

EDU-ERA

(-- *A new era of redefined education*)

DESIGNED BY group 5_5 -

1. **Shourya Jindal (2020336)** : Hi-fi prototype, report, survey
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3. **Sakshi Saini(2020328)** : Report,video, survey
4. **K. Sibin (2020307)** : Low-fi prototype ,report, survey
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VIDEO LINK -

DRIVE:

<https://drive.google.com/file/d/12q2pNQKqe7AZF1EokQZUo6wON8Tu1uqa/view?usp=sharing>

YOUTUBE:

<https://youtu.be/1r8JXRPINM8>

(NOTE: Both are same)

HI FI PROTOTYPE LINK -

<https://xd.adobe.com/view/34b6f57f-ade9-4d6b-a1a6-9f58311dc7bf-61e5/>

SURVEY LINKS -

Initial survey

https://v186r90nypr.typeform.com/report/COvWwSFM/1ptonSX6v6kDTHCU?view_mode=print

Final survey after hi fi prototype

<https://v186r90nypr.typeform.com/to/COvWwSFM>

ABSTRACT

At present students have to use multiple apps to fulfill their educational needs. These multiple apps often put an extra cognitive load on students. Since we have also faced the same issue thus we decided to make an app that contains all the essential features in order to provide a hassle-free experience of multiple apps. We followed the double diamond design process in our design of the app. We first made a form that asked the user about their current experience with these apps, and as expected, the majority of them replied that at one point or another they had some problem regarding managing all those apps and appreciated the idea of an all-in-one educational app. Then we made multiple designs and finally selected the most suitable one according to us. The only challenge we faced was in getting a large number of real-time student feedback on our design. Thus we made a form that described our HI-FI prototype and had both open and close-ended questions and then floated it on our college Whatsapp groups and if needed, we floated it again so that an adequate no of responses are received. Then we tried to implement suggestions of the stakeholders and finalized our prototype accordingly.

INTRODUCTION

Since the pandemic, we have seen an unprecedented rise in the online mode of education and its problems. The most affected people were the institute students since they had to cope with multiple apps, from live-streaming of classes (zoom, google meet, etc.) to submission of projects (google classroom). For the exams also there were multiple apps (like talent decrypt). These all lead to chaos and confusion between students sometimes. Thus, to eliminate this problem we decided to build an app which would provide almost all the necessary requirements for the educational needs of a student. Our target users or stakeholders were the students who were pursuing some form of education as it would benefit them the most.

We got the motivation for it as we ourselves being college students faced problems in managing different apps for different purposes, remembering the deadlines, etc. Out of the numerous experiences one was that, with the online streaming of lectures and the professor saying too fast, i couldn't take notes properly. Also once after I asked a question, I had left my mic open unintentionally which led to the whole class being disturbed for a few minutes. When the professor requested to turn off mic from whoever side the background noises were coming, I just sat there thinking perhaps it was someone else! These experiences were not only mine but of several students who had encountered these problems. This gave us the motivation to build an app which would have some extra features for taking notes, etc. and also have most of the students educational needs in a single app giving a hassle-free and a less cognitive load environment for studies.

We started designing the app by following the double diamond design process. This app would meet all necessary academic requirements of a student in a single app, making it a one-stop destination, be it for online classes, quizzes, or submission of reports, etc.

In the discover phase of the double diamond design, we first gave an insight into the problem and found out the possible stakeholders (students) and the problems which they faced with handling multiple apps. For this we conducted a survey which had both open and

closed-ended questions. In that survey we asked the users to rate the satisfaction level regarding the current online mode of education and then we focussed on the specific problems which our stakeholders faced through the open-ended questions in the survey.

In the define phase, we narrowed our focus and took those aspects on which we actually could build our prototype according to our knowledge. Through the process of skimming and scanning we rejected those responses which dreamt of a 'fairy land' in our app. We basically inculcated possible solutions suggested by users in our app and tried to define our focus around those.

In the develop phase, we held frequent meetings and thought about the possible solutions. Then we finally selected the best possible solution which we could think of. After that we made the low fidelity and high fidelity prototype of our chosen model, and created another survey to assess the prototype and its design.

In the deliver phase, we chose those low fidelity and hi-fi fidelity prototypes as the final chosen solution and incorporated it in our report as we were not meant to actually make the app but rather to design it only. We just put our findings in a report and then submitted that report.

The possible solutions of this problem also existed online but it wasn't so effective since it mostly had only 2 or 3 different features in it (like video conferencing and google calendars merged, app). It basically stored all the history related to the meetings held and also served as reminders for the scheduled meetings, if we set it so. Example: Zoom - a popular online video conferencing app with these features. The problem with it was it only scheduled the meeting lectures which were to be held and didn't work as a personal reminder for other academic related stuff. Also it didn't have the option of giving quizzes and taking automatic notes through text-to-speech synthesis. Overall, it lacked many features due to which we decided to implement our version of the all-in-one app for the students.

Thus we proposed our version of the solution as it contained almost all the features which were necessary for a student in the online mode. It gave the user options to take notes

automatically or give quizzes in it too along with the live streaming of the video lectures. From the automatic setup of deadlines for the particular courses to having the details of the person who was in the meeting, everything was there which we thought was necessary. In designing the app

The only existing challenges which we faced was the real-time feedback which we had to get through the surveys done on the stakeholders. Since we didn't get many responses when we floated the surveys on our college Whasapp groups, we decided to float these forms on different colleges also through our friends. If required we floated these forms multiple times so that the surveys get an adequate number of responses (i.e, above 50 at least).

Finally after we had made our hi-fi prototype, we created a survey to judge the effectiveness and utility of the prototype and floated that survey among students. The survey also contained some open-ended questions which allowed the reviewer to detail about the problems if they find in the design or to add some suggestions according to them. While most of the responses were positive regarding the hi-fi prototype, some of them suggested some extra features which could be added in our hi-fi prototype. Then we tried to inculcate those features and thus modified our prototype accordingly. Finally the design of our app was ready!

METHODOLOGY-

STEP 1 PROBLEM DEFINITION AND IDENTIFYING TARGET USERS:

Online education platforms have been there for a very long time but weren't that much used earlier but after covid-19 pandemic situation is not the same. The education system has shifted more towards online mode. At present there are so many platforms available to facilitate online education almost every app provides a single and unique feature hence unable to fulfil all the requirements of students, thus leading them to download multiple apps , often

involving confusion and chaos sometimes. These multiple apps often lead to an extra cognitive load on students.

To solve this problem we have designed an application having so many features required for learning online at a single platform. This app is designed keeping all types of students as target users in mind although it can also be used for online meeting and sharing knowledge and information.

