INTRODUCTION:

Smart Group is an application which is created to connect on-campus students and teachers in a new way. It helps people to identify others in same roles, skills or responsibilities and helps them in managing or creating groups to help, support and encourage each other. It is a digital tool that connects students and teachers to the same platform where they can discuss and work on ideas related to different fields or platforms. In short, this application shall act as an organizer to reunite complimentary profiles, adjusted according to the type of project at hand. The whole project is based on the modularity of three algorithms that are used in psychology: theory, practical and random.

Generally, such activities are manually handled by groups or responsible people but with the Smart group application, it can be done easily and effectively using the smartphones. The best thing about this application is that it only shows filtered profiles that meet the criteria of the requested group. Be it a study group or an interest-based group, once you want to create it, a smart group makes it possible with the help of filtered profiles. The idea was picked from a casual conversation within the group members where everybody was struggling with their research and projects and needed help from others in the same situation. If only could people with the same interests or research topics or anything common could connect and support each other, life on campus would be so much easier. This is how we came up with the idea.

The smart group is a great way to easily and automatically segment profiles in a particular order Under the Smart group application we have focused on two main User Groups (Personas) that are: students and teachers. This application is designed to form two types of group: Study group and Interest-based group. A study group is based on a subject of study or a particular area of research or a programming language or anything related to academics strictly, whereas an Interest group is made for people who would have similar hobbies or would want to travel or hike or even go for a run daily in both the types of groups, the participation of teachers and students would be open to all and whoever wants to take part can join.

Having the vague idea was not enough, the next step was to ask people if they would really want an app to make groups and participate in something, we conducted a survey based on the positive response on the survey, we designed the lo-fi and hi-fi and went ahead with the application.

SURVEY:

For this project, we carried out a survey between the teachers and students aged between 18 to 35 years and asked them questions if they are facing an issue in forming the groups for projects works or research etc. With this survey, we found out that most of them were facing the issue informing the group with whom they wanted to be grouped with. This included verbal communication between the project members not being listened to or met, deadlines not being respected and meetings not being attended.

SURVEY CREATION:

To better understand how we were going to map out our application, we specifically asked the area in which they would think that a smart group will be helpful to them. This meant conducting another survey that asked each specific user group sets of questions tailored to their activities. We delivered three new questionnaires which consisted of our user groups: student, teacher, and activities group.

ABOUT QUESTIONNAIRE:

Other questions we wanted to gather for our concept were based on what type of people they would like to work with. Whether like-minded people or people with diverse mentality.

We also covered questions like the type of user interface they would prefer whether it would be the mobile application or the web page for using the application. In which we found out that most of them were more comfortable with the mobile application as it is easy to handle the application using the mobile compared to the webpage through the computer. Another question we asked them was about the User interface of the application in which we covered questions like whether the Interface should have more vibrant color with more stylish menu options or a simpler dashboard. For this question, most of the people were favoring the interface with more vibrant colors and stylish menu option as from the result only we can see that around 60% of the people favored the advanced user interface. The last question we covered in our survey was whether they would like the smart app to send the messages through the application itself or the phone number the user is using. In which most of the people prefer the application should send the message internally to the other users as they were not willing to share the number to every other user

We also conducted other questionnaires based on three categories. An introduction based section to gather different perspectives on what cases the user group would use the application and why. A set of a User interface based questions to test the different areas of into personability and friendliness of our application has and lastly a set of potential based questions to filter the pros and cons of our application and evaluate what we could build on and what we were limited to. These questions were conducted to ask the User Group after they had gone through the Smart Group application.

In the introduction, the questions were based on the following. The first question was "what setting would they use the application and why they would need to use it for" The feedback

provided was based on the ability to use the application on their devices so they had access to most of their tasks, notes and group information locally. The groups wished to use our application independently and not only in a group environment. Since our application was based on a required internet connection to interact between one peer to others, this new concept led us to adapt our environment where the members of the group could individually create, update and store data on his device locally.

We wanted to learn more about how groups felt about the concept of our application. Which meant asking them the question of how they perceived the theory of grouping like-minded people together and the principles behind our application. Our results showed that most students were not clear about who would be the project handler overseeing most of the assets of the group and creating the content vs who would be the recipients and the people sharing the tasks at hand. In essence, the decision of who has control over the application concerned most of our user groups. This leads us to reevaluate the application and its functionality. We added the ability for users to create tasks amongst each other so they could interact independently of the who the project leader was and who assigned the main assignments. This would eventually act as a way to even out the plane field between the hierarchy and separate the responsibilities between the groups and the project managers.

