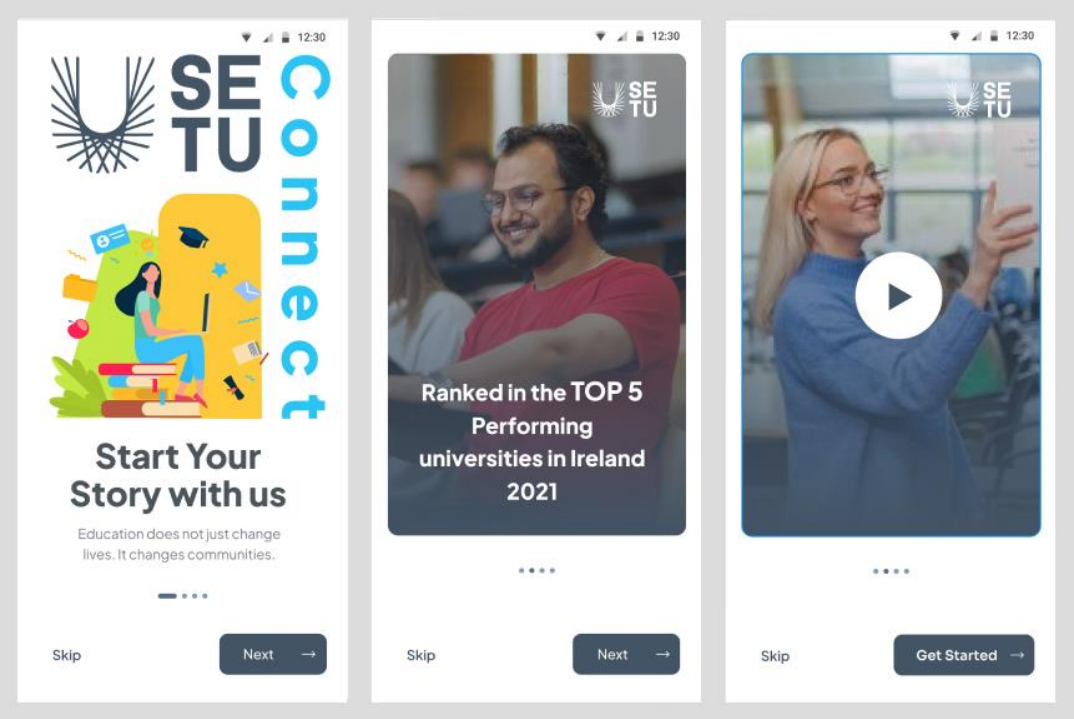


The reference taken is a simple card view for the videos. Since there is so many videos to be listed the reference taken is a good example. Trending videos can be shown at the top for getting most of the attention from the guest users

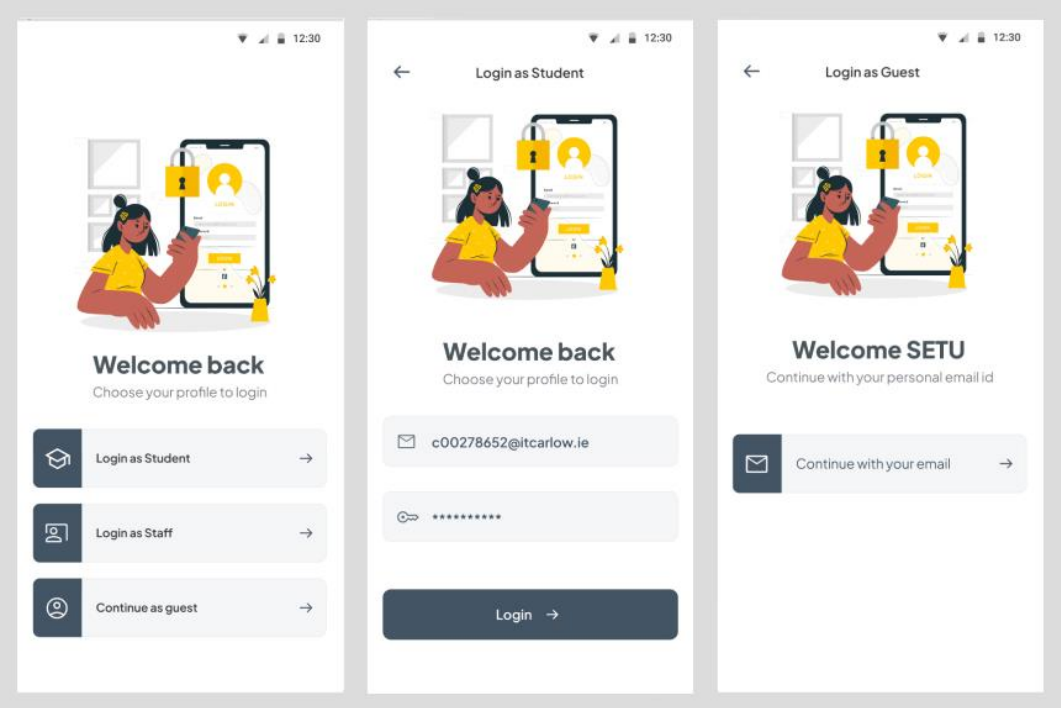
https://dribbble.com/shots/16808071-Social-Media-App

10. High Fidelity Screens

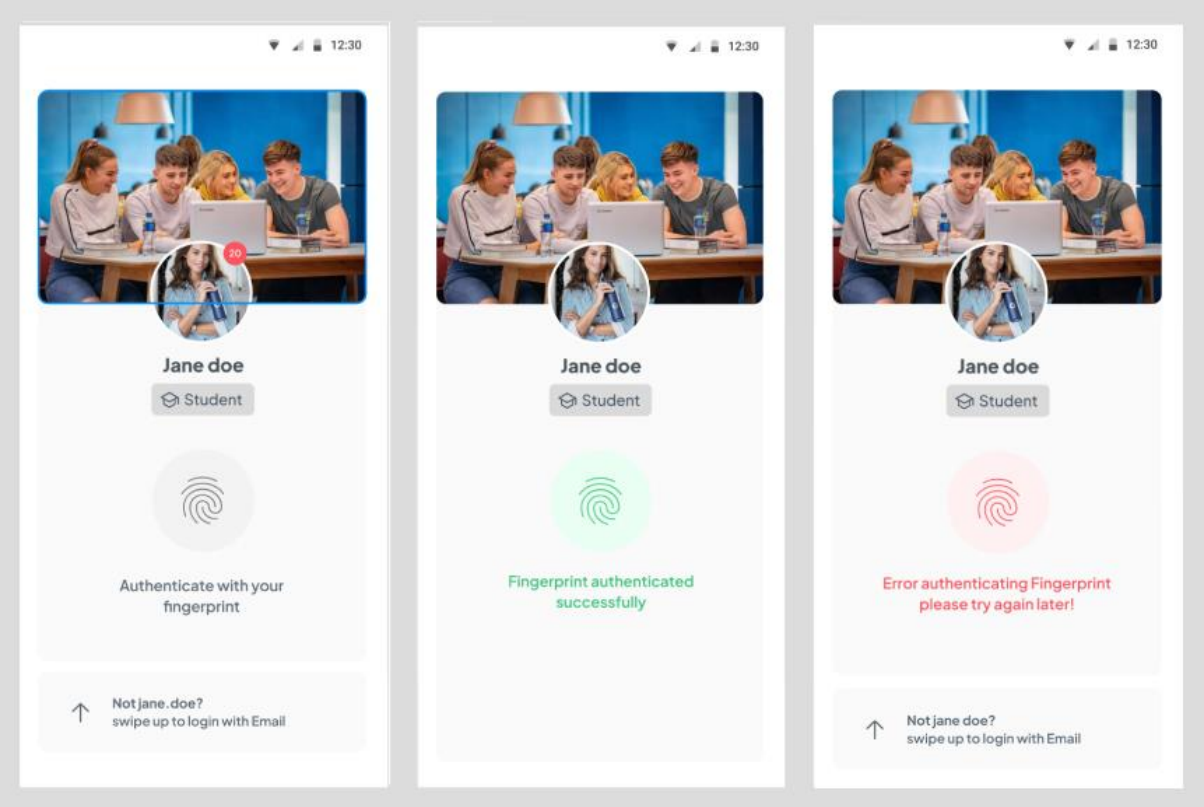
10.1 Welcome – [Welcome, Banner, Video Intro] – **Figure 69**