STEP 2 REQUIREMENTS GATHERING:

The goals for the data gathering sessions was to discover all of the types of requirements relevant for the product. We used three types of data gathering techniques (interviews ,observation and questionnaires).

Data requirements capture the type, volatility, size/amount, persistence, accuracy, and value of the required data.

1. Observation: This pandemic online semester has become a new normal, we ourselves have experienced the problems faced by the students in the online semester, as well as observed many other requirements that needed to be fulfilled through our siblings and surroundings.

The major observations were the problems faced for example, having accidentally left the camera or mic leading to embarrassing moments. Hence we concluded that a pop up confirming to get unmute was necessary and many such minor and major changes were added.

Many people faced the problem of keeping all the invites of the different meets at one place, also many forgot the time and date hence the feature of a custom calendar was introduced which saved the invite link and reminded me at the time of the class.

2. Interview: During the interview, data is collected in the form of notes and initial Contextual Design models that already exist.

The most common issue was the different platforms management and application used. And hence the main idea was to make an application which fulfills all the requirements of our stakeholders. We took telephonic interviews of some of the students and also concluded that the current application has an outdated design and the interface was not that engaging .

The application didn't cover any specific age group and for children more animated applications were required .

3. Questionnaires / Survey: We conducted a survey on the platform typeform and received the response as accepted. The survey supported our idea and claims. The results of the survey helped us to refine many features. I hereby attach the outputs of our survey.

Initial survey:

https://v186r90nypr.typeform.com/report/COvWwSFM/1ptonSX6v6kDTHCU?view_mode=print

Final survey after hi-fi prototype:

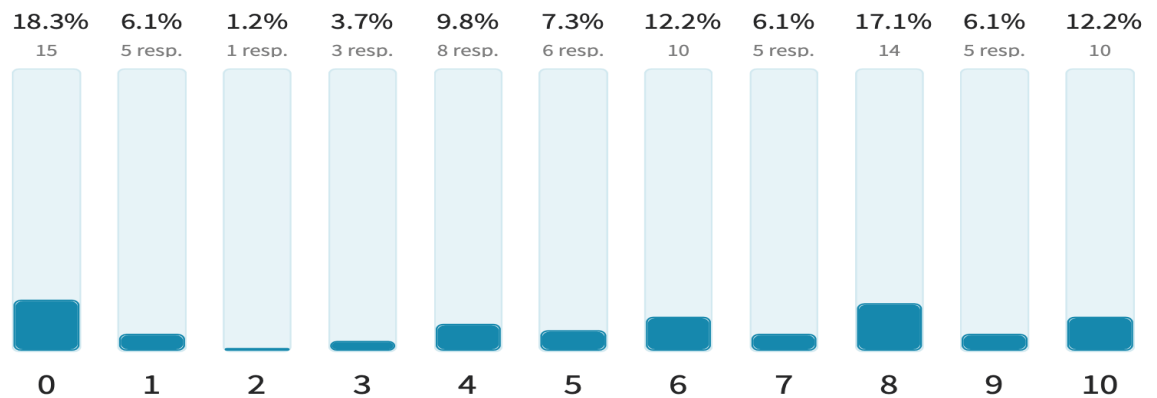
<https://v186r90nypr.typeform.com/to/COvWwSFM>

The questionnaire was designed based on our observations and interviews.

How satisfied are you with the current online experience on a scale of 1 to 10?

82 out of 84 answered

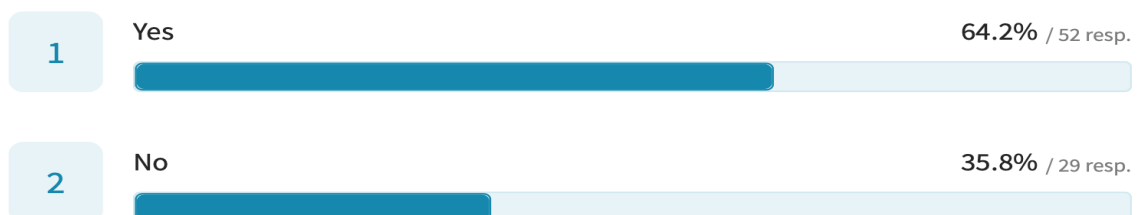
5.2 Average rating



The above question was a general question to get an idea how smooth the semester was for the students and found the results to be as expected that the current education platforms are not able to fulfill needs of students and something is required to improve online learning and make online education easy.

Has there been any incidents with the mic and camera?

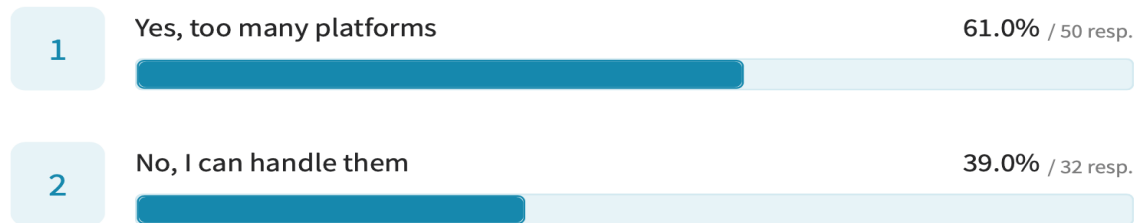
81 out of 84 answered



This showed us that incidents with mic and camera are very common and need a properly marked interface. A pop up indicating that whether you need to turn your mic and camera on is necessary.

Do you face problems with having to handle too many educational apps like meet, zoom, classroom, talent decrypt, hackerrank, etc.?

82 out of 84 answered

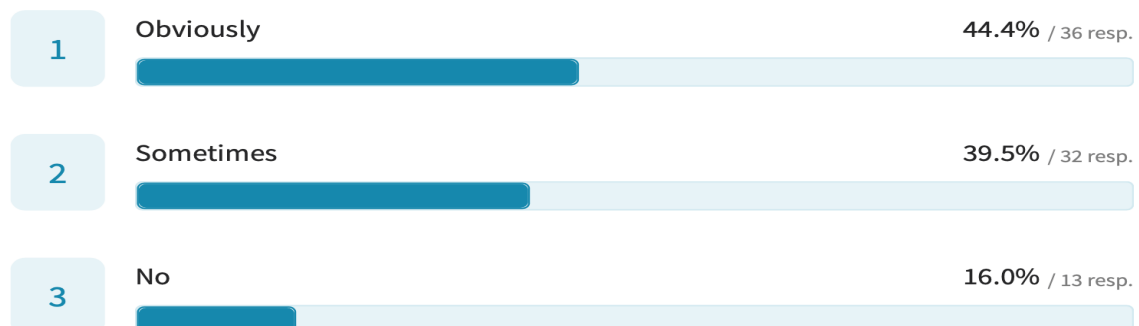


This question showed us that we can work on the basic idea of your application.