We also asked the groups whether they felt accomplished with the application vs not using it all together to see if it had an impact on their daily tasks. We found that 70 percent of students felt like it became beneficial for them since it gave the projects and members in the group structure. Physical structure for a task at hand can benefit a group in multiple ways including prioritizing, communication and other concepts like setting reminders between the group members or even the simple principle of having a set of tasks in a designated location to come back to.

DIVERSE GROUPS AND APPLICATION BASED FOR ALL USERS:

How to use Smart Groups?

Smart Groups are a quick and easy way to group together tasks that have the same tag. Just enter the name of your group, and all the tags that you would like grouped together and all your tasks with these tags are automatically listed in your smart group!
The first step to creating a Smart Group is to click the "Add/Edit Smart Groups" button under the heading "Smart Groups" in the left column. The following screen should pop up for you: We wanted to make Smart Groups as quick and easy to use as the rest of the app. To create a new Smart Group, all you have to do is enter the name of the Smart Group, and what tags are going to be included in this Smart Group.

Any tasks with the tags that you entered in the previous screen will show up in your Smart Group no matter where they are. All you have to do to add tasks to the Smart Group is add a task anywhere to get it done and include at least one of the tags you've listed above when creating the Smart Group. The task will automatically appear in your Smart Group. You can include as many tags as you want in each Smart Group.

A Smart Group was our original attempt at creating Projects. Smart Groups show all tasks with a specific tag, no matter what Area they belong in. They simply look at all tasks in your account and display the ones with the assigned tags. A task can show up in more than one Smart Group.

It might take a little getting used to, but we find Smart Groups saves us a lot of time. A time we can spend on actually "Getting Things Done"!

Questions type on form (theory) – Input:

Nielsen (1993) has explained usability using the five components of efficiency, learnability, memorability, errors and satisfaction. Tsakonas and Papatheodorou (2008) have placed importance on usefulness and usability in a user centred design. When we design a product for the user, the user should be able to find what they need and use it the way they want without running into unexpected errors. Usability is important as the user once frustrated won't return back to the product. It's important to establish familiarity in the initial few seconds. We would need to keep all this in mind while designing the product and one of the ways to design for the user is to ask the user what they want and how they want it. The survey questionnaires are a great way to gauge interest in the product and garner feedback.

Designing your survey is an important aspect of the design process as the results would impact the final product. The key to this task is asking the right questions. Asking unambiguous and probing questions that can facilitate the design process is a good way. For the Smart Group project we designed the survey keeping the participants in mind. Our participants were university students and teachers.

We didn't collect any personal information that would have an impact on the privacy of those involved. We asked users whether they faced difficulties in creating groups for various purposes and for what purpose do they generally create groups. We also asked them whether they would like to include like-minded people or people with diverse personalities in their groups. We also asked them form specific questions such as would they prefer a desktop application or a smartphone one. We also probed them about the type of application they would want to interact with, a personalized one or minimal functionality one that gets your work done. We also gave them space to tell us about any other features they would like to see in such an application.
We kept the survey well under 10 questions as we didn't want the users to shy away from giving responses looking at the number of questions they would have to answer. We asked questions that gave us insights on the platform the users would like to use and the type of interface they would prefer.

Data Collection from our Users – Output

The questionnaire was distributed online through social media platforms, emails and word of mouth. The responses were recorded from 50 participants.
The responses were received from varied age groups. 75% participants were recorded their age as less than 35. Majority of the participants were Students (75%) and rest (25%) were Teachers.

Next, the survey aimed at understanding if there are any existing challenges participants face while they create a group in terms of research, project or any academic activity. The data received confirmed that more than 75% participants feel it is challenging.

Going further to the granular details, we received a diverse response in the areas concerning Study groups in general and based on particular subjects, Sports, Travel, and other miscellaneous groups. The next part of survey gives data with regards to participants inclination to form a group and collaborate with like/diverse minded individuals, The results obtained were in favor of like-minded group (with more than 70%). Since the majority of us possess smartphone nowadays, hence participants preferred mobile application (90%) over the website. Next, members were in favor of using the messaging feature within the application(80%) instead of revealing their personal number.

