

Project Report by Group 2_8

Figma: <https://www.figma.com/file/nzGb4qZig63ft6txUsDTbs/IHCI-Project?node-id=0%3A1>

Adobe XD: <https://xd.adobe.com/view/d6affdf1-edd2-4964-85f9-576c9f6eccb1-83fc/>

Keys and refrain used in this document -

“ * “ has been used in front of some words or phrases and suggests that it hasn't been elaborated and the whole meaning is implied.

Designers - People working on the preliminary stages - (Saksham and Ritwick)

Makers - People working on the Hi-Fi prototyping - (Shivam and Uttkarsh)

Report Contents :

1. Abstract

- Overview-like summary of the entire report including motivation, problem, challenge, and solution.
- Ideally very concise

2. Introduction

- A detailed summary of the whole report, including motivation with an example, problem definition, target users, existing challenges, existing solutions, and your proposed solution.

3. Methodology

3.1. Problem Definition and Identifying Target Users

- Clearly define and identify your problem through a problem statement.
- Identify the target user group or stakeholders for your problem.
- Designers' perspective of the initial ideation of the problem and how they've gotten to the problem statement.
- Anecdotes, Testimonies, Observations etc.

3.2. Requirements Gathering

- Gather user requirements and collect data using relevant data collection methods taught in class (surveys, interviews, FGDs, etc.).
- Follow proper procedure (questionnaire forms, consent forms).
- Collate and analyse your findings and present them in a concise and accurate manner.

- Designers' perspective on how they receive the data (examples - surprises, *as-expected etc.) and reasoning behind it.
- Designers' perspective on deciphering what data is of most use and will be used for data visualisation and reasoning behind it.
- Designers' take on appropriate choices for data visualisation methods such as bar graphs, pie charts.
- Foreign input on the methods of data visualisation.
- Designers' take on possible loopholes, flaws in the process - Avoidable and Unavoidable. Steps taken to solve the avoidable ones and reasoning behind the unavoidable ones (implicit and explicit bias, coercion etc.)

3.3. Ideation and Lo-Fi Prototyping

- Brainstorm and identify possible solutions to your problem statement.
- Narrow down to one solution (give reasons why the chosen one was better than the others) and create low fidelity prototypes for this solution.
- Identifying redundancies and problems in the initial problem statement and ideation and reasoning behind it. (example- already existing product)
- Reformed problem statement.
- Lo-Fi prototyping beginning - on-paper wireframe sketches of the conceived platform.
- Inspiration behind design choices.
- Mention the separation of workload and handover of design responsibilities

3.4. Hi-Fi Prototyping

- Build and improve on your idea and present a final high-fidelity prototype of your solution.
- Use prototyping tools like Figma or Adobe XD to create interactive, high-fidelity prototypes that reflect your final solution.
- Makers' take on the Lo-Fi prototype, possible communication problems.
- Makers' understanding of the platform used.
- Running into constraints, borne of either the platform or the Makers' knowledge.
- Makers' design inspirations and choices.

3.5. Evaluation and Subsequent Iterations

- Get your prototypes evaluated by the users using relevant evaluation methods.
- Define clear evaluation criteria for your solution.

- Iterate on the design after analysing the feedback received. (keep in mind the iterative nature of design cycle)
 - Show how the user feedback was incorporated into the final prototype.
4. Analysis and Future Work
- Bird's Eye analysis of the project.
 - Takeaways from your survey, prototypes, limitations of your proposed solution, and future work etc.
5. Conclusion
- Signoff on the report.

1

This report documents the experience of our group while designing a platform that facilitates egalitarian resource sharing and provides for students for students to access appropriate and crucial advice/information from seniors, for students in higher education institutions. This report is authored by the designers with some paraphrased comments by the makers. This report talks in detail about the ideation, feedback, prototyping and evaluation stages of the design process, as well as comments on the iterative nature of the design cycle. It talks about our own takes on some standard methods of design and also talks of us, as designers, being tested in implementing our course material, in practice.

The current evaluation system lacks clarity and transparency, which is a constant source of tension for the students. Couple it with relative grading, even getting perfect scores may not allow them to see an A or A- in their result. The predicament that the student faces in comprehending the difficulty of the course - cluelessness regarding difficulty of the course, which accordingly changes the class average, can be very stressful. So, if the class average is high even getting full marks may not result in an A, however, if the class average is low, a student with half of the total marks may end up getting a good grade. This makes the student constantly question themselves whether their efforts are up to the mark or not, leading to stress regarding his academic performance.

Problem: A platform that facilitates egalitarian resource sharing and provides for students for students to access appropriate and crucial advice/information from seniors

While it is difficult to scope the entire space of the problem statement, its effects on student's life are huge. One aspect of the problem was first discovered when the members of this group were discussing about the ongoing quizzes and various other assignments. We stumbled upon the fact that almost every student was scoring 90 - 95% in one of the subjects. Everyone was elated since they were hardly losing 1 or 2 marks, but there was nervousness about how high the class average will go because due to relative grading even those 1 and 2 marks can set apart the difference between any two grades. So, our initial concern is to deal with how to get a heads up regarding the difficulty of the courses as well as provide unsaid relevant information regarding the courses.

The targeted user base for the above-mentioned problem will be the students of that particular institution. The problem applies to every student, especially those who are shy or are not capable of networking properly are the major stakeholders of this problem. Other stakeholders would be Professors, Teaching Staff & Alumni.

There are certain challenges that are needed to overcome in order to deliver a working model of the solution to the students. These challenges involve issues of different spectrum such as valid information regarding cracking the courses from seniors, how much does the average rise up to, how difficult the course is, does it involve relative grading, if it does then how much and the list goes on.

As of yet, there has been no effective solution for this.