We see that 60 % of the students face problems in managing their applications and shifting from one application to another. Much time is also wasted in getting familiar with different types of applications.

Do you face any difficulty remembering the meeting links, assignment's deadline, schedule, quizzes and tests?

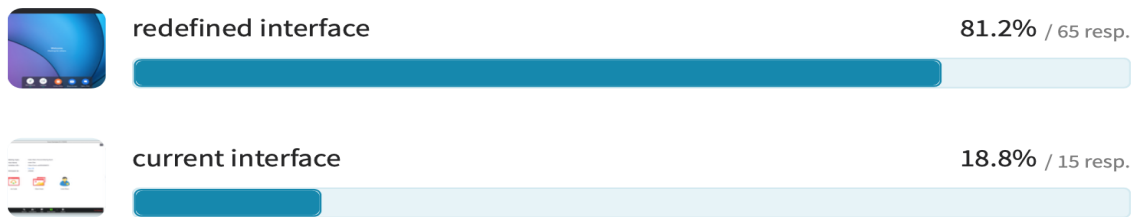
81 out of 84 answered



This shows that students face problems in organising their time hence need a planner along with reminders to do their work and show better performance. From your observation we also noticed that many students have missed their deadlines.

Which interface would you prefer for the online video conferencing platforms?

80 out of 84 answered



The interface is outdated.

STEP 3 IDEATION AND LOW-FI PROTOTYPE:

Ideation is the process of developing and conveying one's idea to other people who are working together in a project/business. This process also includes reconsideration of the assumptions of other users, articulating one's concerns and standpoints. As seen above we had taken a survey in which we had asked different people what changes they wanted in the present applications or websites so that this whole online education system would be easy for them to handle and we also tried to make the interface a lot more interesting and easy to use. So our idea was to create an app/website where people could do multiple tasks in one single application rather than doing it in different applications which is a very hectic job to do, so we came up with an app named EDU-ERA where people can do different activities in one single app. We have created the low fidelity prototype compiling the ideas using the present apps such as zoom, google classroom, talent decrypt, etc.

Low fidelity prototypes is a quick and easy way to represent our concept and the information regarding our product so that we can get easy feedback from people, analyse the product and rectify the problem. The low fidelity prototype which we make doesn't look the same as that of the main application. It is just an overview of the application which is to be made. In making the low fidelity prototype we just require basic materials such as pen, paper, electronic screen, board, etc. which makes it easy, cheap and quick to produce.

Here are some examples of low fidelity prototypes:-

- 1) Storyboarding : basically in this type of prototyping various sketches are made depicting the progress of the user through the product which consists of various sketches and series of scenes showing the user how the product works.
- 2) Sketching : as we know that most of the low fidelity prototype has to be done using hand drawn sketches/drawing but in sketching we use basic figures to explain our product such as people, emotions, action, etc.
- 3) Prototyping with index cards : in this type of prototyping the person uses cards which represents some elements of the final product. This is mainly used in making websites and apps.
- 4) Wizard of Oz : this type of low fidelity prototyping is basically a software based prototype where the user interacts with the prototype as if they are interacting with the end product.

As you can see below are the low fidelity prototypes of our application where we have used the method of prototyping with index cards. Here we have basically used the screen of a smartphone as the background interface and sketched various icons and processes which are going to be used in making the final product.

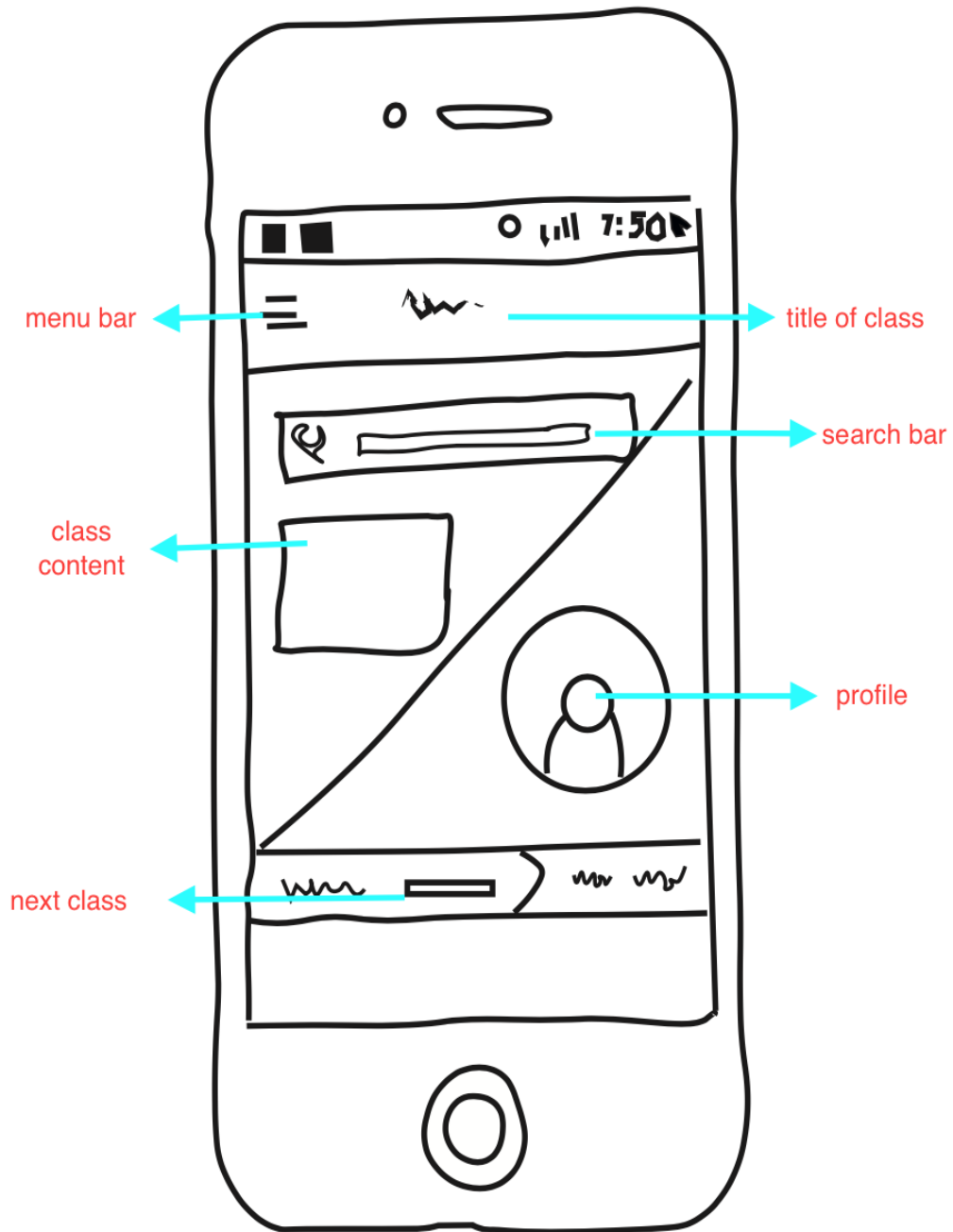
We followed these steps while making the low fidelity prototype:-

