À la FabriCarte

The One-stop solution for all your clothing needs

The French originated phrase À la Carte translates to 'according to the menu' in English. It has long been used to represent the practice of ordering individual dishes from a restaurant's menu, where consumers get vast options to choose from, with each dish being separately priced.
We sell fabrics. We offer a wide variety of clothing and accessories for people to choose from. Each attire is priced differently. Why not call ourselves -
À la Fabricarte

A group project by the students of IIITD

Abstract

The following report includes the problem statement that includes all problems faced by the people and the environment due to the clothing industry. It includes the background of the problem and what all motivated us to work on this problem and come up with our very own solution - *À la Fabricarte*. We've mentioned the stakeholders, our competitors, and how our solution can be more novel. We will surely face some challenges too which are also stated in the report. We also conducted the surveys and interviews and all of the analysis is mentioned in the report below. The report also incorporates the low fidelity and high fidelity prototype of our solution.

Introduction

Our product is a one-stop solution for all possible problems faced while buying clothes. Some of our team members personally faced fitting issues, and felt the return process long and hectic. The option of renting clothes is not found on every online application or website. 85% of the people we surveyed prefer either donating or selling their old clothes. But we don't have any option of donating or selling old clothes online on many applications. Taking use of old clothes will help in decreasing pollution by decreasing the amount of clothes dumped. Everyone wants a single solution for all of their problems. So, our target users would include people from all age groups and all genders. There exists a separate solution for each problem, but, our application uses features like AR technology which act as a virtual trial room, our product has the option of renting clothes and selling refurbished clothes, our product has a policy of fast and easy return which makes us the one stop solution for every problem and thus, making us better than the current products in the competition. Moreover, we have applied the various concepts of human computer interaction, namely, double diamond of design, fitt's law, gestalt's law, iterative cycle, etc.

Problem Definition and Identifying Stakeholders

So, how did we define our problem?

Humans, on average, spend a whopping '287 days' in their lifetime, trying out different clothes or deciding what to wear. In addition, most recognized online shopping platforms take around 3-5 working days to refund the money back to the users, making the product returning process a perturbing task.
Nearly 85 percent of our clothes and accessories end up in landfills or incinerators, leading to massive environmental degradation and pollution, from carbon emissions to climate change. To add to these adversities, analysis says that the amount of clothing thrown increases expeditiously to two-folds as each year progresses.
Moreover, people can save a lot of their hard earned money and closet space too if they get a reliable and safe option for renting clothes

A dive into the background of the problem :

With the origin of the internet around 25 years ago, today we have around 4.5 Billion active internet users. Of which 2.14 Billion shop online. People still prefer to touch, feel the fabric, and put it on for fit and design while shopping for clothes. With the growing popularity of e-commerce apps in the early 90s, people were facing problems like missing and unclear product information, and missing or fake product reviews. 50% of potential sales are lost

just because customers are unable to find what they are looking for on online shopping sites. As no. of people shopping online increases, the market for new styles and cheap items increases. This has a bad effect on our environment. Fashion production adds up to 10% of humanity's carbon emission, pollutes rivers and streams and dries up water sources. 85% of all the textiles go to the dump each year, washing some types of clothes sends a significant amount of microplastics into the ocean.

FIGURE 2
Final share of clothing waste per year
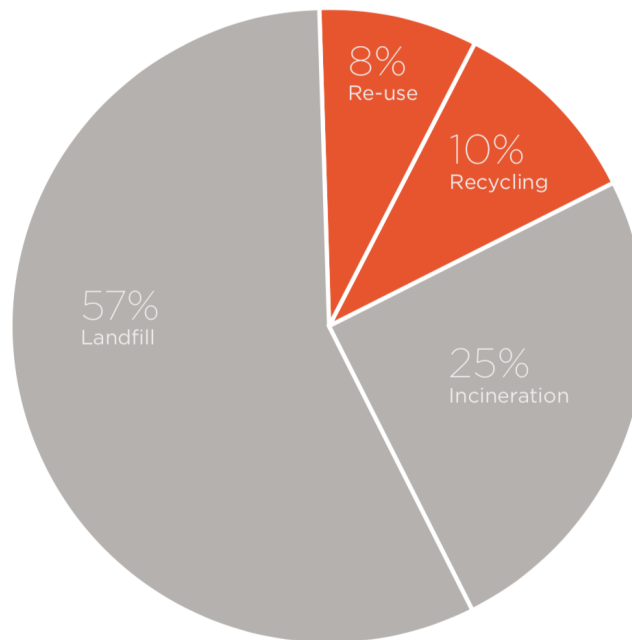
Source: Pulse Report, 2017