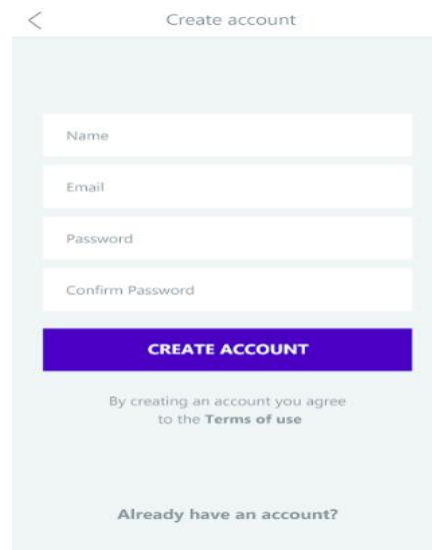Based on the user responses, we came up with 2 Lo-Fi designs:

Figure1: Lo - Fi : Design 1

Figure 2: Lo Fi: Design 2

Design 1 was basic in terms of incorporating simple features for a user like creating an account and gathering first-hand information.

However, as per the results obtained from survey, the users were expecting a dashboard and customized design. Hence the Lo-Fi 1 was redefined to a smarter version consisting of user profile picture to integrate into a dashboard for a more personalized touch.

Design theory: Hi-fi for students:

After creating the lo-fi we needed to start designing our HI-FI Mockup for the application. However, this was only possible after collecting feedback from our users. Throughout this process we found that a lot of aspects of designing the interface for Smart groups was made by the clear communicating with our User Group through the use of the Surveys and the questions asked. We found that the majority of students preferred a more vibrant color, where as teachers needed a more business themed UI. Out of most a diagnosis of a few rendered colors, we chose to have a purple theme for our student groups with other neon colors surrounding the background. We added a sky to give the perception of using a cloud based application and included the group members within these clouds. The group members, and groups with every member together for the student UI are designed in an interactive circular cropped avatars. In essence, you would first login to your group, find yourself on the group page where you could click on your group, which would then expand the circular border of the avatar to show you details on the group members including new circular avatars with the individual group members. Once clicked on one of the members you would be able to see the Students statistics, activity, designated tasks and other notes from the teacher to that individual.

The Student Activity page includes three sections, each with its proper avatar to the left side of the application. The first one being your own project status, which includes your avatar next to it. The second and third sections of the Student activity page is the teachers evaluation along with the teachers team evaluation. This is so the student has the chance not only to receive feedback from the teacher but also from the group. The teachers evaluation includes the avatar from the teachers application and the student evaluation groups a cluster of avatars which are members of your group.
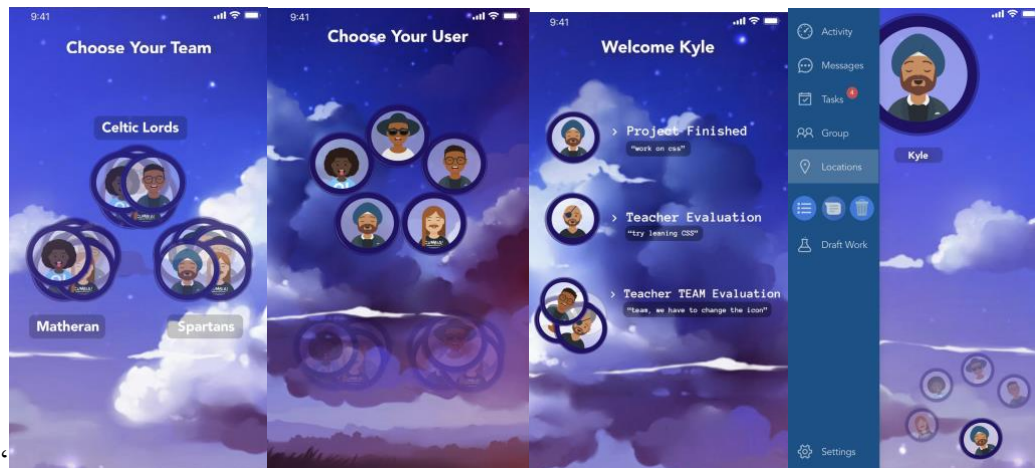
Figure3: Hi-Fi Design for Students

Hi- Fi design for Teachers:

As per the feedback from the user group, since teachers were preferring the simple and sober design when compared to students, we came up with a second Hi-Fi Model. The second model is more business-like with sober color and layout. The color option for teacher has been subtle which is not as catchy and vibrant as students. One possible reason we could think about it is that teachers preferred a more professional layout where the functionality was easy to use and user-friendly. The design consists of basically a dashboard with display picture of the user, the profile details (including age, the area of specialization, and so on). We also have a real-time chat option is available for anyone who needs information quickly. This feature gives room for additional interaction, conversation, and exchange of ideas. Another advantage that comes with the chat window is that the teachers can communicate on the fly which will eventually help them to keep updated on academic researches for that matter. This will bolster communication, increase knowledge, and looks promising to be an amazing knowledge sharing platform experience as far as this user group is concerned. The point of keeping second Hi-Fi design is to segregate students from the teachers and make it more sophisticated for each user group as per the requirement and user experiences. As a future scope, this design and application feature can be used as a channel to connect professionals and industry experts. This can be helpful in making professional connections extending from the current scope of teachers to other professionals

Figure: 4 Hi Fi Design for Teacher

LIMITATIONS:

Some of the Limitations of the Smart Group App is as follows

1) PLATFORM DEPENDENT

Native applications work the best on the platform for which they have been developed and can be harnessed to bring the results when required. But when the applications need to work across multiple platforms and devices, a different set of code needs to be written and maintained for different operating systems. Maintaining enterprise applications and apps can become a challenge for every platform with increased time, QA efforts and costs. ("The Advantages and Disadvantages of Cross Platform Mobile Application Development," n.d.)

Figure 5: This image was derived from http://inoutput.io/articles/development/choosing-the-right-mobile-app-for-your-project-native-vs-cross-platform-vs-hybrid

Since the App Designed is not cross-platform, a Different code must be written for different mobile operating systems such as Android, iOS, Blackberry Etc. So, The differences in the code will reduce the speed of development.in Addition to this, Updates to the software also take valuable time and increases the maintenance cost (Klubnikin, 2017)
Smart Group App is an informative or content distributed application, therefore it is best if it is cross-platform.

2) THE DANGER IN LIKE MINDEDNESS
Sometimes like mindedness make people feel great but they don't realize that there is a danger.

Figure 6: This image was derived from https://www.vanti.co.uk/news/assumptions-limitations-smart/

Once you encompass yourself with only like-minded individuals, it's simple to stop there and just encompass yourself with individuals who agree with you since you all have the same convictions, think the same way and do the same things. It gets to be exceptionally easy to simply to acknowledge that something is genuine since enough of the individuals around you say it's true and acknowledge that what you accept is right since individuals around you say it's right. (Joel Runyon, 2011)
To have resilience, you need to be pressure-tested. It requires that there are people challenging each other's ideas. This hinders the way you think and instead of wrestling with hard questions, you tend to settle down with token questions and token answers.

3) EFFECTS OF REDUNDANCY
When a person creates a profile on the smart Group app and when his question or desired answer is obtained, the user might go under covers and be inactive on the App. As a result of vast dormant accounts, confusions may arise among other users and cause ambiguity in analysing and forecasting the data.

4) INTERNET CONNECTIVITY

Most of the mobile apps are clients that send and receive data in real time and become unstable without an internet connection. Likewise, The Smart Group App that acts as the interface between the user and the user's data need uninterrupted connectivity. This can be considered as a very minute limitation. (Arora, 2017)

FUTURE RESEARCH:

The Amalgamation of development and research will lead to some improvements that can be incorporated in the future. Some of them are as follows-

1) IN APP QUESTIONNAIRES

Once the user has signed into the App and the desired information is obtained, They can be redirected to the Feedback or Questionnaires' form so that user experience is captured. This is done with the help of Surveys or feedback forms which looks something like this.

Figure 7: Questionnaire

2) ADVANCED INPUT METHODS

With the everyday advancement in technologies, advanced input methods can be added on to the app. This might include audio or video conferencing or in the form of the chat box.

Figure 8: Image derived from https://blogs.skype.com/,https://blog.discordapp.com/?gi=a66c4403ce3e

Some of them are Discord, Skype, Instant Chat boxes Etc. If the user is not able to able to bridge with the group, He/She can have instant communication with their fellow mates and understand or go in hand with them.