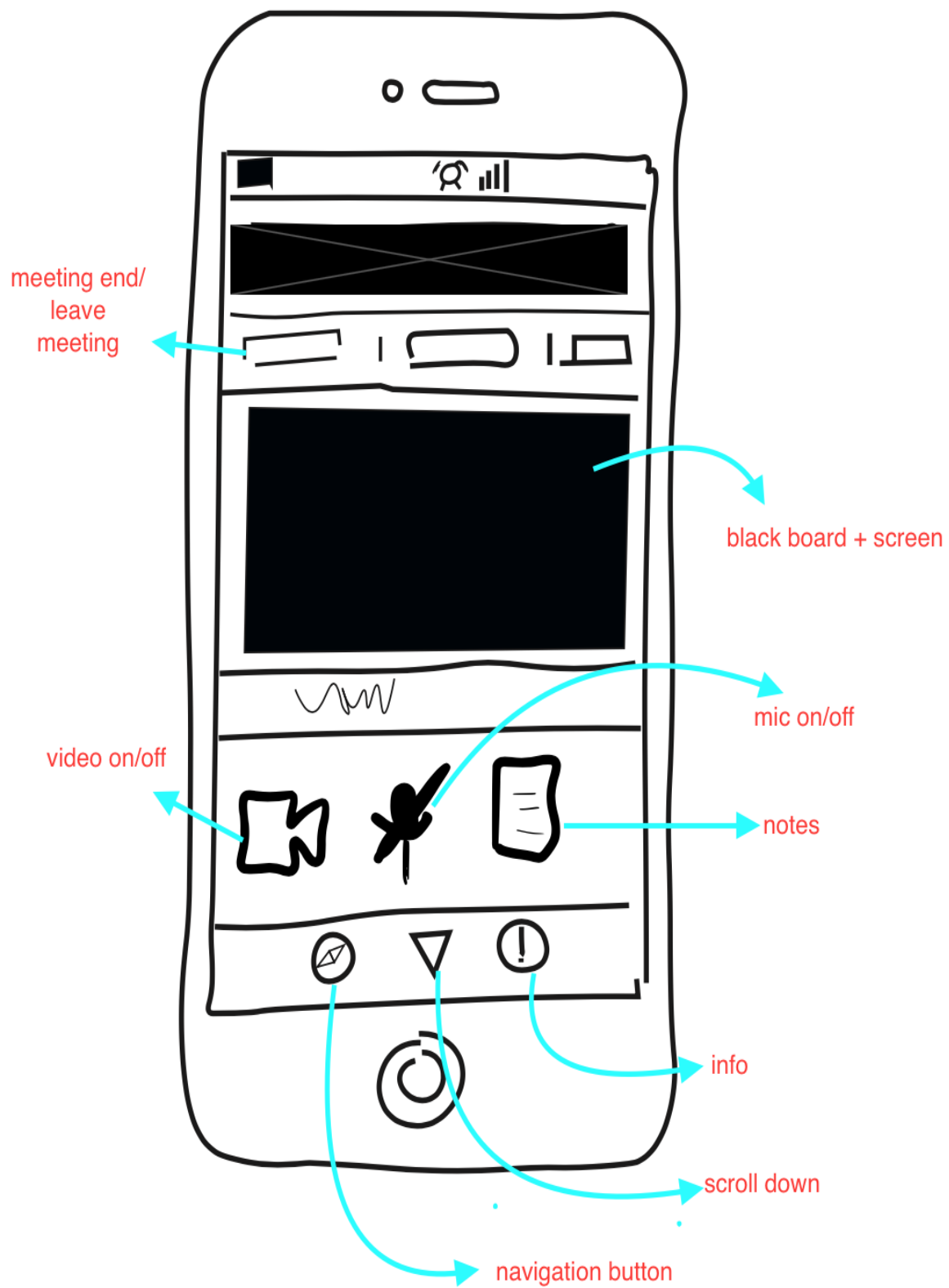
- 1) We made a rough idea in our mind what to do in our application
- 2) Then we compiled our ideas and sketched the low fidelity prototype
- 3) After sketching the low fidelity prototype, to make it better than the present application we made the users fill a survey through which we identified the problems in the present educational apps and websites.