What motivated us to design this app?
The very first thing that motivated us was our creativity and imagination. Secondly, some of us personally faced issues like fitting issues, going through the long return process, and being in urgent need of money while it was stuck in the return process. Moreover, our application was the solution to the pain points of users who filled our survey.

Sometimes we need clothes just for one occasion, and we have to buy expensive clothes as there are minimal ways to cater to other options.
With increasing pollution and climate change, all of our lives are at stake, and the fashion industry does contribute a lot to the waste in dumping grounds, thereby increasing

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pollution. We found this in addition to environmental degradation due to the fashion industry unnerving, which compelled us to do something for the cause.

We had to use different applications for each problem as some services were good at one app and some on another. So, we decided to make a one-step solution for all the problems and came up with our application *- À la Fabricarte.*
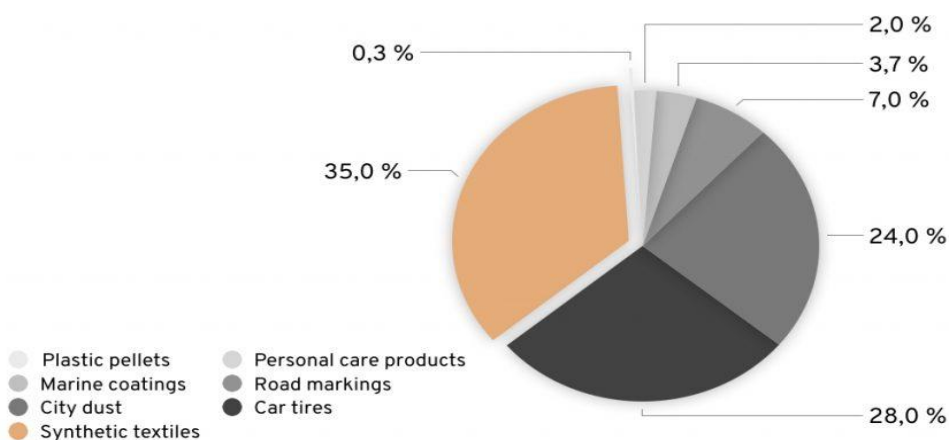