3) PRACTICAL BONDING

The smart Group App can be Developed in order to act as a bridge between bookish knowledge and Practicality. A user who has a vision or knowledge about something and wish to know the outcomes can communicate with people who has already gone through it. This act as a growth promoter in users educational experience. It will help the user gauge the real-life scenarios and improve his ability to understand. This will also help people socialize and build positive bonds.

4) SOCIAL BLOGS

Smart Group App can be developed in such a way that it supports blogs where people can post questions or tell about something new. As a result, it opens a wide spectrum in terms of gaining knowledge and data analysis

5) DATA STORAGE AND PROTECTION

User Data can be stored and retrieved whenever possible in order to analyze their needs and provide them with pins or information on a regular basis. This data can be stored in databases or servers and retrieved whenever needed efficiently and swiftly.

When Users data is being stored, It shouldn't be taken for granted and possible measures should be taken to ensure that data is held as safely as possible. The least that the user expects is data privacy. This has an exponential effect on the company's reputation. So when the data is being stored on the database, The DBA must ensure that the data is encrypted and stored as a scrambled version. This reduces the leaks and hacks from the database. (Wayner, n.d.)

CONCLUSION:

Since the emergence of social media, connecting with people around you has become one of the major necessities of mankind. We have several platforms for entertainment, job opportunities, recruitment etc but they come with a lot of distractions. The best thing about the Smart group application is that is has focused the personas and user groups into two specific subgroups only. It is either a student or a teacher who can create a profile on the application and participate in groups. The request to make a new group can be initiated by either of them but the only available categories are studies or interest groups. Having such an opportunity on-campus has a lot of advantages. Not only can a student get help from his fellow scholars, but also a teacher who has interest in the area can join them. It provides a great environment for aspirants in both academia and sports. Making a team of any particular sport is not difficult anymore. Only a request to make a new group has to be initiated and anyone who is interested and wants to play can come up. Students fond of group study can use it to sit with like-minded fellows and discuss several topics. The application is user-friendly and interactive as well. Both the user groups have been assigned with different designs according to their choices indicated in the survey. The young students have a vibrant and attractive UI while the teachers have been provided with decent and corporate- like interfaces. The lo-fi designs were made on the basis of results obtained from the survey. The output obtained from the survey was decisive in making our model and to make it user-friendly. The two Lo-fi designs form the basis of our Hi-Fi design.

For further research, we would want to implement an in-app video calling feature so that the group members can connect with each other even from a different location. Another aspect that can be done is to enhance the abilities of the application and let the companies use it among their employees to know them better. They can use such an app to make better groups for their design, allocation, research and development departments etc. The on-campus small scaled smart group has the potential to become big-time human resource allocator and revolutionize any corporate industry by cutting down on recruitment expenditure and improving the allotment of both skilled and unskilled labor.

References:

[1]. Nielsen, J. (1993). Iterative user-interface design. Computer,26(11), 32-41. doi:10.1109/2.241424

[2]. Tsakonas, G., & Papatheodorou, C. (2008, 05). Exploring usefulness and usability in the evaluation of open access digital libraries. Information Processing & Management, 44(3), 1234-1250. doi:10.1016/j.ipm.2007.07.008

[3]. (n.d.). Retrieved from Https://www.spec-india.com/blog/the-advantages-and-disadvantages-of-cross-platform-mobile-application-development/. (n.d.).

[5]. (n.d.). Retrieved from
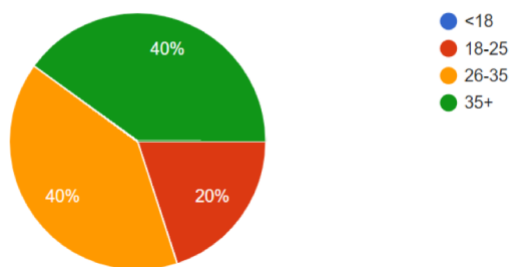
Https://medium.com/all-technology-feeds/cross-platform-vs-native-mobile-app-development-choosing-the-right-dev-tools-for-your-app-project-47d0abafee81. (n.d.).
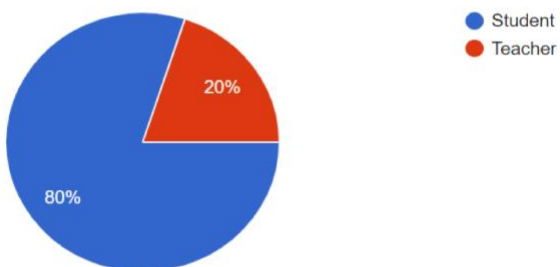
[6]. (n.d.). Retrieved from https://computer.howstuffworks.com/cloud-computing/cloud-storage.htm