3.1

Our arrival at the original problem came through a rather distressing scenario. Not to name any particulars, a course with a name similar to “Cigital Dircuits”, had a quiz related mishap. A quiz that had been previously used two years ago had been used for evaluation again. This is, apparently, fairly standard practice and also helps compare performances of various batches. However, this quiz, being online, was likely to be prone to non-monitorable cheating practices. So, what transpired should have been to no one’s surprise. Students who had been thoughtful enough to go through yesteryear’s material for more thorough preparation, instantly realised what was going on. And all it took was one such student sharing the solutions (already freely available online) to their friends, to delegitimize the test. Upon getting wind of this, the instructors made a swift decision to cancel the quiz and hold another one the following week. What followed was lots of deliberation and some uproar against this decision. But one thing was apparent here; had everyone known about the previous years’ resources and they were easily accessible, we wouldn’t have run into this problem in the first place. See, these resources could be obtained through a website called “usebackpack” and could’ve been accessed by anyone. But lots of students weren’t privy to such a platform existing. The only ones that got to know of it, did so through connections they had made with their seniors. Coupled with this was the fact that there was a lot of uncertainty around the idea of grading, class averages etc. This was our lightbulb moment; We realised a lack of egalitarian resource sharing and appropriate advice from seniors and alumni that can be crucial to any student’s academic success.

Therein lies our initial problem statement: A platform that facilitates egalitarian resource sharing and provides for students for students to access appropriate and crucial advice/information from seniors

Our target user base: Students in higher education institutions

Other stakeholders: Professors, Teaching Staff, Alumni

3.2

We started with gathering the user requirements required for this problem statement.

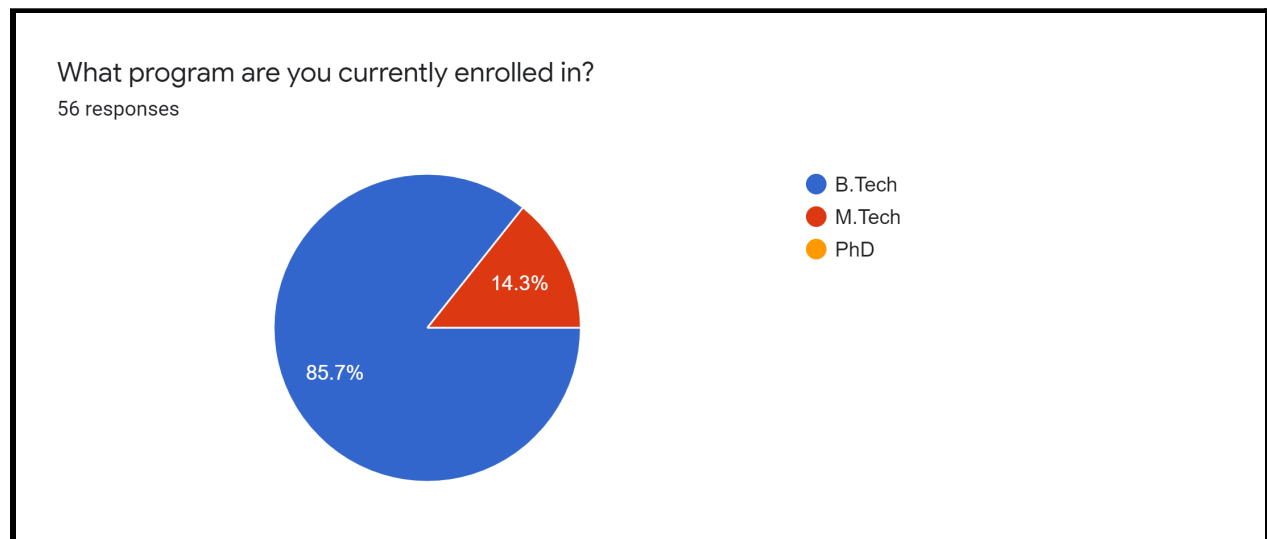
The solution should primarily be designed so as to help the students navigate through his/her academic life without getting pressured by these weights.

We first ran an informal survey with fellow students in general regarding their experience with the courses; how difficult or how easy the course is; how easily can one get access to resources required for the respective courses; how much do they interact with their seniors; how aware are they about the weightage of assignments and quizzes which adds up to the total. This was done in order to eliminate the designers' bias and take more of a user-centered approach.

We then floated questionnaires regarding the same for the students of the particular university.

It consisted of general questions asking about :

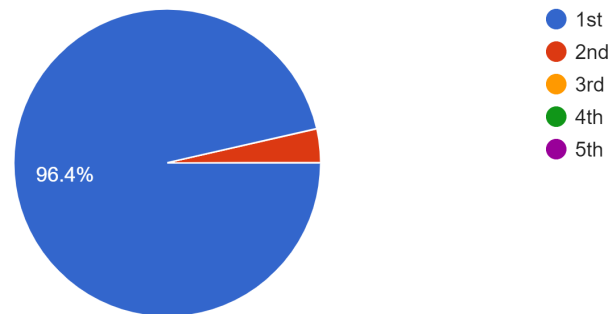
1. Their name (not mandatory)
2. Program they are enrolled in



3. Current year

What year are you presently in? (According to your program)

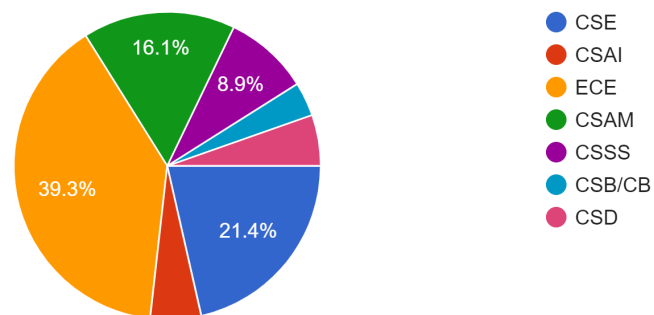
56 responses



4. Course specialisation

Course Specialization

56 responses

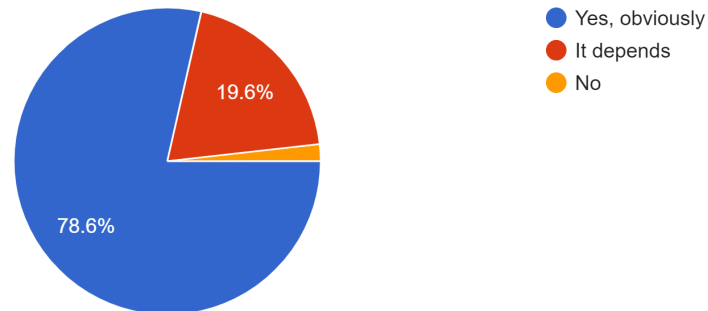


After having the general information we moved on to collect information on the questions regarding the problem space. These included:

1. Advantages of people who are good at networking as compared to others.

Do you think that students who are able to network well with seniors have an advantage over other students (sharing of information like usebackpack)

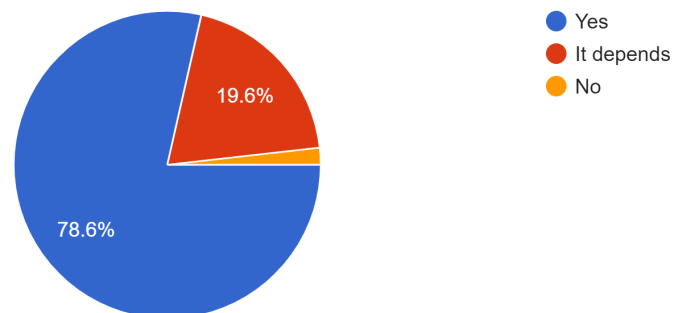
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2. Will the senior's past experience be helpful to them ?

Do you think past experiences of seniors will be helpful to your studies?

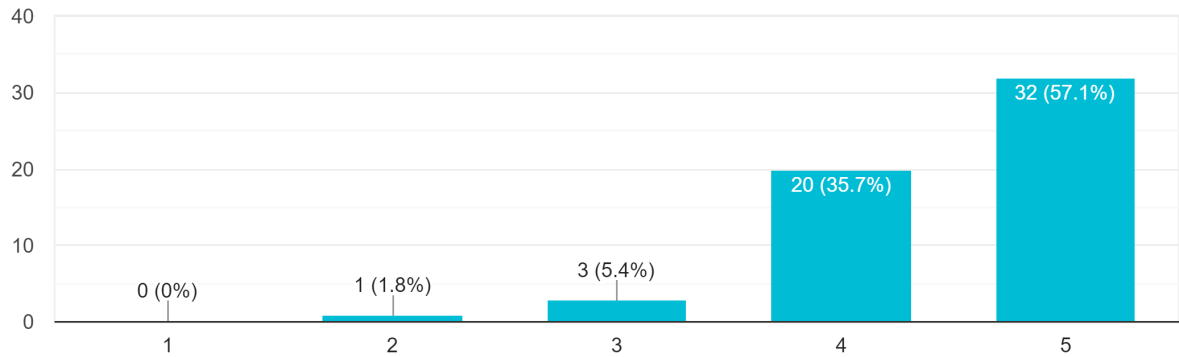
56 responses



3. Take on receiving guidance from seniors and alumni

How interested would you be in a platform that shares verified and curated experiences of seniors and alumni, regarding their academics?

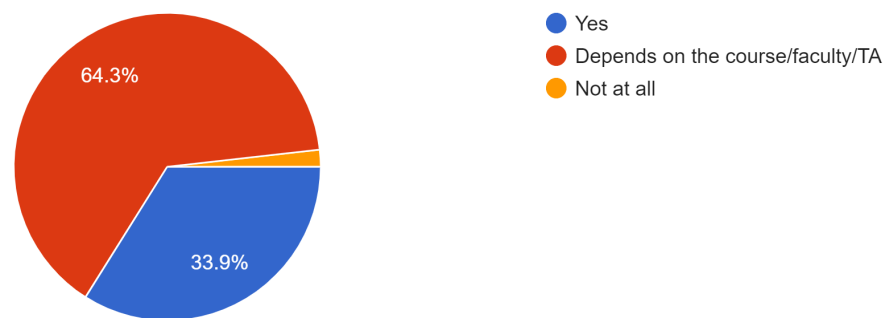
56 responses



4. How difficult it is to figure out the grading procedure of assessments?

Do you feel that there is a lack of transparency in the handling and grading of assignments?

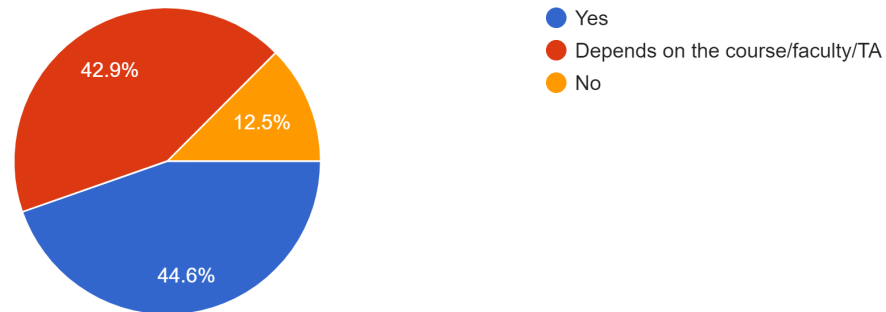
56 responses



5. Lack of knowledge about contribution of various assignments and assessments

Do you feel unaware about the weightage of certain assignments and/or quizzes in the overall grade?