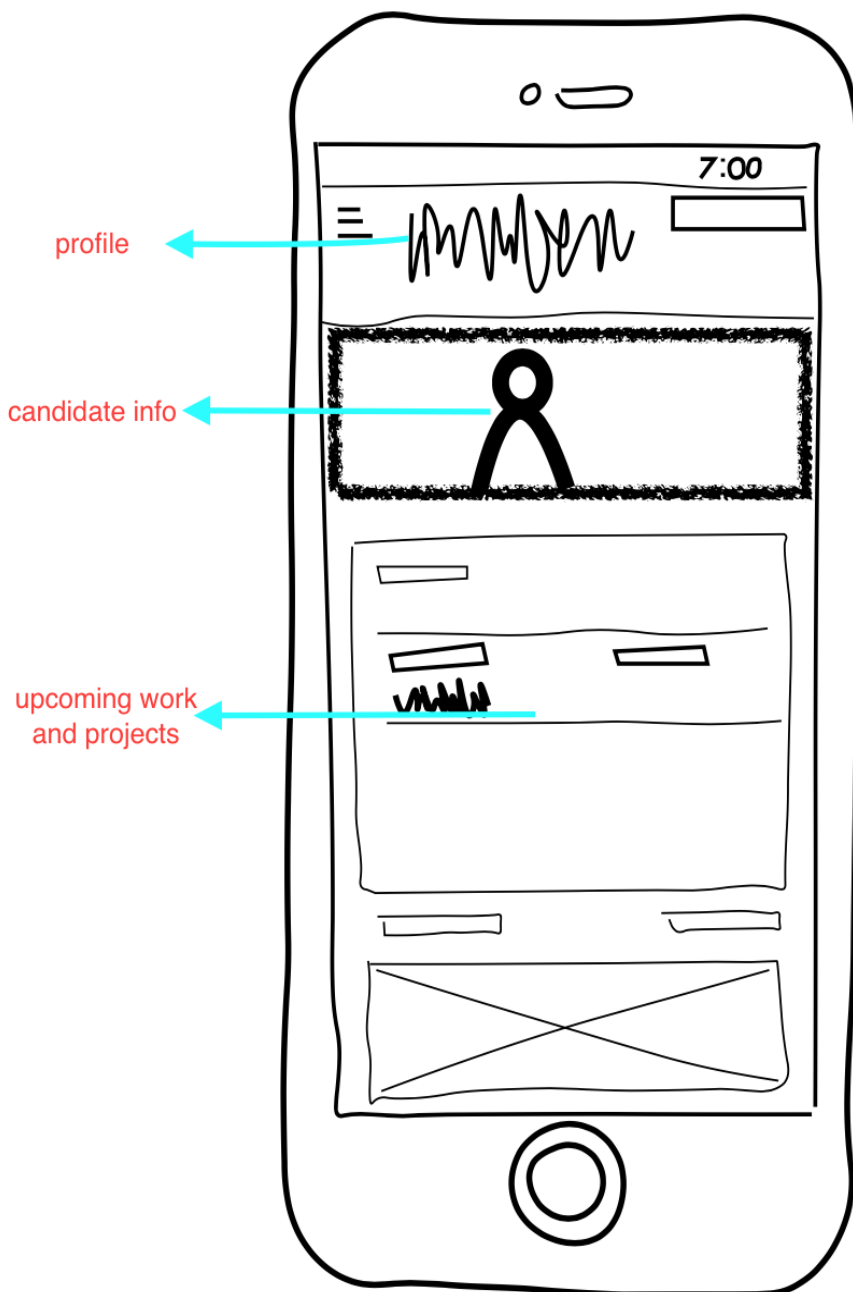
- 4) Then we used the information from the surveys and added some features to our low fidelity prototype.
- 5) Finally we sketched our low fidelity prototype which was ready to get converted into a high fidelity prototype.

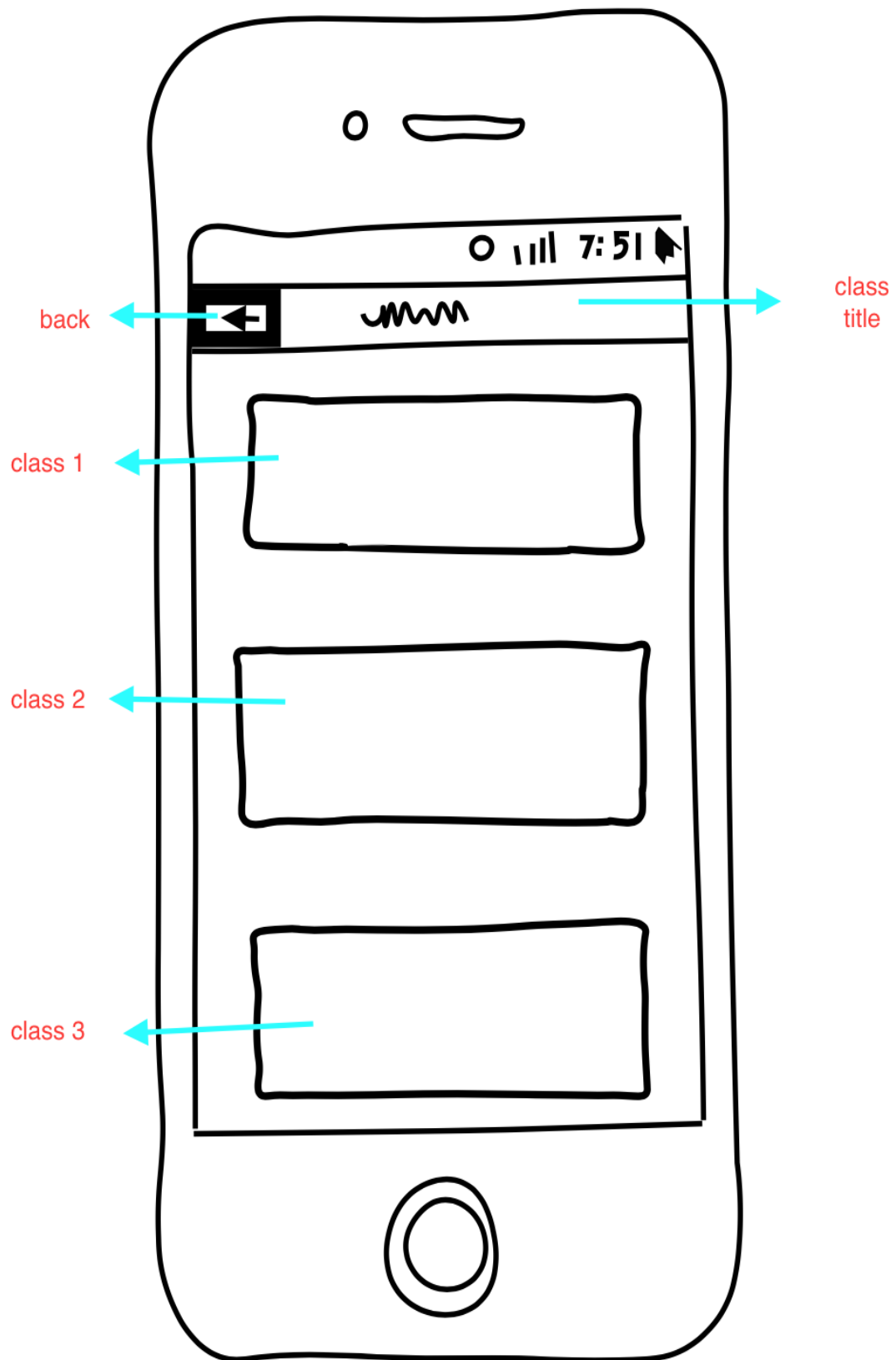
Some of the features which were added in our prototype:

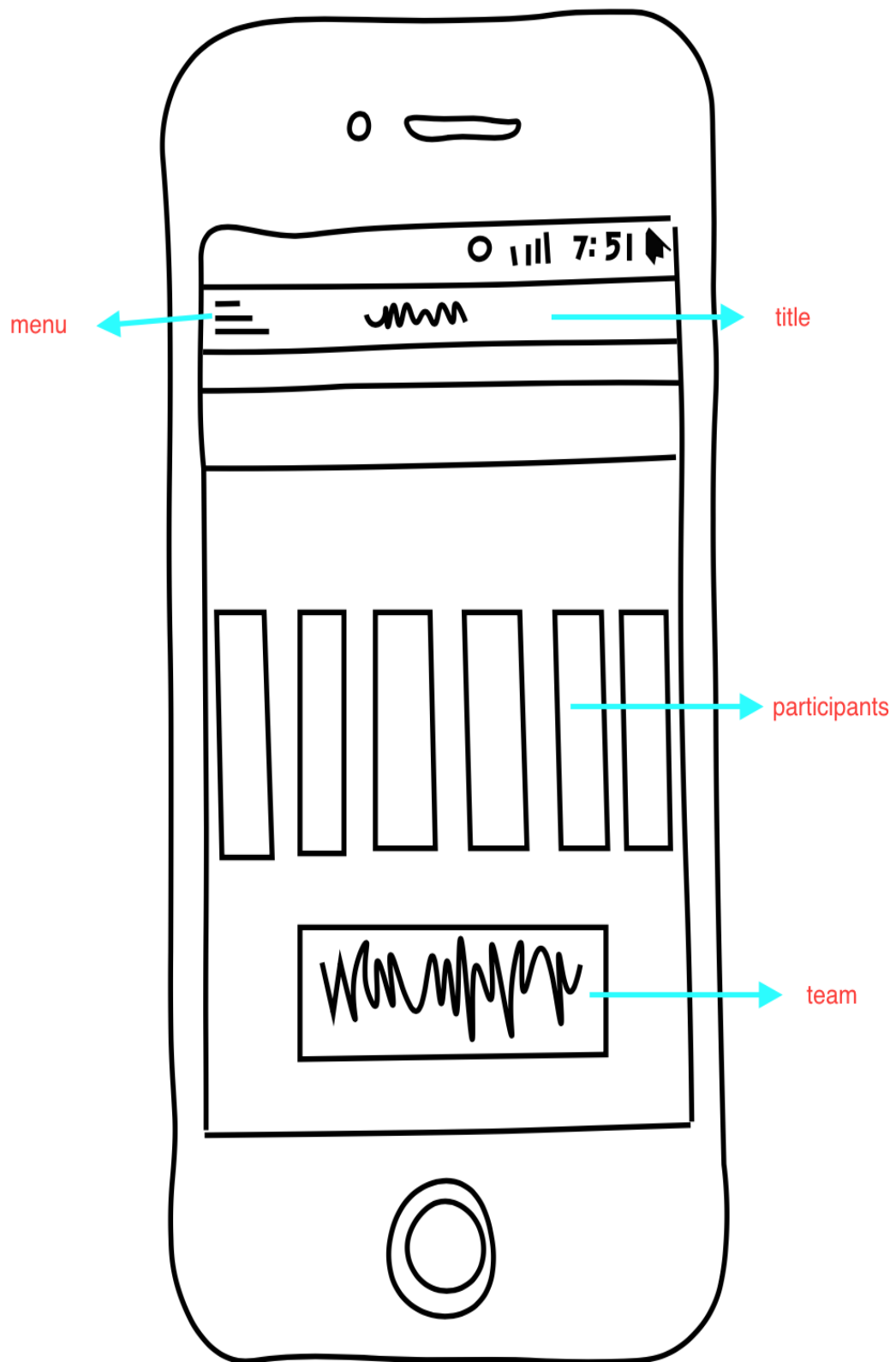
- 1) According to our survey there were many students who had incidents where they accidentally turned on their mic so to avoid this we added a confirmation button which prevents these incidents.
- 2) We also added black boards and notes taking facilities
- 3) We added many functions combining google classroom, google calendar, etc.







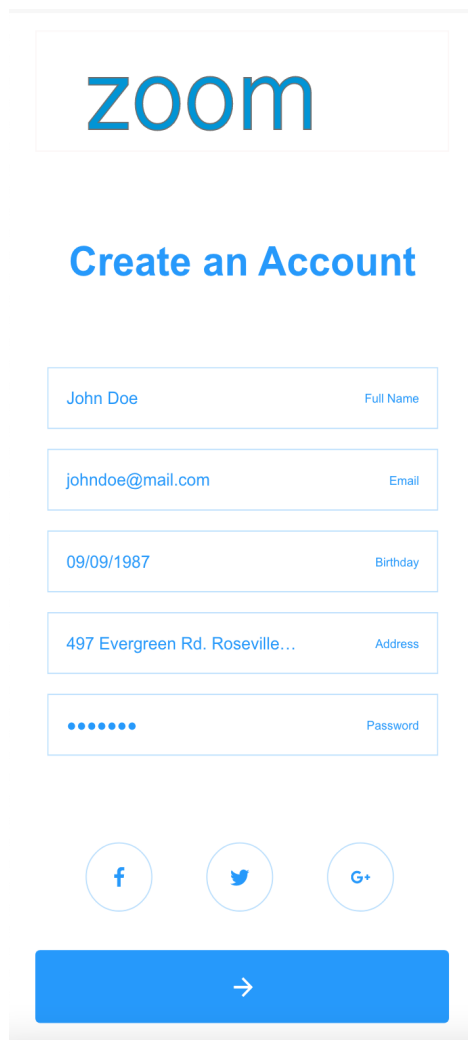




STEP 4 HI-FI PROTOTYPING:

High-fidelity prototype or Hi-Fi prototype is a computer based representation of a product that resembles the closest to the final product in terms of details and functionality. We have used Adobe XD to create the Hi-Fi prototype of the app we are trying to construct.

As you open the application on the first page you are asked to create an account by filling information about your name, date of birth, email id and address. Then you are required to create a password. If you have an account on gmail or facebook or twitter you can log also with that.