10.2 Login – [Common, Student / Staff, Guest] – **Figure 70**



10.3 Finger Access – [Student / Staff – Default, Success, Error] – **Figure 71**



10.4 Student – [Profile, Timetable] – **Figure 72**

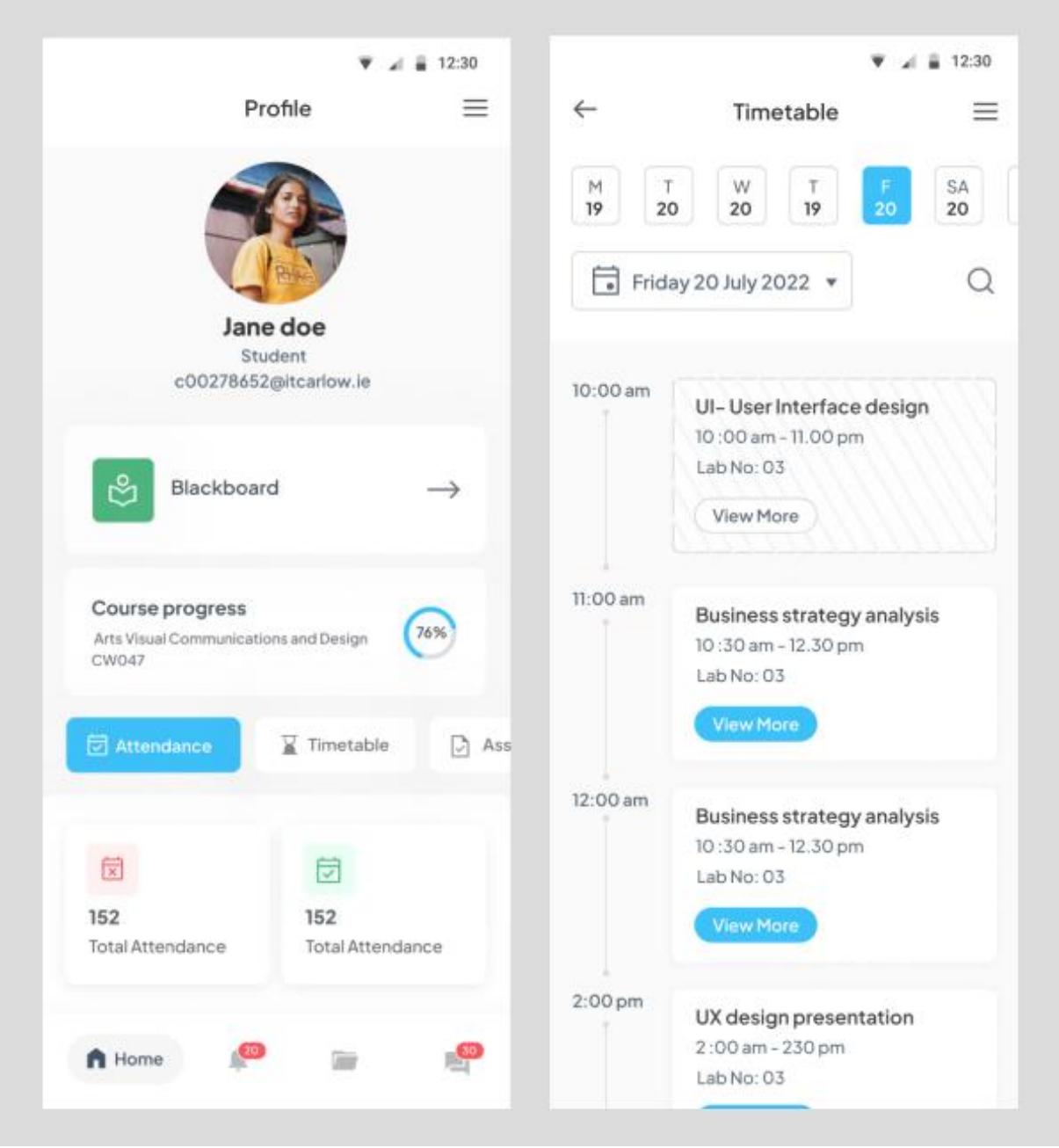


Figure 73: Student – [Assignment, Career Service, Timetable]