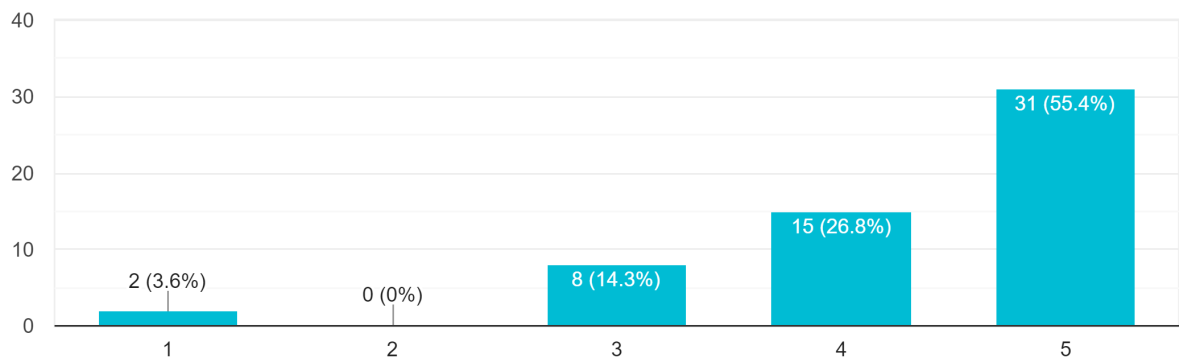
56 responses



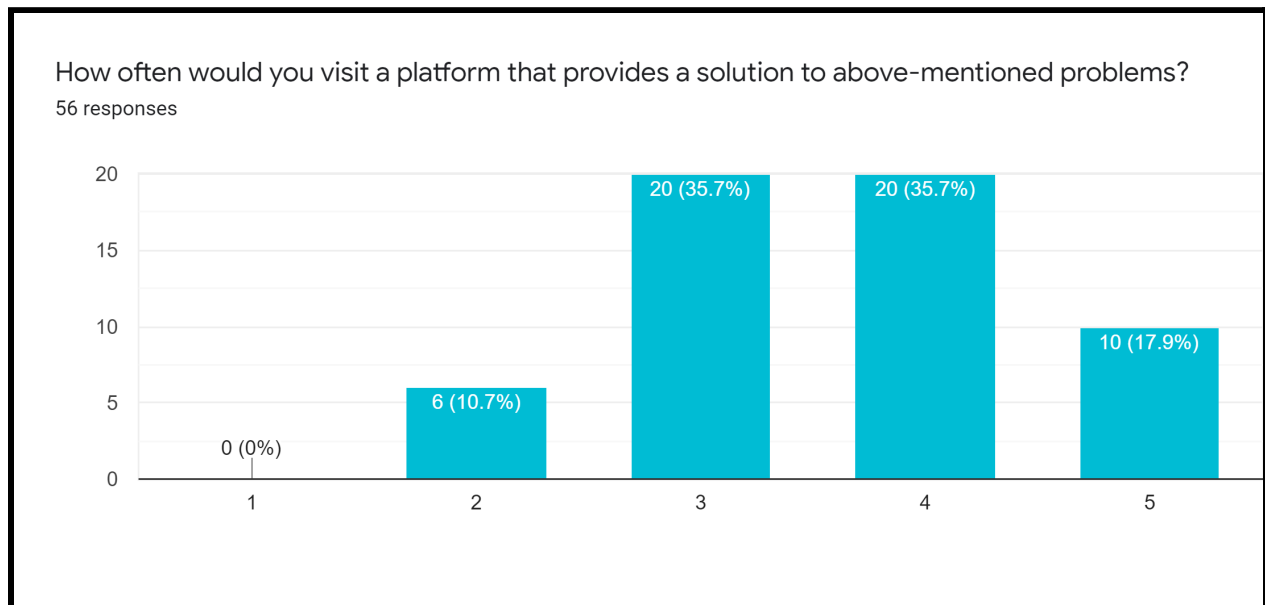
6. How interested they would be in a solution which helps tackle the above mentioned problems

How interested would you be in a platform that allows you to approximate your final grades for a course based on your performances in assignments and/or quizzes?

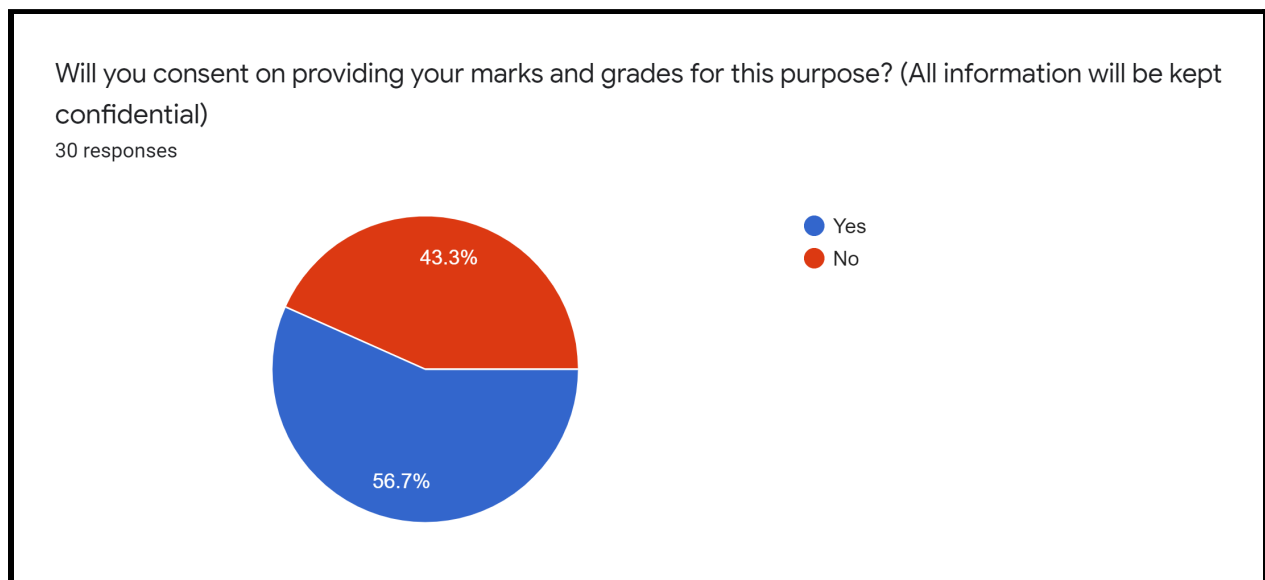
56 responses



7. Would the solution justify their concerns?



In addition to all of the above, we also added a question on whether they will comply to share their grades with us to help optimise the performance of the platform.