Appendix:
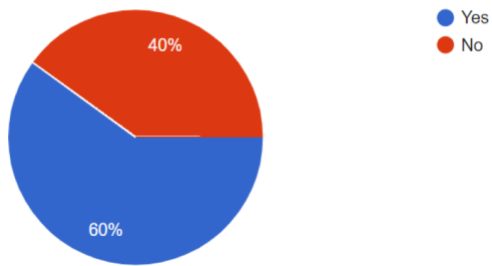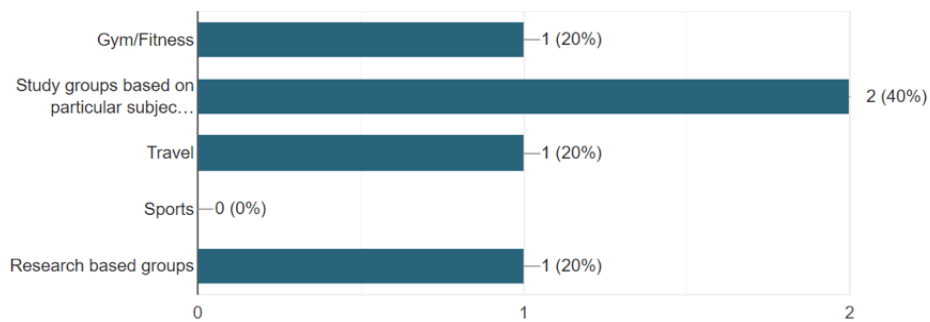
Graphs (Results from user survey) :
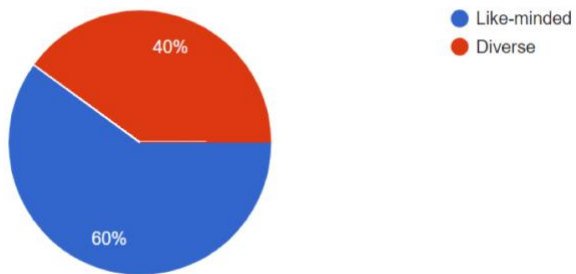
Age

Are you a student/teacher?

Is it challenging for you to create groups for projects, research etc.?

- Yes
- No

40%

60%

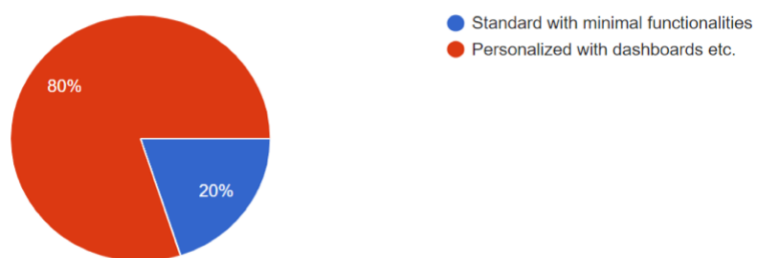If yes, then in what kind of groups?

Gym/Fitness	1 (20%)
Study groups based on particular subjec...	2 (40%)
Travel	1 (20%)
Sports	0 (0%)
Research based groups	1 (20%)