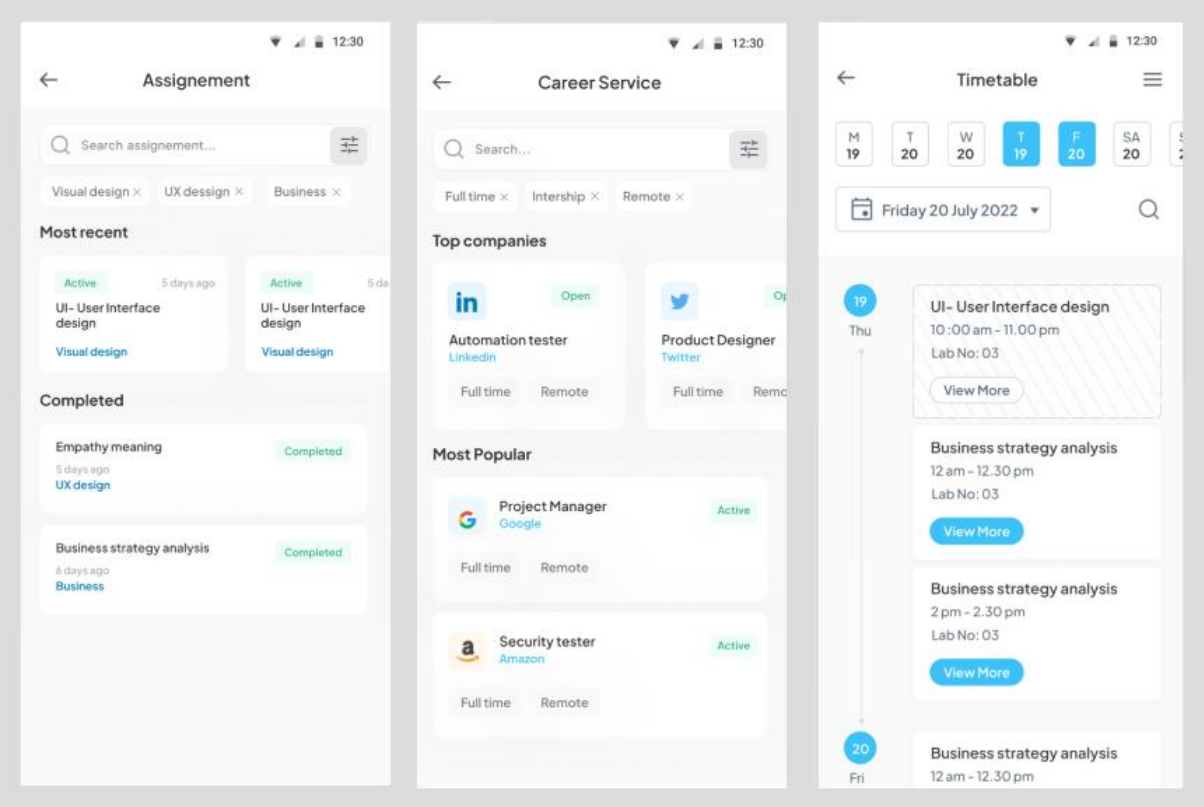


Figure 74: Student – [Blackboard, Burger menu, Payments]

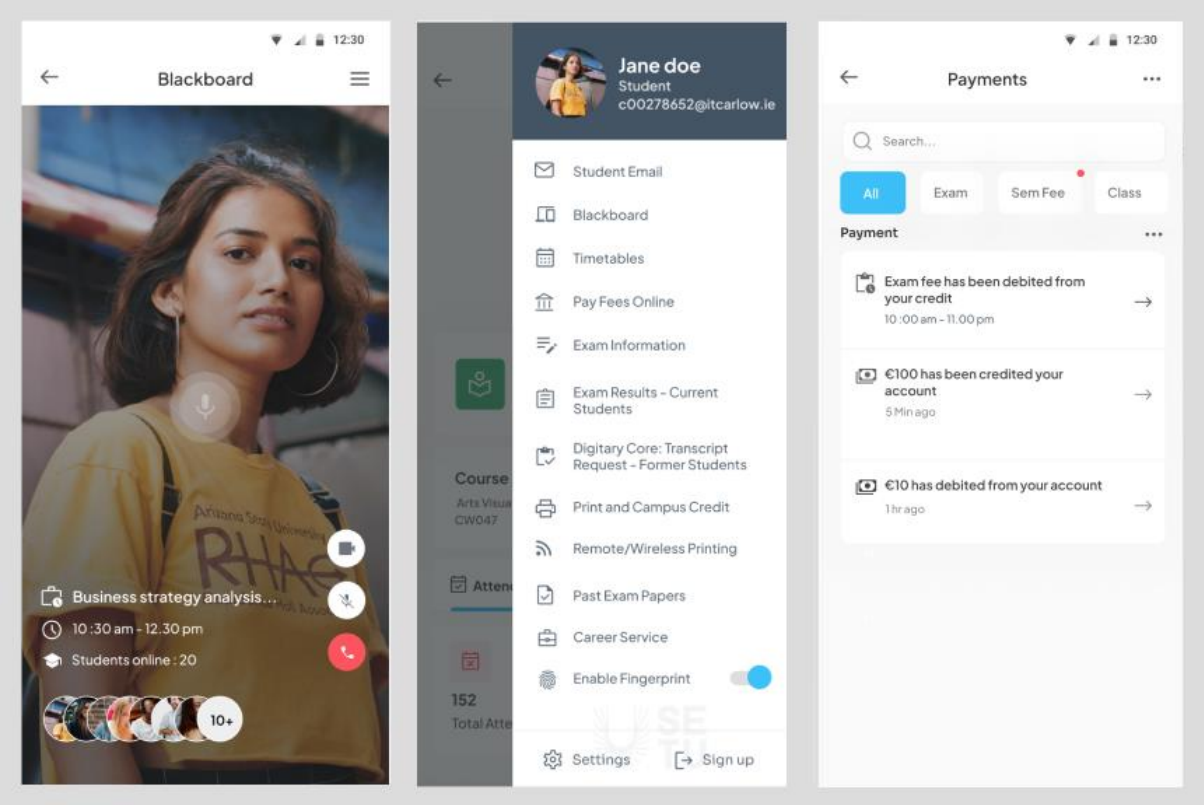


Figure 75: Student – [Chat]