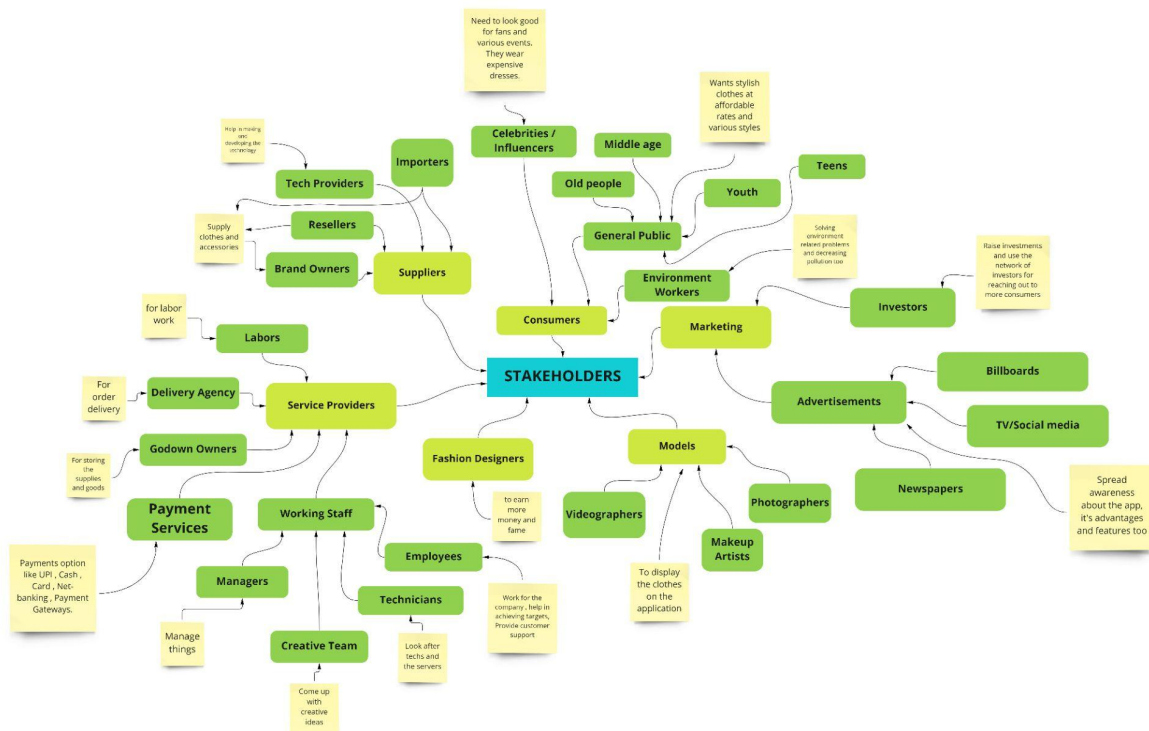Average Consumer Bought **60%** More Clothing in 2014 Than in 2000, But Kept Each Garment Half as Long

2000 → 2014
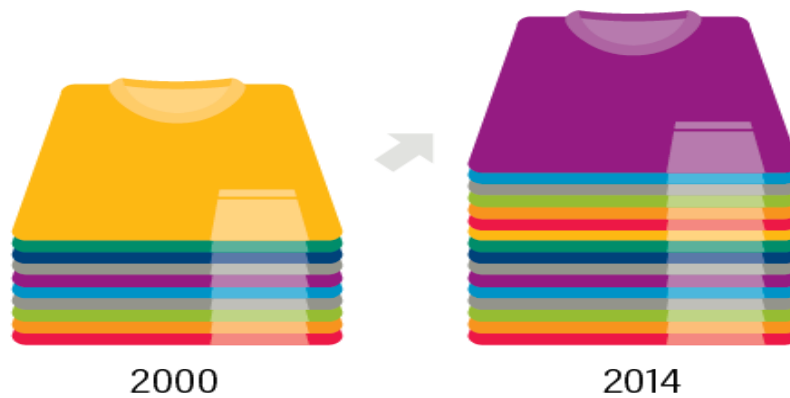
Source: McKinsey & Company

WORLD RESOURCES INSTITUTE

Percentage of microplastics in the water

0,3 %
2,0 %
3,7 %
7,0 %
35,0 %
24,0 %
28,0 %

Plastic pellets   Personal care products
Marine coatings   Road markings
City dust   Car tires
Synthetic textiles

Who all are our stakeholders and what are their roles?

Link for Miro Board :
https://miro.com/app/board/uXjVODix7U8=/

As we can see in the stakeholder mapping that our application has a lot of stakeholders like the consumer who will be our customers from different categories and age groups. The suppliers will be the ones who supply goods to us like the brand owners and importers who will supply the clothes and accessories and tech providers will supply the tech related stuff. Then we have our marketing partners who will help us to grow. The models will be the one responsible for perfect presentation of products on our app.The service providers can be considered as one of the most important stakeholders, they consist of all those who will provide service to our app, like the managers, labors, the working staff, employees, technicians, payment service providers, creative team and the delivery agency.