We decided on circulating the questionnaire online as it will help us to reach a much greater audience and enable them to keep their anonymity if they wish to do so. The questions will require to fill basic information that will include the program they are enrolled in, their current year in the university, their specialisation etc. before moving on to the questions regarding the problem statements and their proposed solutions. Online forms will also help in reducing human workload and also help in increasing efficiency.

The basis of asking for general information about the students is to categorise them so that the information provided by the students can be thoroughly maintained without giving rise to any issue. The rest of the questions help in navigating the problem space and make them realise whether the present conditions can become better if an optimum solution is provided to them. Also whether the solution will be good enough to help the students or will end up becoming obsolete, is also one of the important points to be considered.

The pie charts are used to represent the data when the users need to belong to one of the targeted groups given in the options and bar graphs are used to find the number of users who have selected a particular choice

The data suggested that the majority of students would like to have a platform that will give them a means to better their results as well as help them reduce their academic workload. The designer's were thrilled with the fact that the idea was well accepted and the response was better than expected.

As only a person having that particular institute's email address can access the form, thereby eliminating the possibility of any foreign inputs which will help maintain the homogeneity of the results.

Avoidable:

One possible flaw in the process can be if any of the testimonials provided by the students is fake or forged then it will be detrimental to the user and might deter him from using the app again.

One solution is to validate the scores or grades by suitable measures such as cross-referencing with the respective TAs of the course or getting it validated by one of the app's makers.

Unavoidable:

Another possible flaw is biasing against any particular testimonial provider whose testimonial might not have worked in favour of that particular student mostly due to his own negligence.

He could rally his batchmates to downvote his testimonial, which might work against some other students.

3.3

After having our initial motivations be reaffirmed by the responses, we got to work on modifying the problem statement. We understood the need to expand the scope of our project to include smarter scheduling features, progress tracking, advisory testimonials on top of resource sharing. During this time, I had an experience that caused me to reconsider our vision. A friend of mine, part of the other section, asked me to share recordings of my instructor's lecture for a subject they were struggling with. So, I shared the drive links but they weren't able to access due to applied restrictions. Eventually, I had to download the lectures in question, add them to my drive and then send over the link. They were finally able to access them and the lectures turned out to be of great help. I thought how flawed this process was and how a solution could be easily incorporated in our platform.

Now, we had to set our minds. Throughout the design process, we've had to pivot on our idea. But now was the time to reprioritize and get behind one idea and see it through. We planned out a platform that works as a companion for our academic lives. The platform serves to help us in all sorts of ways - From managing deadlines to looking up previous years papers.

The app should serve the students through the following features:

- More accessible to look up grades, past performances and course overviews.
- Set your goals and get recommendations on required scores (self-adjusting) for assignments, to guide us to set goal
- Get access to alumni and senior testimonials for courses, faculty and general advice
- Find course specific resources (provided and previous years'), categorized and in one place

We finally got around to starting working on the low fidelity prototype. First, we decided on key aspects of our design. Our principle usability goals for the platform were effectiveness, utility, learnability and memorability. Effectiveness, as we wouldn't want our platform to be incapable of serving the needs of the users. Utility, as the app should provide services that the users need, not just the ones we can offer. Learnability and Memorability as we intend the platform to be a daily driver and we wouldn't want the app to be difficult to use.

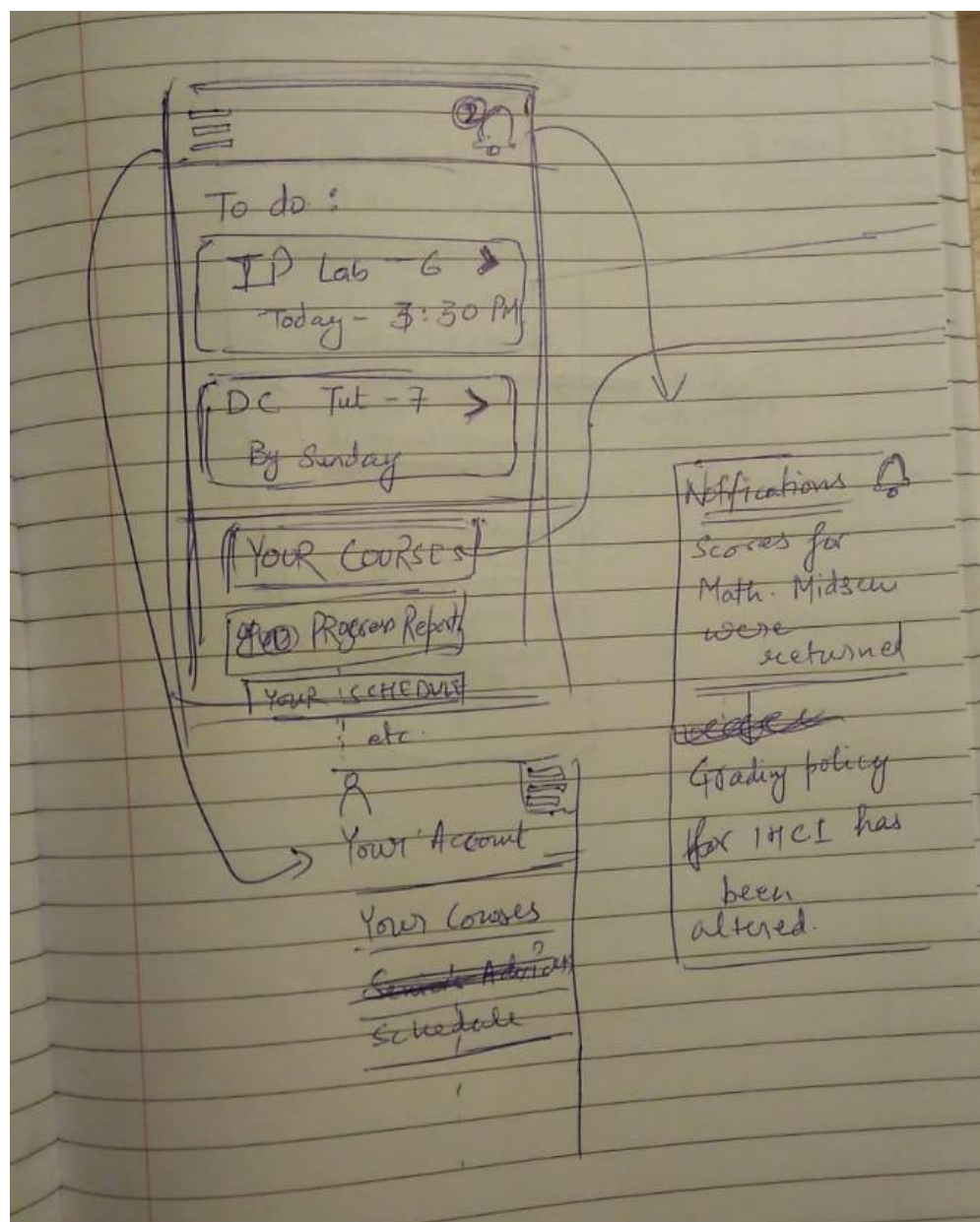
We chose not to try and maximize the other usability goals as - Safety would be a non-factor here as the app would have no use of the user's private information and make use of only that already