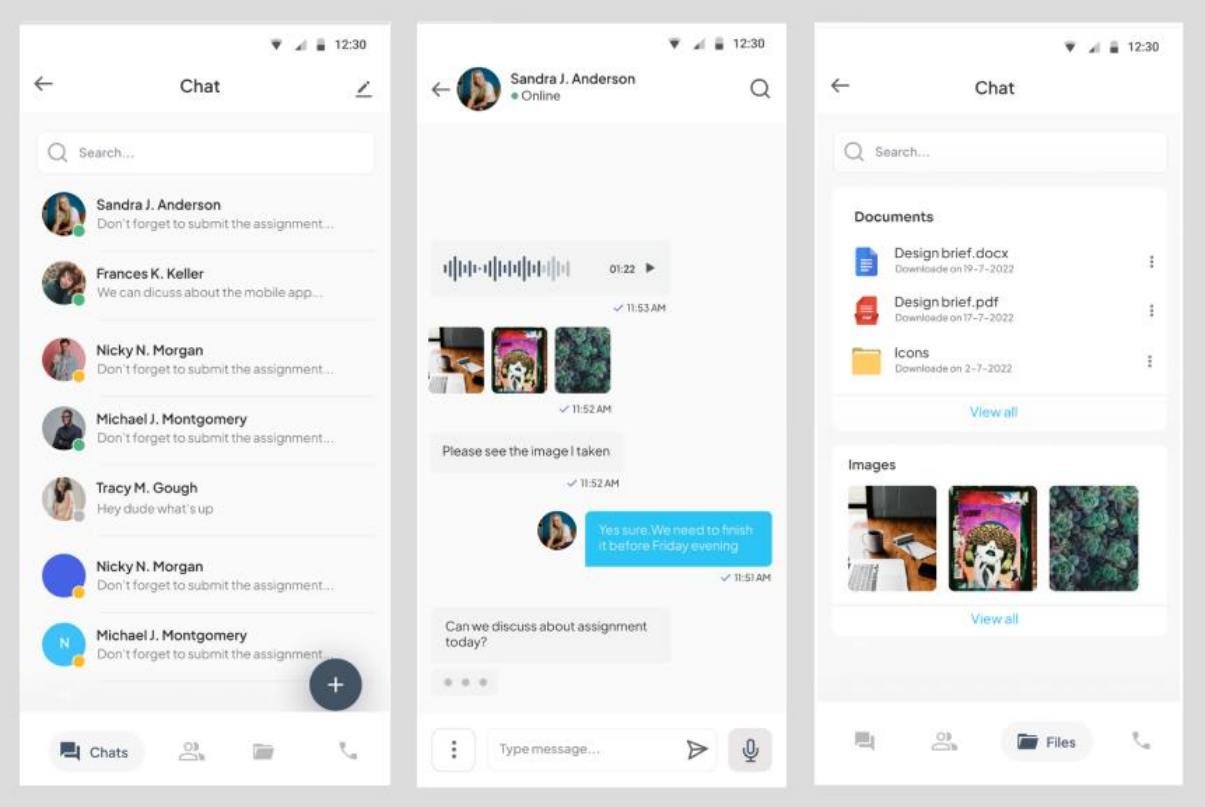
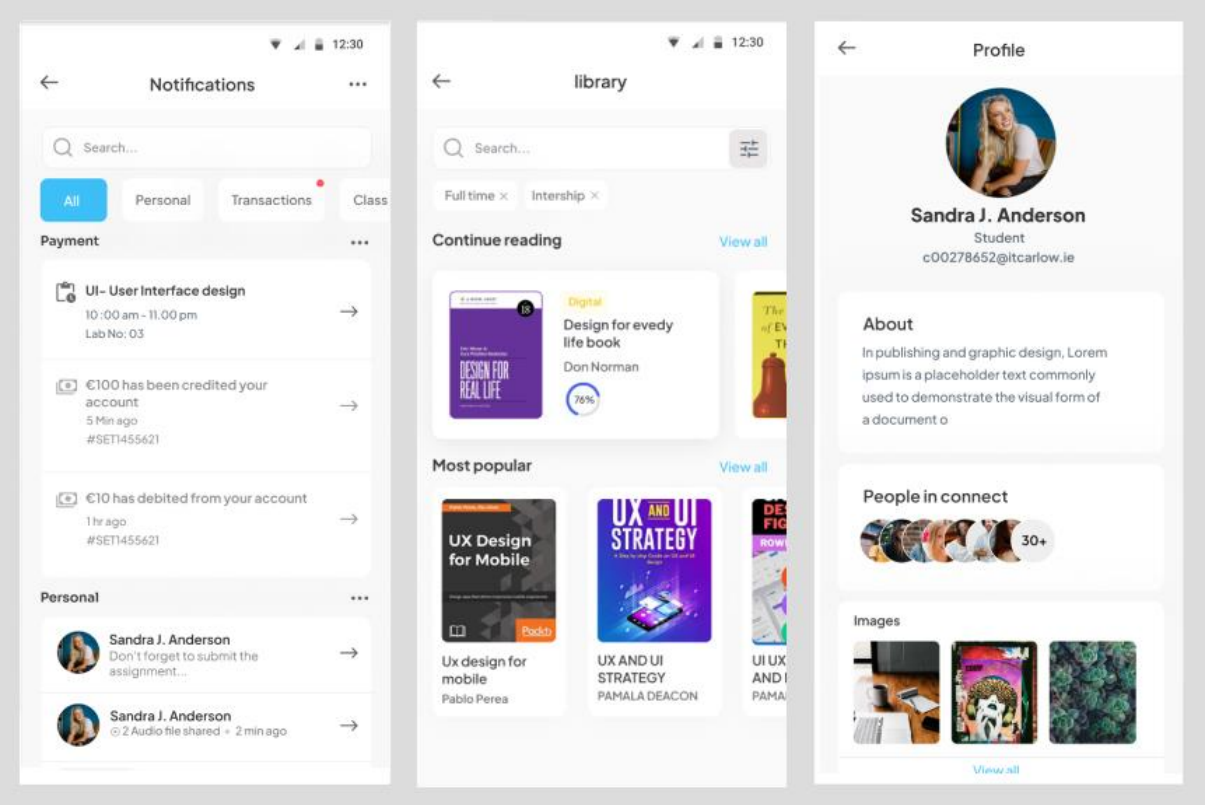


Figure 76: Student – [Notification, Library, Profile]



10.5 Staff – [Profile, My Time] – **Figure 77**

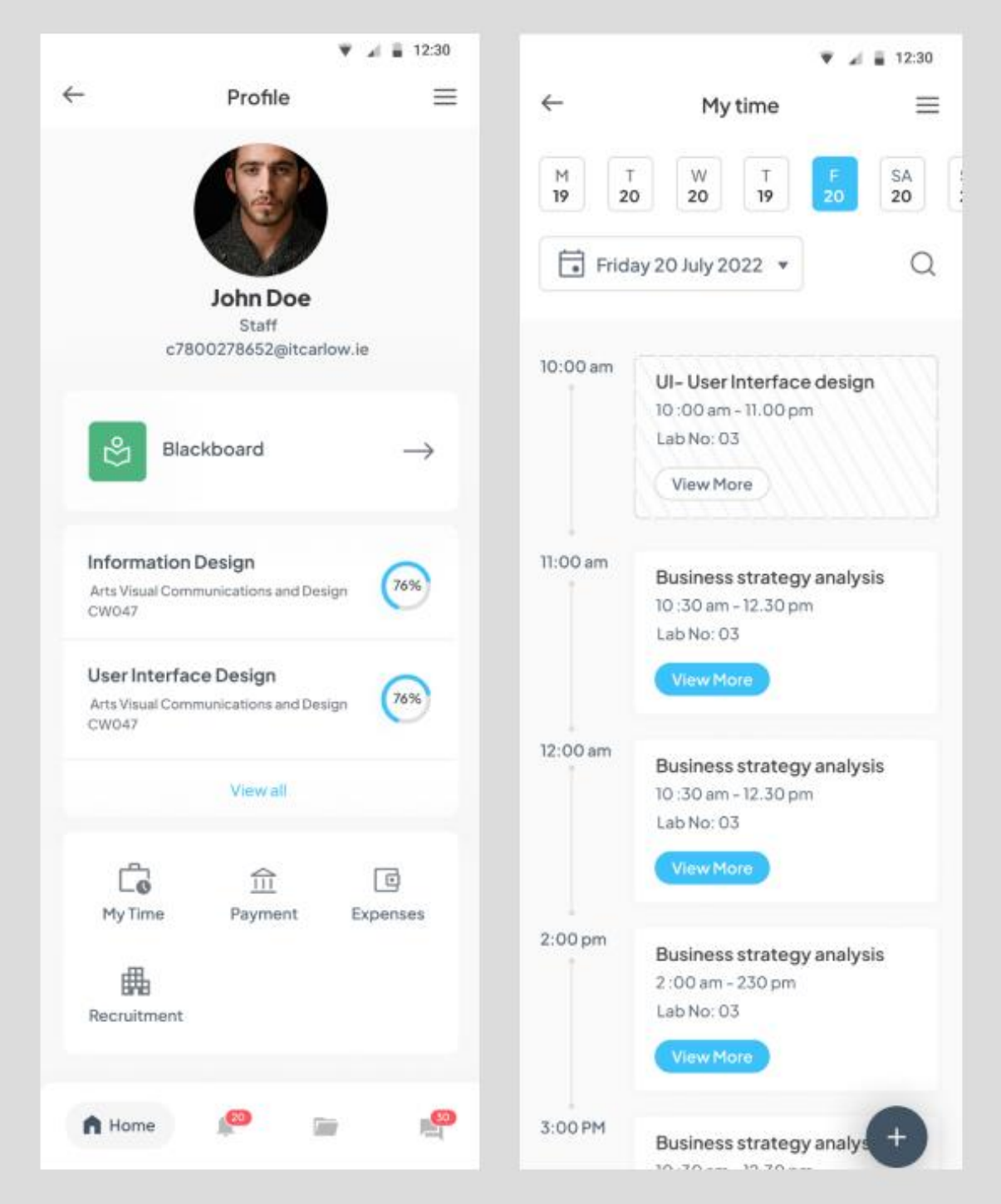


Figure 78: Staff – [Create Session, Burger Menu]