Some existing products that are trying to solve the similar problem :

There are many already existing products that have similar goals as us.
Some products related to online clothing:
   ● Myntra

- Ajio
- Nykaa
- Limeroad
- Amazon
- Tata Cliq
- Bewakoof
- Various online thrift stores like *The local thrift* and *All things Pre-loved.*

Some products/applications that use similar AR technologies as us:
- Snapchat
- Pokemon Go
- Google lens
- Nike

Some websites/applications that sell refurbished clothes :
- Poshmark
- OLX
- Etsy
- Spoyl
- Tradesy

Some apps that rent clothes :
- Flyrobe
- Swishlist
- Rentitbae

Competitive Analysis :

Features	Myntra	Ajio	Poshmark	OLX	Flyrobe	*À la Fabricarte*
Online Clothing	YES	YES	YES	YES	YES	YES
AR technology (Virtual trial rooms)	NO	NO	NO	NO	NO	YES

Sell Refurbished Clothes	NO	NO	YES	YES	NO	YES
Rent Clothes	NO	NO	NO	NO	YES	YES
Shazam	YES	NO	NO	NO	NO	YES
Reselling	NO	NO	NO	YES	NO	YES
Superfast Returns and Refunds	Takes 3-5 working days	NO	Takes 5-7 working days	NO	NO	YES

What makes us better than the competition?

While many products have already perceived what we want our application to do, numerous perks make us better than our competitors. Firstly, the existing online clothing stores do not rank the clothes according to their cloth quality. In addition, very few apps allow people to trade their old clothes with other consumers. We permit our clients to sell their old refurbished clothes to other users. Furthermore, the used attire put by consumers on our application goes through a comprehensive quality assessment by our employees before making it to the buying list of our app. Through this, we have tried our best to do our part in saving the environment.

The current online clothing platforms do not allow users to visualize themselves in the clothes, making it hard to find their perfect fit virtually. This leads to the undesirable process of returning the clothes and ordering them again until they find the finest size, distressing the shopping experience. We have discovered a novel solution to this problem by executing the concept of Augmented Reality to let users try out diverse clothes and accessories virtually on their mobile screen. The user is only required to enter their dimensions when launching the application for the first time.

Secondly, even if the users want to return their apparel on our application, we have made the returning process smoother by familiarizing instant returns and money refunds. This solves the common problem of waiting for 3-5 working days for the refund money to reflect on your bank account / online wallet.

Thirdly, most of our competitors lack the option to rent clothes. Often users want to rent clothes just for some auspicious occasion for the entire process to be pocket friendly to the

consumers, particularly for the majority of the stakeholders. This makes renting an integral part of the shopping world. Consequently, we allow our users to rent clothes online at their convenience. In addition, we have put our best efforts at introducing some new features to our application, that the current competition is unheard of, the ability to discover clothes online just by taking a picture of the clothes.

This uses the similar algorithm used by google lens, but our app can fetch the particulars to buy that cloth or buy the closest search to that cloth, making our app more convenient for people preferring a one-stop solution for all their online clothing shopping necessities.

Lastly, the minimalist UI of our application makes it more effortless to use by the users of all age groups.

Challenges

1. **AR implementation**

   With AR comes various challenges like
   a) Implementation cost
   b) The huge gap between Technology available knowledge and skills
   c) Cybersecurity is another major concern.

2. **Marketing**

   As a large amount of competition in the fashion industry is already present, it will be a challenge for us to market the product and make people switch to our app from other apps.

3. **Selling refurbished clothes**

   Many people do not think refurbished products are good and worth their hard-earned money. So, it will be difficult to make people trust us and our application

4. **Convincing users for their data safety and privacy**

   People are worried about their data and privacy, especially in the modern technology-driven world. So, it would be difficult for us to make the user completely trust us with their data and photographs.

REQUIREMENT GATHERING

At this step, we have gathered some data related to user requirements and expectations of the application we are offering. We have used relevant data collection methods, including an online survey held on google forms, and various user interviews.

The data collection process was consensual and non-personal data had been asked from the user, without their consent. The user remains anonymous during this survey.