The image shows a mobile app onboarding screen for 'zoom'. At the top, the 'zoom' logo is displayed in a blue sans-serif font. Below the logo is the heading 'Create an Account' in a bold blue font. The form consists of five input fields, each with a placeholder text and a label on the right: 'Full Name' (placeholder: John Doe), 'Email' (placeholder: johndoe@mail.com), 'Birthday' (placeholder: 09/09/1987), 'Address' (placeholder: 497 Evergreen Rd. Roseville...), and 'Password' (placeholder: six dots). Below the form are three circular social media icons for Facebook, Twitter, and Google+. At the bottom is a large blue button with a white right-pointing arrow.

zoom

Create an Account

John Doe Full Name

johndoe@mail.com Email

09/09/1987 Birthday

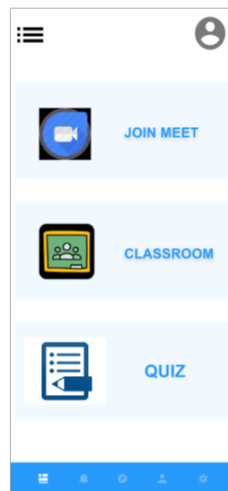
497 Evergreen Rd. Roseville... Address

..... Password

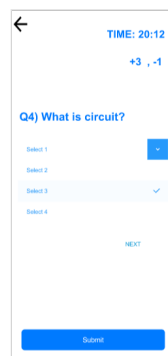
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→

After creating an account you would come to the landing page where you can choose whether you want to join a class meeting or classroom or quiz.



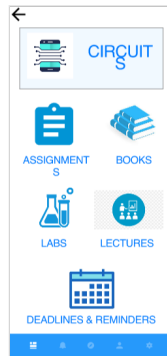
In the quiz section you can participate in quizzes taking place in class. There is a timer provided to you in the quiz on the top rightmost corner. Once you mark your answer you can submit your response.



In the classroom section you can add different classes with the help of code provided by your teacher, it's similar to google classroom but with more features.

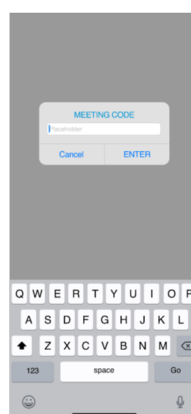


On tapping classroom you will land to the page which will show the courses you have available for going further you have to tap on a particular course.



For a particular course you are provided with books, assignments, lectures, labs and tutorials. Lectures in the lecture section are organised in a proper manner so that you can easily access any lecture whenever you want. There are other materials also provided for a particular course like calculators and graphs for mathematics, maps for social science, etc.

Also there is a planner in the deadline section which would help you plan your work and give you notification according to your plan or if you have an assignment given by your teacher to complete. There you can set reminders for your upcoming quizzes and assignments and you would get notified in advance. This feature will help you in time management resulting in enhancing your performance.

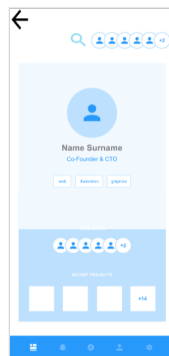


For joining a particular meeting you have to fill a meeting code and you can save the meeting code with a name so that you don't have to rewrite it when the meeting reoccurs. On joining a meeting you will come across this interface where app will ask your permission to turn your

microphone and camera although you can keep it off if you want



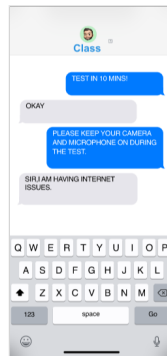
Here you can mute or unmute yourself during the meeting also you can keep your camera ON or OFF according to your will. Whenever your microphone or camera turns on you would get notification on your screen with vibration, this would help you know wherever you connect and can prove very helpful when you connect by mistake saving you from awkward situations.



In the participants section you can see the participants present in the meeting also you can chat with them. You can also access some of the information about other participants which they have allowed access to know your studymates better. Here we have added an additional feature named anonymous message for students who are introverted can use it although the host of the meeting can see the name of that anonymous person to control misuse of this feature.



You are provided with the virtual white board to facilitate teaching and learning. This virtual board comes with so many features like paint, auto text to speech along with manual texting.



In the chat section you can chat with other participants and in case you have joined a meeting late you can also access previous chat helping you from missing any information.



If you want to write notes during the class this app has a feature Notes to help you note important points during the class. Also to facilitate teachers to take quiz during the class there is a quiz section and you are provided with a timer during the quiz.

By tapping on leaves you can leave the meeting when your meeting is over. Also you can log out if you want.

STEP 5 EVALUATION:

Evaluation is integral to the design process. It involves collecting and analyzing data about users' or potential users' experiences when interacting with a design artifact such as a screen sketch, prototype, app, computer system, or component of a computer system. A central goal of evaluation is to improve the artifact's design.

What were we evaluated on ?

We evaluated our hi-fi prototype of our application ,we tried to gather the cons of our application to improve upon and welcomed constructive criticism and we were shocked to see the result. We tried to improve based on the feedback received from the evaluation we conducted and hereby provide the final link of our prototype.

How were we evaluated ?

We circulated the prototype with the help of a google form and formed a rating type questionnaire to receive maximum feedback and added some subjective feedback to improve upon , this saved the time of the user and also helped us in getting their valuable feedback.

Evaluation case study:

A lot of data was collected that needed to be analysed .

The participants' online responses to a short list of pre-established questions that they answered by selecting from a list of pre-written comments. The participants' responses to researchers' in-person interview questions. These questions focused on the participants' experiences.

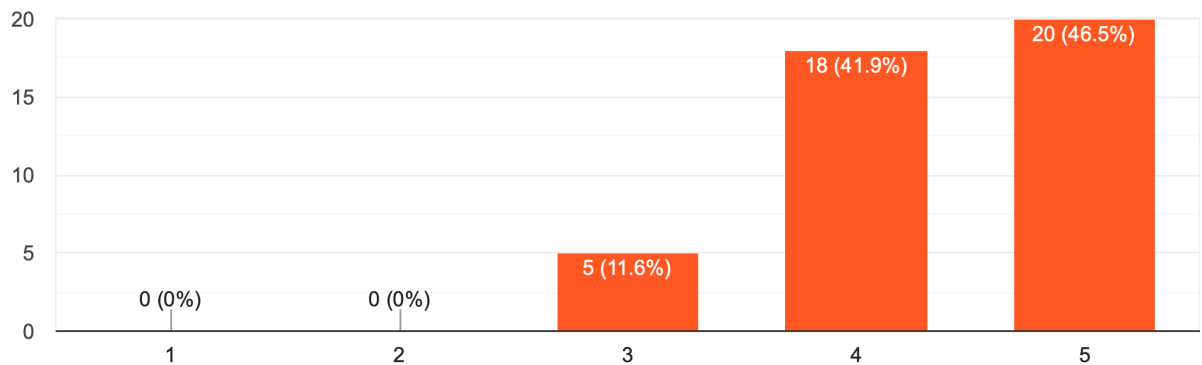
I attach the screenshot of our evaluation and individual case study of each question .

Where we evaluated :

Due to the pandemic it was not possible to have an one to one interview with the person ,hence the best possible way to take the surveys was via zoom and google forms.