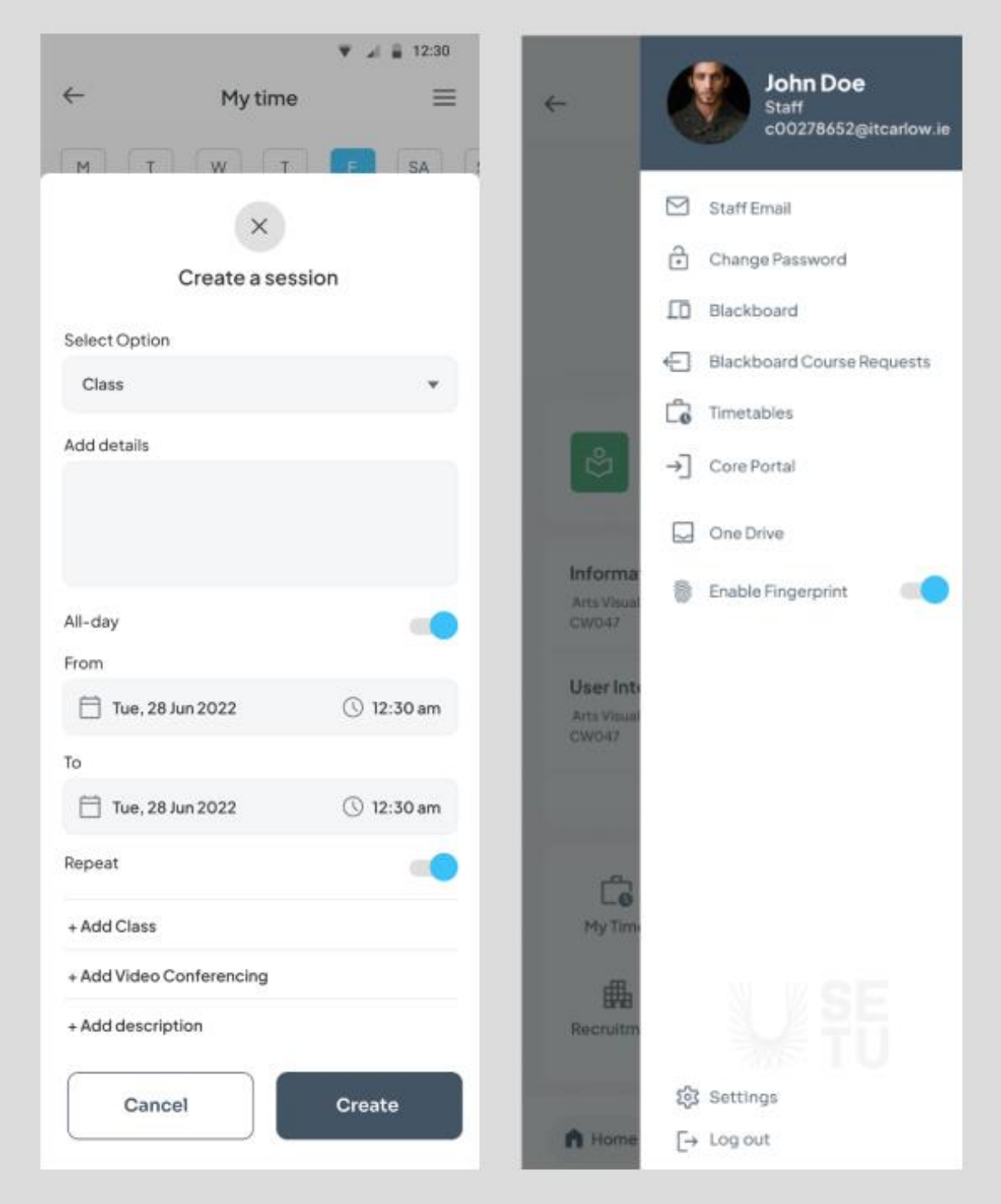
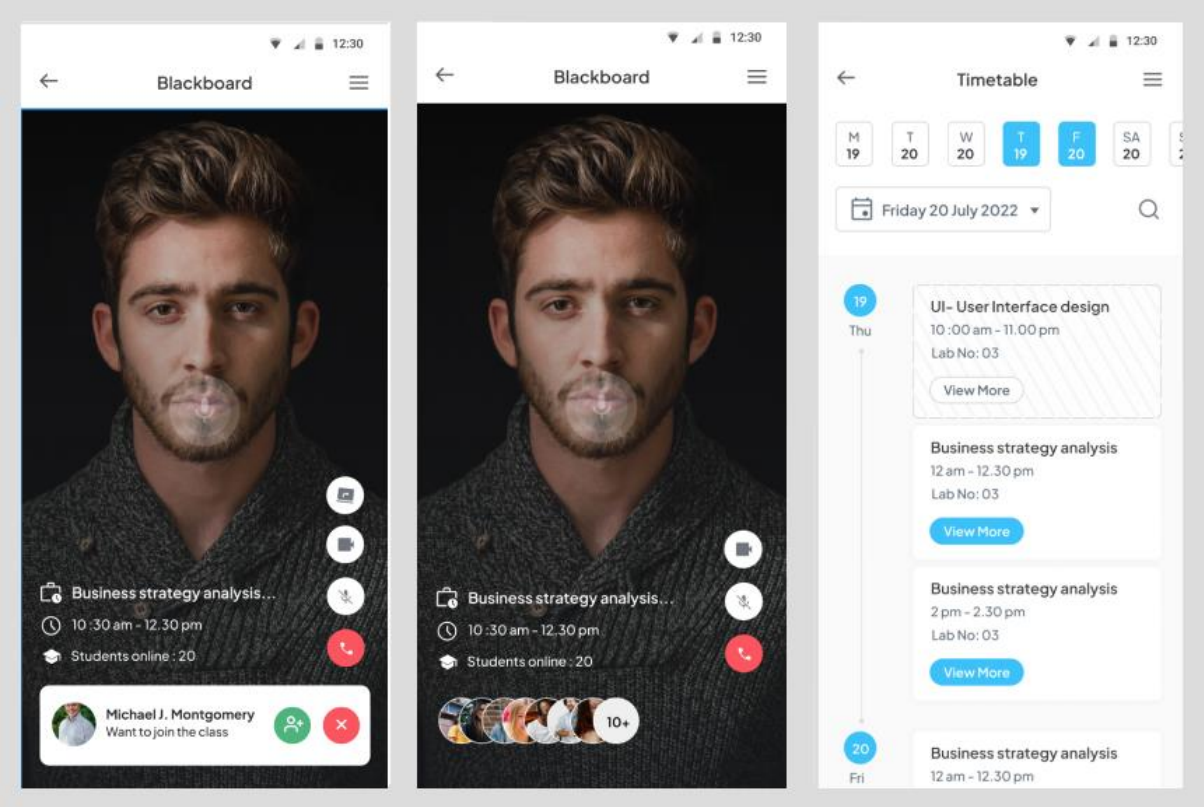