publicly available as we intend on taking data from the back-end and all posts would be posted with anonymity (unless the user chooses otherwise). Efficiency is a goal that would be difficult to maximize whenever we have necessary human involvement for purposes such as verification and curation.

When starting to make lo-fi prototype sketches, both the designers responsible worked separately. We opted for this approach in order to allow for a wider range of ideas and designs as if we were to collaborate, we wouldn't be able to apply our separate visions due to external influence.

Designer 1's approach (Saksham):

I took inspiration from very common use-apps such as whatsapp, instagram. Even though these platforms are not related to our particular purpose, they are very well optimised and apply design principles very effectively. I also browsed some college-based websites to understand the space better. One particular one that I was thoroughly impressed with was IIITD Playbook. That platform gave me a lot of inspiration for layouts and design features.



JP Lab-6

)

Reading
Materials

~~Work~~ Work

JP Lab-6

Course: CSE101

~~Instructor: Prof XYZ~~

TAs: " " " "

Related Lectures >

~~Materials Read.~~ >

View on Classrooms

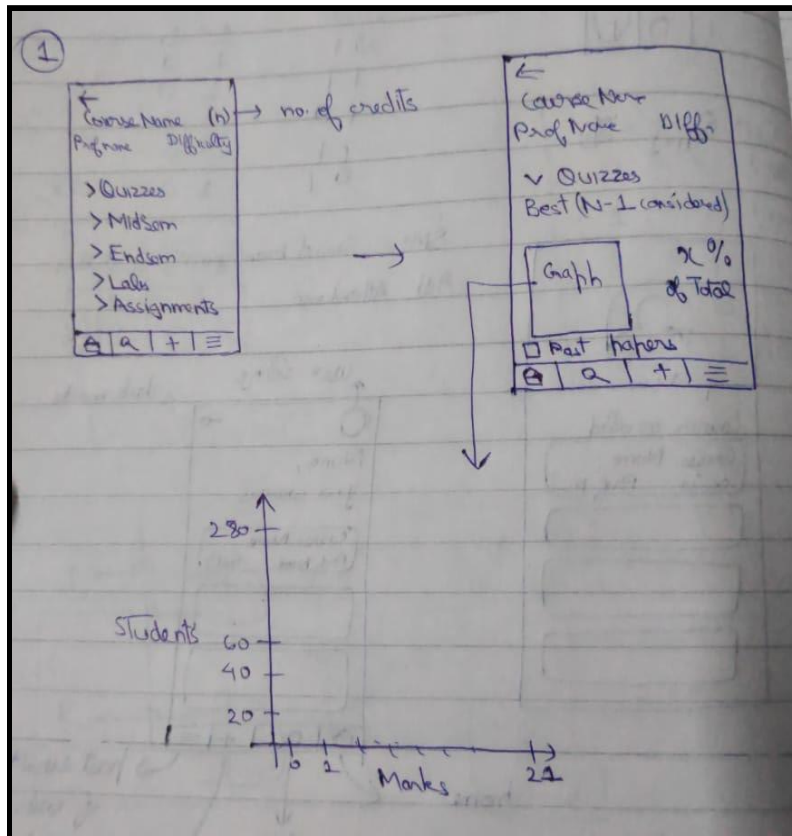
Tip:

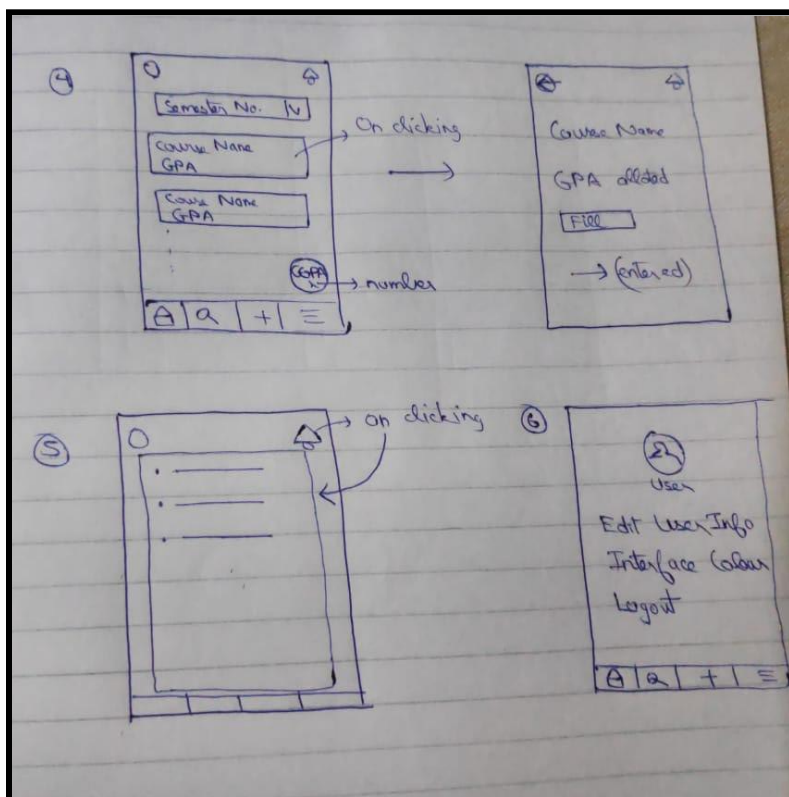
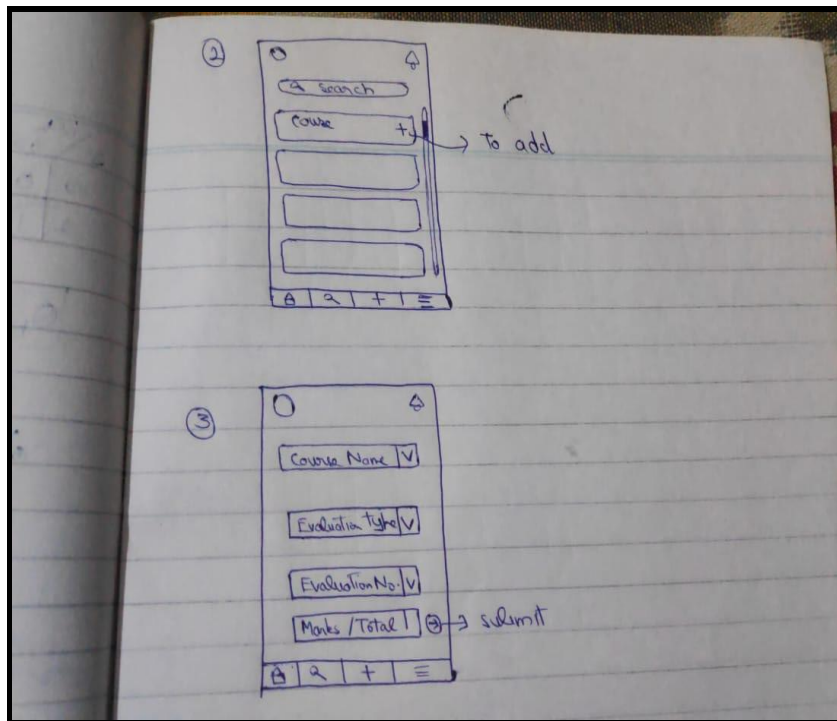
Seniors say that
scoring in labs can

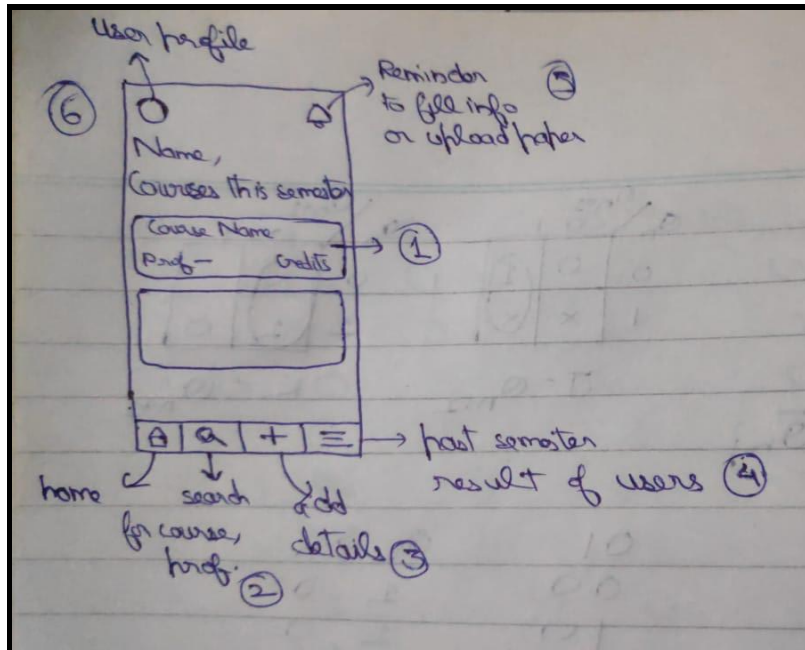
be very advantageous
as they are relatively
high-scoring.

Designer 2's approach (Ritwick) :

While deciding on how the ideal solution would look, I stumbled upon many websites which helped me decide on the layout and the features that the proposed solution should incorporate. Though there are many similar apps in the market, we have introduced our own unique elements to make it stand out and help the user base to the maximum possible extent.







3.4

After the designers were done with the lo-fi prototyping, we provided all our work to the makers. The makers (Shivam and Uttkarsh) were the ones responsible for the high fidelity prototype. Just like us, the makers were at complete discretion and freedom to make their own creative decision and add to the design. Throughout the high fidelity prototyping, all members of the group occasionally met up and discussed and suggested design changes. Here are some of the notes made by the makers -

- Course relevant information gathering

The designers' ideas were of the more general nature when it came to data sorting and suggesting outputs - A testimonial will be accompanied by relevant tags like the course, faculty etc. The makers opted for a more in-depth approach to this problem. With providing more details alongside the testimonials such as the resources used etc.