Rate the overall experience of the app

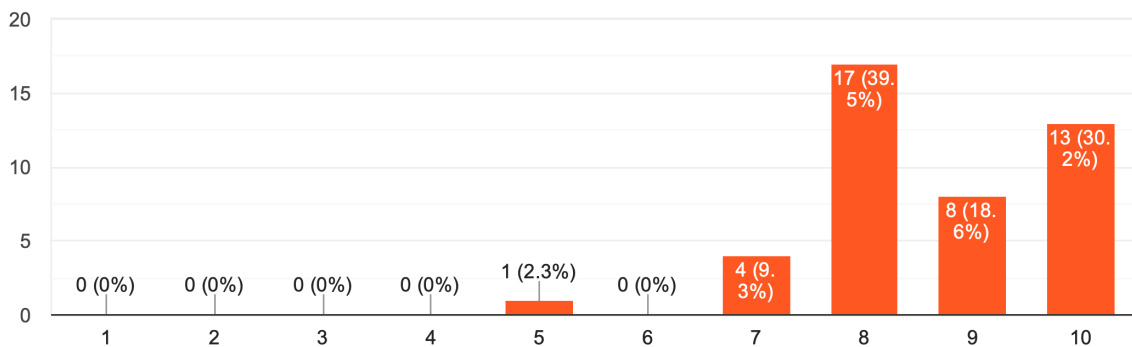
43 responses



We got an overall score of our app based on the rating and compared to the current existing softwares.

On a scale of 1 to 10 what is the extent to which the application satisfies your needs?

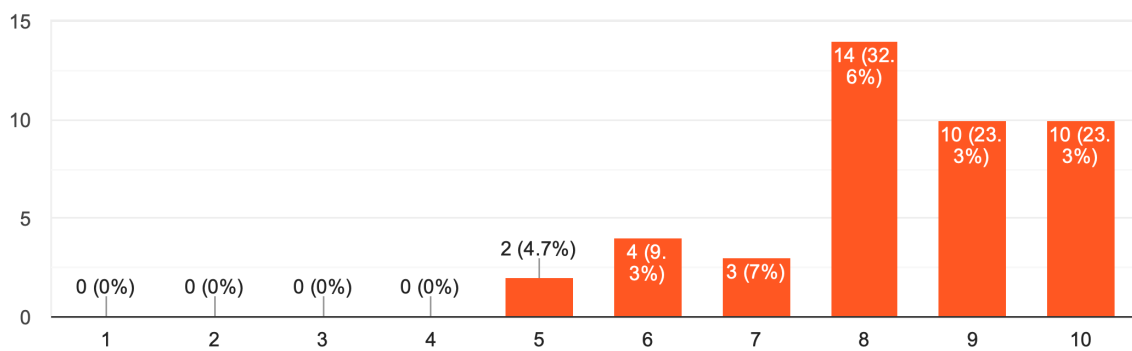
43 responses



We ensured that all the requirements possible were fulfilled and those received in the feedback were added.

What do you think of the UI of the app on a scale of 1 to 10?

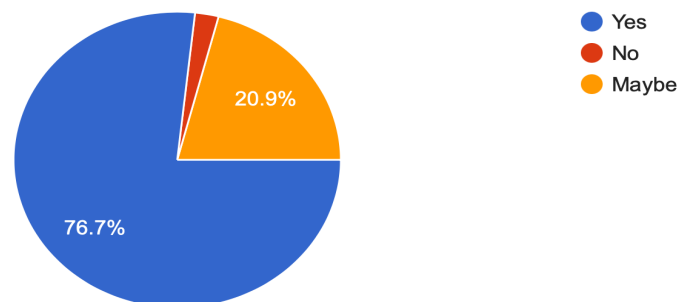
43 responses



We will try to improve our UI but based on the current level of knowledge we got a satisfactory score.

Was the UI self explanatory?

43 responses



The icons used were self explanatory and the UX was good.

On what aspects does it needs to be improved ?

9 responses

All perfect

It's good for me

In the prototype when I went to courses I couldn't go back. You didn't connect the two screens

It can be improved if it can include previous year question papers.

if we know how much time is left for the quiz then it would be more sufficient for me or auto submission too

The navigations are a bit messed up for ex. From quiz submission it takes to zoom link page, the back button from the courses page was not working etc.

No feature to logout,

The name on the sign up page should not be zoom, it's a bit misleading

In join meet, there can be feature to join either by using links or pass codes as sometimes pass codes are not mentioned.

Based on the above feedback we improved our prototype and the link for the final hi-fi prototype is attached :

<https://xd.adobe.com/view/34b6f57f-ade9-4d6b-a1a6-9f58311dc7bf-61e5/>

ANALYSIS AND FUTURE WORK

We did an extensive survey of our high - fidelity prototype and got many unique responses. Some of them encouraged and liked our proposed solution and we were able to satisfy most of their requirements for educational purpose apps. While on the other hand, some suggested that we add some more features.

There were some limitations of our proposed solution and prototype. Since we were new in using AdobeXD for designing and lacked proper knowledge about suitable technology, and had limited time we could not show many features that we earlier thought about. Some more unique features that we thought of adding were:

- 1) Option to see chat history by those who join late.
- 2) Virtually enabled classes that can make learning more interactive and thought-provoking.
- 3) Option to ask questions via chat anonymously between the meetings.
- 4) Pop up notification to alert users if their mic or camera gets turned on.

Due to the limited time given we were able to showcase only some of the basic and primary functionality of our app. If we take this forward in the future and spend some more time developing this, we can do a lot more. Like, we would be able to show how the interface of our app would look to the teacher, who will be given options to assign grades, add assignments, conduct quizzes, schedule meetings etc.

In the coming years we hope to deliver our application.

CONCLUSION

We concluded our project as well at the end of the semester by this project , we learned to design high fidelity prototypes using figma and adobe XD , not only prototyping but also creating forms,taking surveys and interviews and designing one for this project. This application will solve the problem of most of the users and many educational institutions. Due to lack of knowledge and practice the prototype was not up to mark and as we thought about it, but surely there is a scope for improvement and will try to build and create prototypes exactly as we have thought or imagined in our mind . We hope that we improve in the coming years and execute this application and implement the last stage of the double - diamond process. Thank you.

REFERENCES

1. Google form
2. Typeform
3. Book : Interaction-Design 5th edition
4. [1620 × 1620](#)
5. [Low-fi prototyping: What, Why and How? | by Accenture ...https://blog.prototypr.io > low-fi-prototyping-what-why-a...](#)