Figure 79: Staff – [Blackboard, Timetable]



10.6 Guest – [Email login, After login] – **Figure 80**

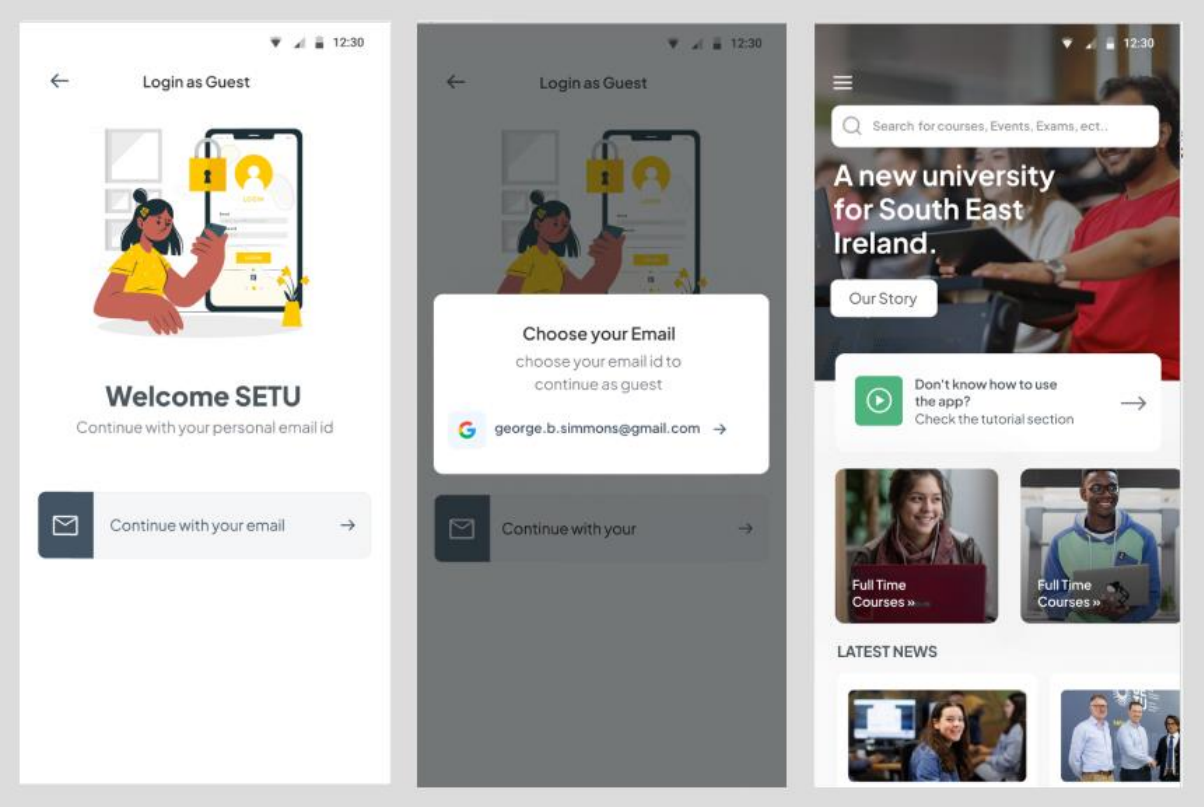


Figure 81: Guest – [Live Chat, How To, About]

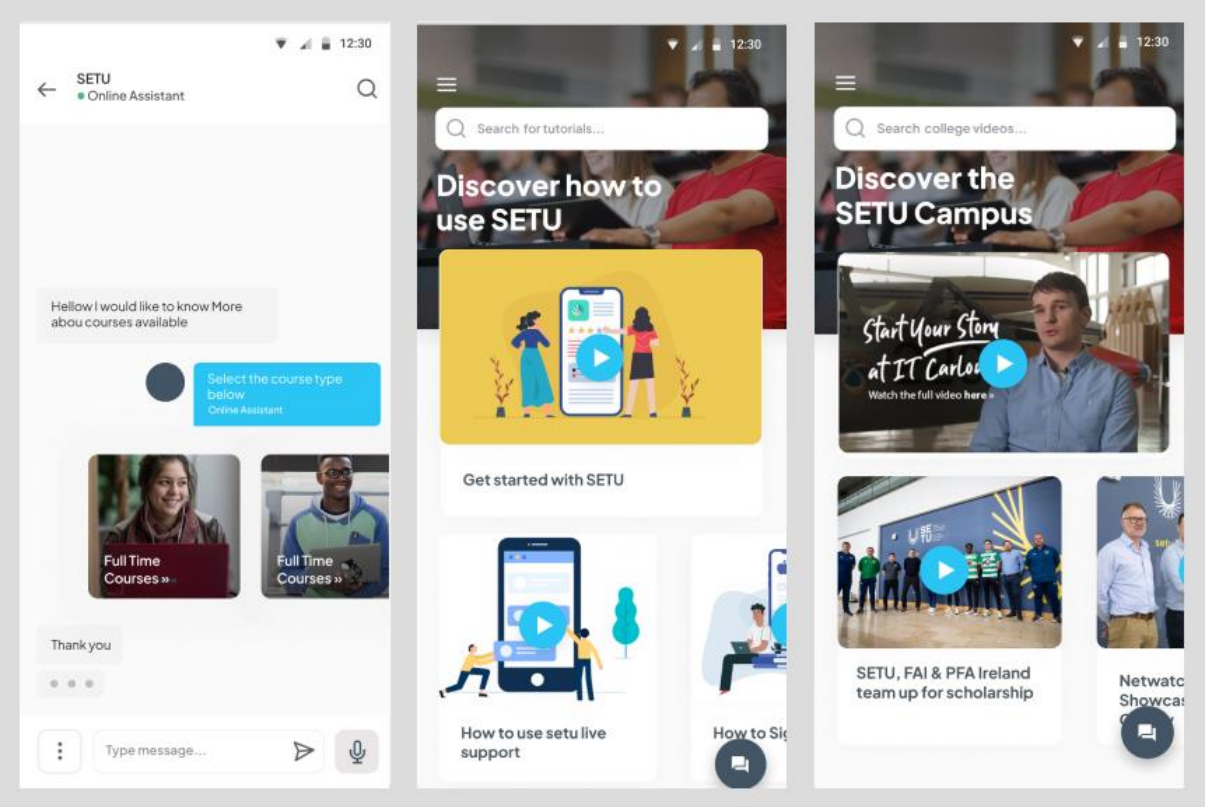


Figure 82: Guest – [Courses, Career Service]