We asked the users a specific set of questions on Google Forms online survey, making it easy to gather information from a large number of users, irrespective of their domain.

Following are some of the questions asked in the survey :
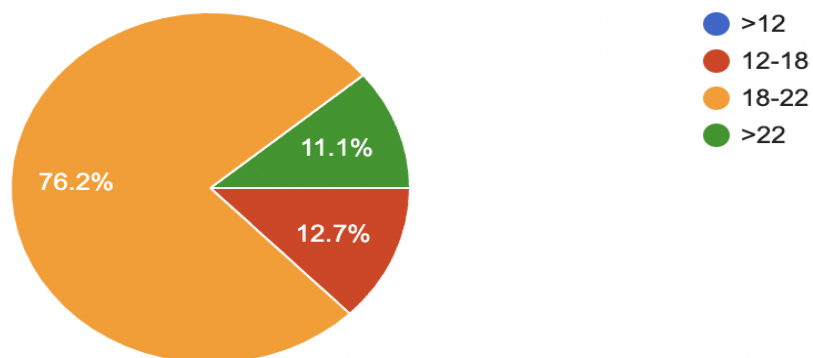
QUESTION 1: AGE

Age *

○ >12

○ 12-18

○ 18-22

○ >22

We made sure to ask the age of the person taking the survey so that we can better analyze the study and cater accordingly to different age groups.
The following is the pie chart of the responses:

This shows that most of the people giving the survey belonged to the age group of 18-22 years. A point worth mentioning is that this is also one of the age groups, which spends approximately the most time shopping for clothing and accessories online.

QUESTION 2: GENDER
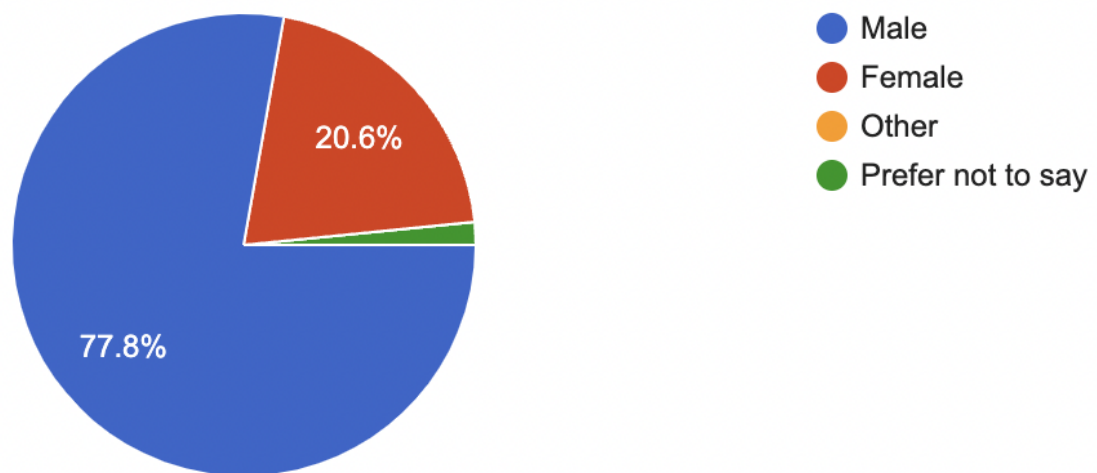
This infers that most of the people filling the form were males. We asked the users their genders, to find out different opinions and usability preferences for different genders. For example, in interviews, most males did not find the option to search for clothes virtually using the Google Lens algorithm useful. Most of the females found it intriguing.
If the user does not want to share their gender, we have options for that too.

QUESTION 3: How often do you order clothes online?