Your group preferences

- Like-minded
- Diverse

40%

60%

Platform that you would prefer

- Website application
- Mobile application

60%

40%
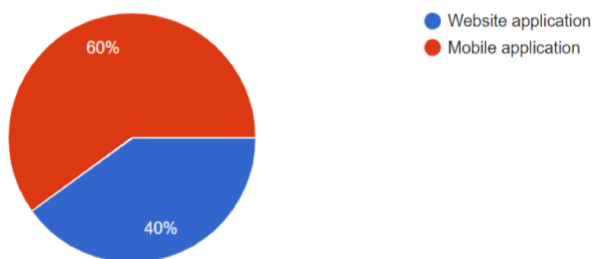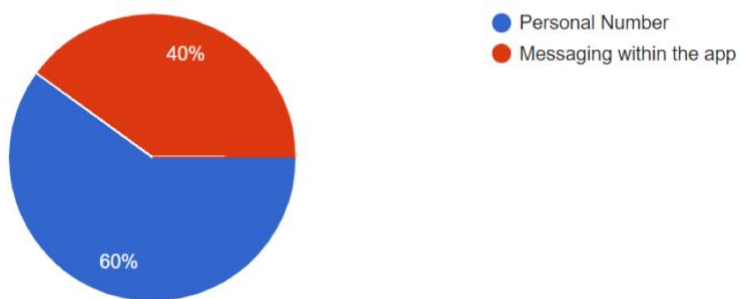
What type of application would you prefer?

Would you like to use your personal number for messaging or would you like messaging within the application?

What features would you like to see in such an application? Any answer is an interesting answer!

Location of the user.	
Video call	
Calling facility	
No	
Profile verification	

Smart Group Form

Date:	11/21/18
Name of Contact:	John Calm
ID of Contact:	239554
USER GROUP	USER_STUDENT

+ Introduction Questions

1. Where Would You Use This APP AND WHY?

2. What Do You Think Of the Concept of Grouping People who think alike in education based Projects?

3. Describe what were your first interactions with your group in the beginning and how it impacted your project?

4. Do you feel like you accomplished more than you would without the application?

5. What did you like, dislike and worried about about using SmartGroup?

+ User Interface

6. Do you find the interface Intuitive, Friendly and Personable?

7. Are the transitions between each sections of the app in sync with what you wanted from the application?

8. what did you think of the animation, and look for the application?

+ Potential Questions

9. What features would you like to add to the application that would enhance your experience?

10. What should we continue or enhance in our concept for the application?

11. What do you think we can do to our application to make it more project focused? (additions to features)

12. What do you think we can do to our application bring more connection between the user and the client? { ie.. teacher and students. }
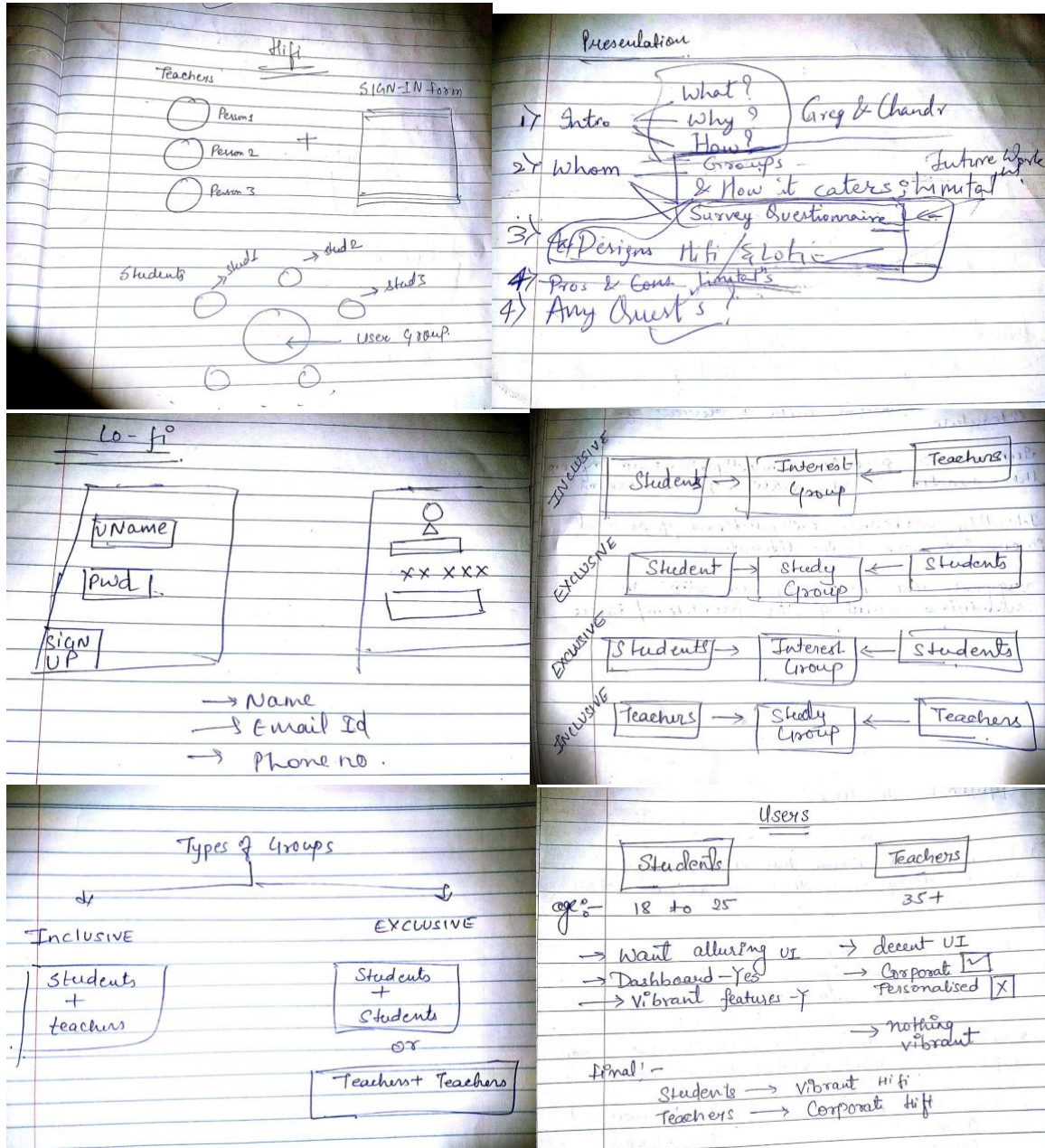
Minutes of Meeting:

There were various formal gathering at continuous intervals to discuss periodic update on the design project:

Below are the minutes of each meeting:

1st Meeting: Oct.30.2018	Choosing an idea
Description	*Our group got together to discuss and choose an idea based on society values and what we wanted to build. We needed an application that was ideal for not only every member of our team but also an Idea that we could find interesting points to talk about in contrast of how it relates to people, technology and social values. We chose a project called smartgroup: Smartgroup is a digital tool that helps teacher and project organizers to reunite complimentary profiles adjusted to the type of project at hand.*

2nd Meeting: 11/01/18	Discussing our Idea
Description	*Our meeting today consisted of getting everyone together to talk about the idea and mental architecture of what smartgroup is, the different approaches we will need to take on and how we are going to gather information to form different approaches on our application.*

3rd Meeting: 11/06/18	Evaluating with Professor

Description	*Our meeting today consisted of limiting the ideas that we had for our project to fully consider our tasks at hand. We also needed guidance on certain questions we had to theorize our concept correctly. This practical meeting will be beneficial for future implementation.*
	
	These limitations consisted of:
	
	Questions for The Teacher:
	What type of questions do we need in our questionnaire
	    1. Who our our User Groups : Who can we Target
	    2. What Kind of group of people can be most effective with this application
	    3. How different is it from the websites in websites: where they groups
	    4. Can we put the inputs from the user group on the article

5. How do we ask our User Group :
    a. Form
6. What type of **questions/concepts** do we need in our questionnaire
    a. Theoretical vs Technical
7. Ask if this Approach of TREES and NODES makes sense:
    1. 5 User Groups or Node approach
        a. If User-Group: WHO?

4rd Meeting: 11/10/18	**Organizing the sub-topics of Smart group**
Description	*Today we sat down to figure out what our project will be about, including a list of bullet points with each one of our roles described in the project. These tasks include how we are going to organize an outing to meet our Users, The Data inside of our form, What types of referencial topics would be mentioned on the essay depending on the data collected from the form, How we will change our application depending on our data. We also discussed who was going to work in different aspects of the project: whether that meant who was going to work more on the UI part vs Writing portion.*

5th Meeting: 11/15/18	**Survey**
Description	We made the survey questionnaires and distributed them to the students and teachers.We targeted 50 people altogether to analyse their responses and decide on what to do next.

6th Meeting: 11/17/18	**Discussing the Our View-Points based on survey**
Description	The design of lofi and hifi was finalised and we started working on the presentation.

8th Meeting: 11/27/18	**Presentation**
Description	*Noted the inputs from instructor as well as fellow students.*
	Started working for final submission

7th Meeting: 11/28/18	**Writing the Project Draft**

Description	● *Google drive - tech*
	   ○ *Using the bullet points*
	● *Writing down ideas*
	   ○ *// todo*