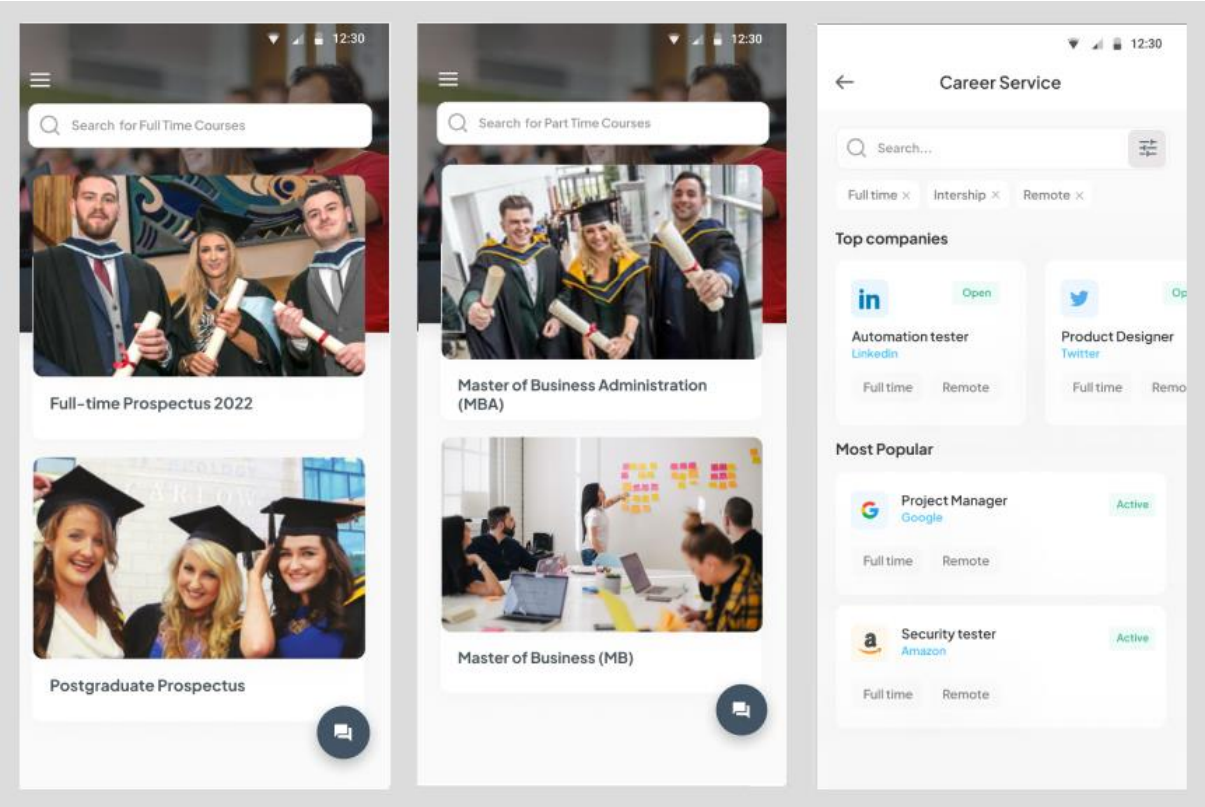


Figure 83: Guest – [Job description, Scholarship]

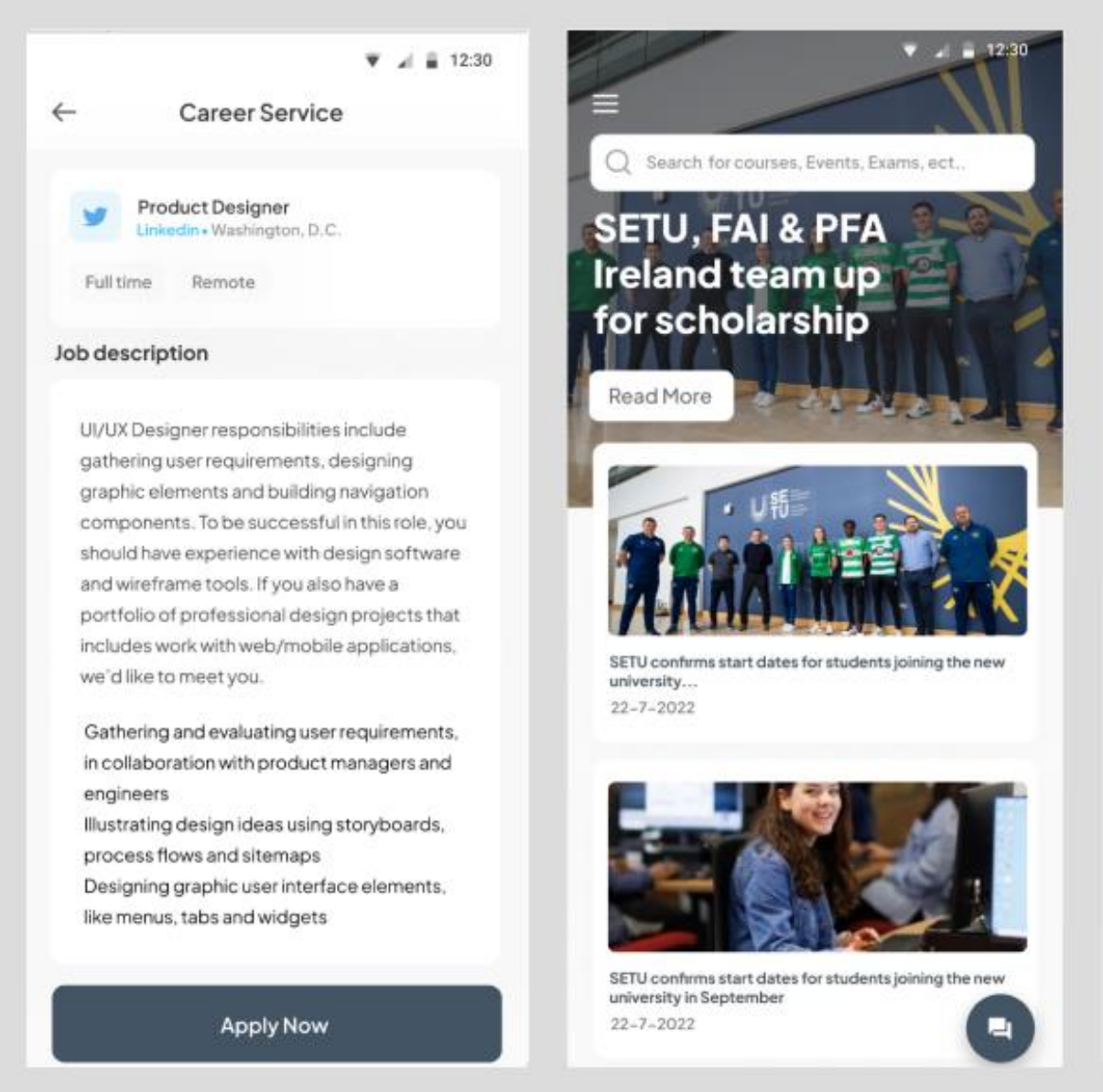
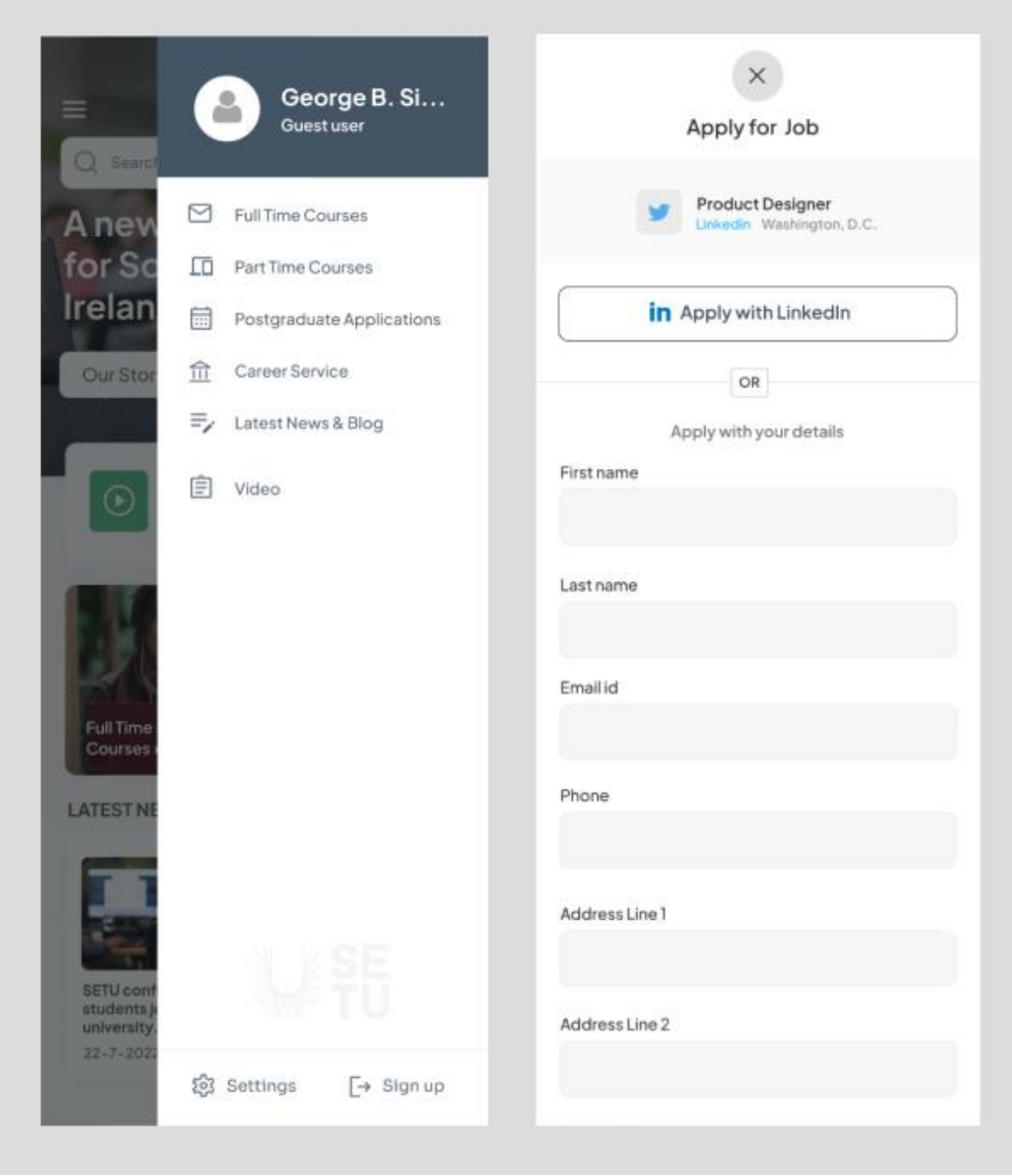