Here is a snippet of the responses on google form:
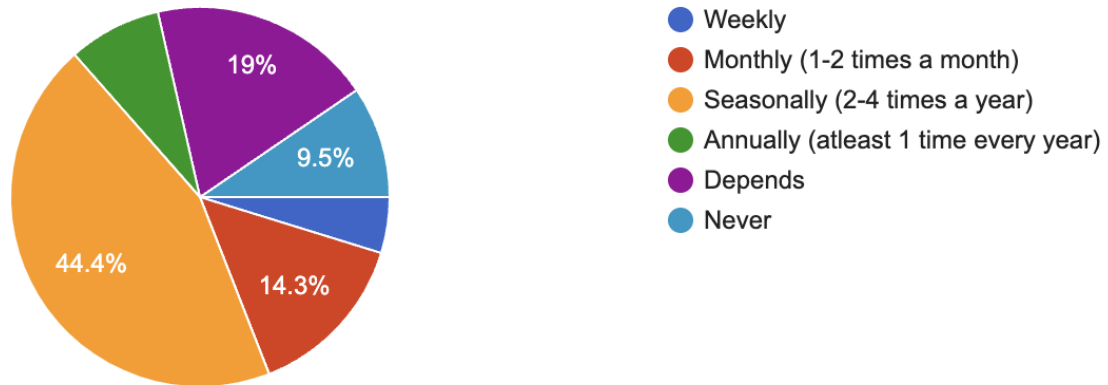
Here, after analyzing the findings, we can find that 44.4 % of the people shop online around 2 to 4 times a year, which may correlate to the high pricing of clothes found online. Another reason might be that people buy clothes online less than 12 times a year, and they found the 'seasonally' option as the closest to their lifestyle.

Around 19% of people opted for depends. The reason for this could be that many people buy clothes online only when they have to go on a special occasion or they have to buy clothes on a short note.

QUESTION 4: How often do you return the ordered clothes?

Given below is the data representation of the responses.
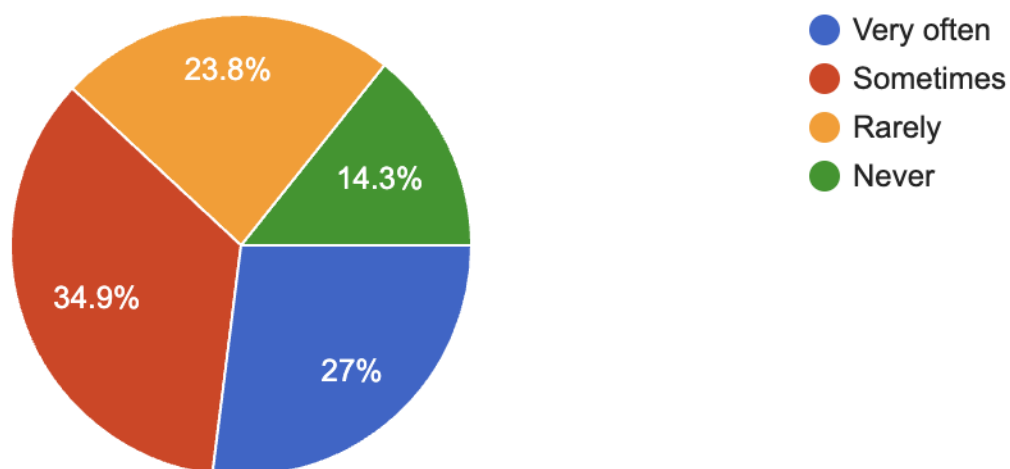
Around 35% of the users selected the sometimes option. This makes us believe that most people neither return clothes most of the time nor keep them every time. They often have

to return the clothes ordered online. This could be due to the fitting or the quality of the product being sold.

## QUESTION 5: How easy do you feel is the return process?
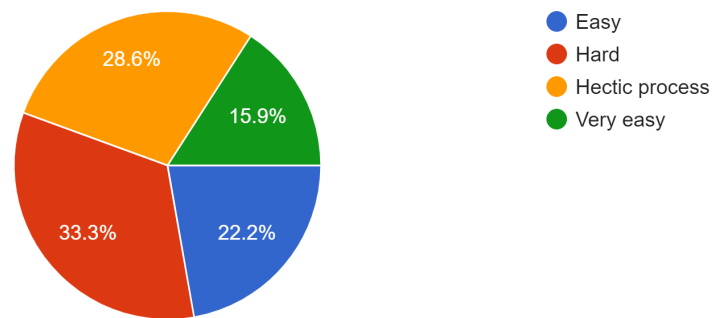
This shows that 28.6% of people find the return process to be hectic one and one-third of people (33.3%) find it to be very time consuming and hard. This could be due to the delays at several steps and the time it takes for money to be credited back.