- Upvote Downvote feature

The upvote-downvote feature is one that is very intuitive and as close to the user as it gets. It filters posts that are most upvoted to the top and the most downvoted to the bottom. It is one of the most commonly used methods of sorting posts, which has been popularised by Reddit, which is a community-building, media sharing platform. Reddit being a very popular platform within the college student demographic, this felt like the best way forward

- Resources directly provided under tabs

- Email being accessible through our platform

- Fluid access as different tabs can be accessed from different places

- Senior-Interaction page for direct advice from seniors on certain topics

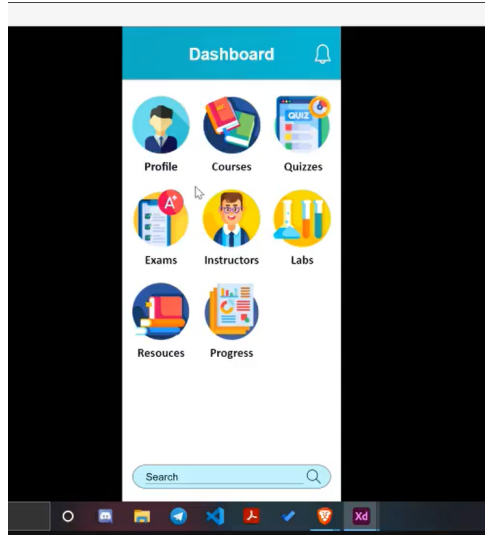
This idea is another ingenious one implemented by the makers. The idea is simple- you have a question, you ask it and hopefully some senior answers. With the implementation of the upvote-downvote system, it can circumvent the problem of message boards being crowded by +1s. The most recent ones will be the most visible, with an option to sort by the most upvoted, the oldest etc; they will also be sorted using one's own academic standing. For example- A second year CSB student is much more likely to be prompted with answering questions from 1st year and second year CSB students.

- The makers went with a streamlined approach and opted for the color palette that's the most associated with IIITD.

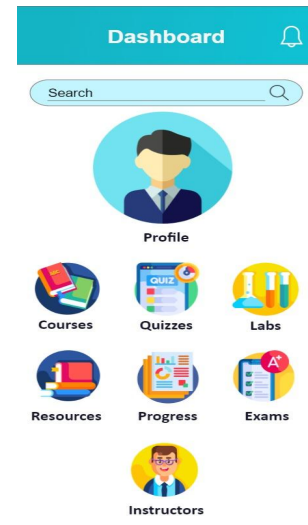
3.5

The first evaluation of our project came from a TA. As part of the project, we were required to show our progress in making our project. Here, our evaluation criteria was to make sure that our lines of thinking are understood by the TA and they are able to get behind the premise of the platform. Through this, we got some crucial feedback from someone much more experienced in design. We understood that our platform had a bunch of features that were either unnecessary and detracted from the main goal or were overlapping with other projects already further developed than ours. And that we needed to desaturate our home page ASAP. The email and doubts features struck out as redundant. As appealing as a go-to for everything sounds, it usually doesn't end up well. Gmail is much more optimised and much better at providing inbox navigation etc. than we'd ever be. Features like scheduling and resource-sharing overlapped with other platforms and we decided on removing them for the better. After these changes we reiterated our design process, went back to the drawing boards and thought about what our main focus should be. **We ended up deciding on testimonials being the main aspect of our platform and revised the problem statement accordingly.** For our final evaluation till date, we opted for a different approach than most. Our criteria for this evaluation was to see if the users find using the app intuitive, useful and compelling to use.

While some other groups were floating forms for eval., we decided on having a smaller but more hand-on and in-depth evaluation. We got some students with us on a call, and asked them to go through the application in front of us and speak their mind. With this approach, we ended up getting feedback that we wouldn't have gotten from the questionnaire approach as people don't tend to remember the minute points or they don't bother mentioning them.



Before



After

Some makers' notes on the changes made after our second and final evaluation were:

- Profile tab made bigger compared to smaller subcomponents
- Aesthetic of course page improved to match IITD theme
- A more minimalistic design for a more satisfying experience

This involved shifting the platform over to Figma from Adobe XD almost overnight

- Integration of feature to make experience clutterfree

Our overall feedback was very positive and multiple students said they would want this platform to come to fruition.

Though we successfully completed the initial design of our idea and were able to deliver a high fidelity prototype, there is still a lot of work to be done on it to make it a full-fledged solution for our problem statement. For now, it can cater to a variety of needs from the students and help them in shedding off the academic load, but many features can be added to make it more useful to our users. One such feature is to provide a graph of number of marks against number of students which will help give them a better insight into the marks distribution. However, the current version is capable of providing testimonials on various assignments and assessments, give helpful tips which were followed by the students who aced these courses, allow even those people who are shy to get their queries and doubts cleared and most importantly help in bridging the gap between students at least in terms of resource distribution and interaction with seniors.

To test the prototype, we interviewed people and asked their views on our possible solution for this existing problem. We started by discussing college in general, to ward off their nervousness and set a better mood for testing the prototype. We got a lot of useful insights from them, some of which evaded us completely. One of them was to make everything accessible from the profile and making it considerably big. Though it may seem a little awkward but it has been observed that people are most likely to press it as it is more visible than other smaller buttons. We were also commented on applying a better font which made the headings and subheadings look more visually appealing, thereby complementing its aesthetic nature. The rest of them helped in touching up the prototype by revealing the small glitches present in the prototype.

As we said before this solution is just the first step towards addressing the problem space, and there are certain issues that require further improvements. Some of the problems mentioned above like false testimonials and bias against a particular testimonial need to be addressed or will hamper the usability of this app which will make it less likely to be used by students. Open-sourcing might also help in adding extra features which might slip the developers mind and lead to even better design and functionality. Future work will involve further optimising the app and adding features that will enhance the user experience.

Though we were a bit sceptical about undertaking this project right from the beginning without even getting to know each other, it all turned out rather well. I, on the other hand, was really shy but this project allowed me to come out of my comfort zone and actively approach other members to complete this project. We are thankful to Rajiv Sir for giving us the opportunity to brainstorm to find this problem and for teaching us all that is required for figuring out its solution and our TAs- Asra and Harshita who helped us in applying what we have learnt and also reviewed our prototypes and gave quality feedback. I would also like to take this opportunity to thank my team members for their support and time, something we all are in short in this institution.

Bibliography:

Rajiv's Sir: <https://www.researchgate.net/profile/Rajiv-Ratn-Shah/2>

Raghava Sir: <https://iiitd.ac.in/raghavam>

Icons: <https://www.flaticon.com/packs/digital-learning-7?word=digital%20learning>

Icons: <https://www.flaticon.com/>

Credits:

Ritwick Pal

Saksham Singhi

Shivam Yadav

Uttkarsh Singh

All member have equal contribution towards the project