Figure 84: Guest – [Burger Menu, Apply for job]



11. Summary

This research project explains the issues and disadvantages that anybody can face while using the current SETU university system for daily operations associated with the college. The advantages of using Digital Mobile Devices in Higher education are explained, using supporting data from Sevillano-García and Vázquez-Cano, in their article *The Impact of Digital Mobile Devices in Higher Education* 2014 which was published in the Journal of Educational Technology and Society. They surveyed 419 higher education students from three Spanish universities and discovered that adopting digital technologies serves to promote growth and productivity.

From their research we can see that students need accessible and user-friendly designs to interact with their peers, their professors, and their subjects. Currently, SETU have a system in place that is uncoordinated, making it difficult for students and staff to move efficiently across many different university platforms.

This proposed design solution offers much more useful functionalities which will make college life much easier for students and staff. The App offers services to groups of people who are classified in to three main categories which are Student, Staff and Guest. Through deep analysis, user journeys are designed to make sure each type of users are served with the essential functionalities. Focused on each user category functionalities, wire frames are designed after considering available reference templates and own idea. Using the developed wireframes and following existing style guides of SETU, High fidelity App screens are designed.

Please see the live link below to look at the prototype of this design.

12. Live Link

▶ Visual-design - SETU (figma.com)

13. Conclusion

Being part of The SETU as a student, it was easy to identify the issues of the current university student portal from a student's perspective. Analysing the system for different user personas helped in addressing and identifying the issues faced by staff and guest users. The main issues identified through this research are the need for a laptop with an internet connection, difficulty in accessing the portal regardless of convenience, delay, and gaps in communication, finding help in study-related issues, missing personalised experience, usage of different platforms for different purposes, missing coordination in functionalities etc. The implementation of a Digital Mobile Device System through a Social Media Application can solve all these issues. The application designed for this research report allows the user to connect to the college at any time they want. It eliminates the delay and gap in communication for anybody who is using it. Since mobile devices are easy to carry around, it nullifies all inconvenience of carrying a laptop all the time. The app coordinates all essential

services mandatory for students, staff, and guests through this single platform. The solution developed will address all the issues faced by the current model and has the potential to create a much more positive and engaging student experience.

14. References

1. The Impact of Digital Mobile Devices in Higher Education

Author(s): M.a Luisa Sevillano-García and Esteban Vázquez-Cano

Source: Journal of Educational Technology & Society, Vol. 18, No. 1 (January 2015)

Published by: International Forum of Educational Technology & Society

The Impact of Digital Mobile Devices in Higher Education on JSTOR

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Author(s): Amy Bach, Gwen Shaffer, and Todd Wolfson

Source: Journal of Information Policy, 2013, Vol. 3 (2013)

Published by: Penn State University Press

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Report Author(s): Danish Institute for International Studies

Published by: Danish Institute for International Studies (2020)

COVID-19: IMPACT AND INNOVATIVE RESPONSES from INNOVATIVE RESPONSES TO COVID-19: Future pathways for 'techvelopment' and innovation on JSTOR

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Book Title: How the World Changed Social Media

Book Author(s): Daniel Miller, Elisabetta Costa, Nell Haynes, Tom McDonald, Razvan

Nicolescu, Jolynna Sinanan, Juliano Spyer, Shriram Venkatraman and Xinyuan Wang

Published by: UCL Press

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