## QUESTION 6: How would you feel if you could try clothes digitally?
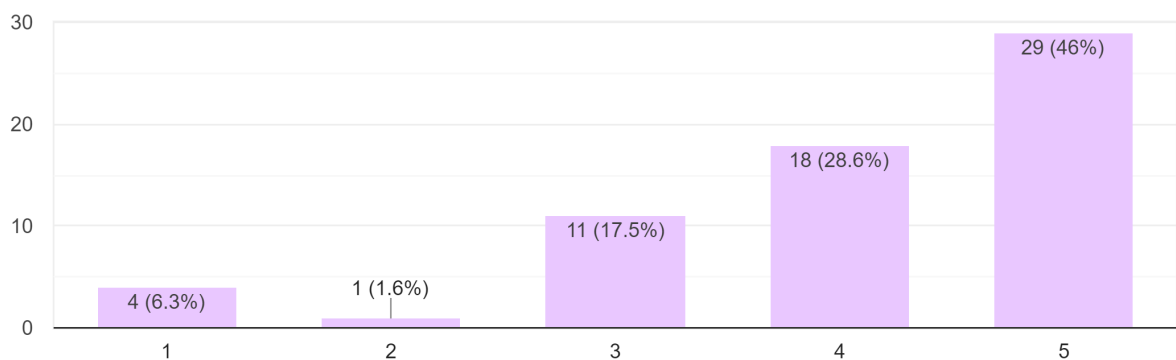
Almost half of the people felt really good about trying clothes online which shows that people do want to save their time and would love to try out a new concept.

QUESTION 7: Do you urgently require money that is on hold for the clothes you returned?
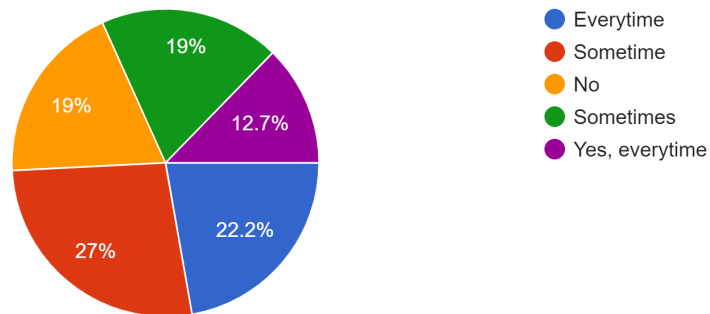

It shows that almost 35% of people most of the time require their money urgently and 48% of people require it sometimes which is stuck in the return process for 3-5 business days which may confine them from doing some important tasks.

## QUESTION 8: What do you do with your old clothes?
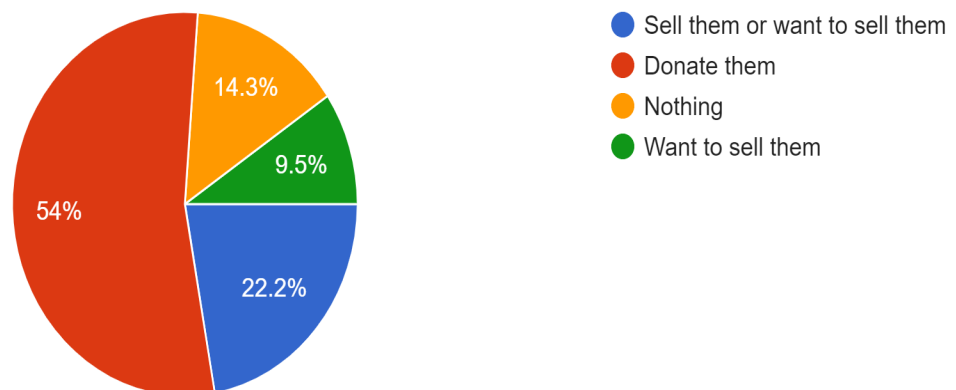
A big ratio of people donate their old clothes, but many people at the same time sell them or do nothing. So, what if we give those people a good deal that will be profitable to everyone - The needy, The seller, us, and of course the environment.

QUESTION 9: Are you comfortable wearing refurbished clothes if they feel like new and come at lower prices?
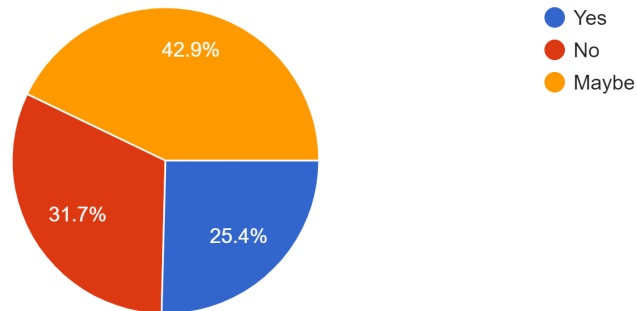

This shows us that some people (25.4%) are comfortable wearing refurbished clothes, while a large proportion (42.9%) of people are not sure about it, which means that they may consider the clothes if they pass a certain level of quality check and feel like new.

QUESTION 10: What if you can 'SHAZAM' the dresses? (means to quickly identify the dress just by its picture)
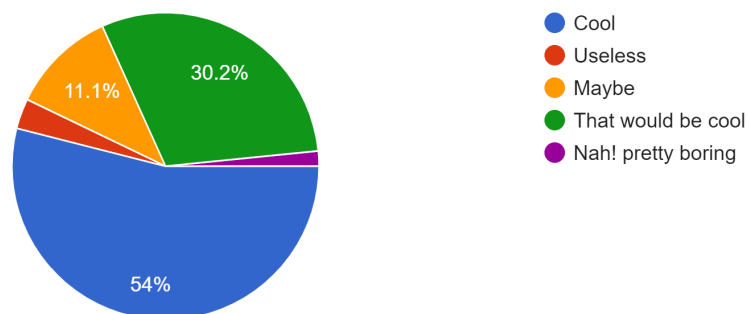
**QUESTION 11: Do you want an app/tool for this purpose?**
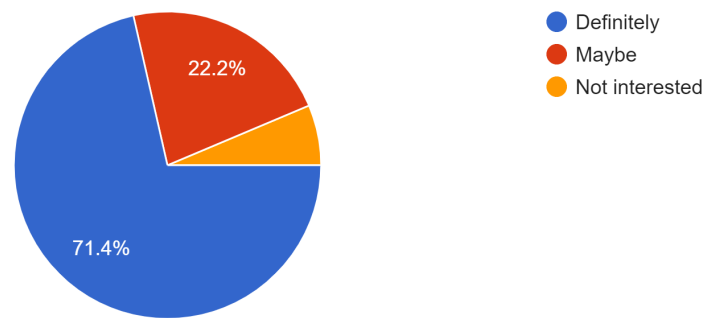
From the above, It is evident that this feature is really useful and really cool too. People won't face any issue in finding a dress they see anywhere or lookout for a cheaper alternative to an expensive dress.

All of the above data would help us to improve our application and deliver on the expectations of the user community. Likewise, it will allow us to get an insight into what the users want from our application, and what they think is not required and only adds to the gimmick of the application.

Some more takeaways from the collected data are that people are not fully satisfied with the current standards of online shopping for clothes and there is still space for more. Furthermore, we also found that our application also has a great scope for improvement as some reviews were negative as well.

From the above data and analytical representation, we can say that people would appreciate our application, and the majority of the people would perceive our application as a favorable alternative to current solutions. This allows us to move to the prototyping phase.

Ideation and low-fi prototyping
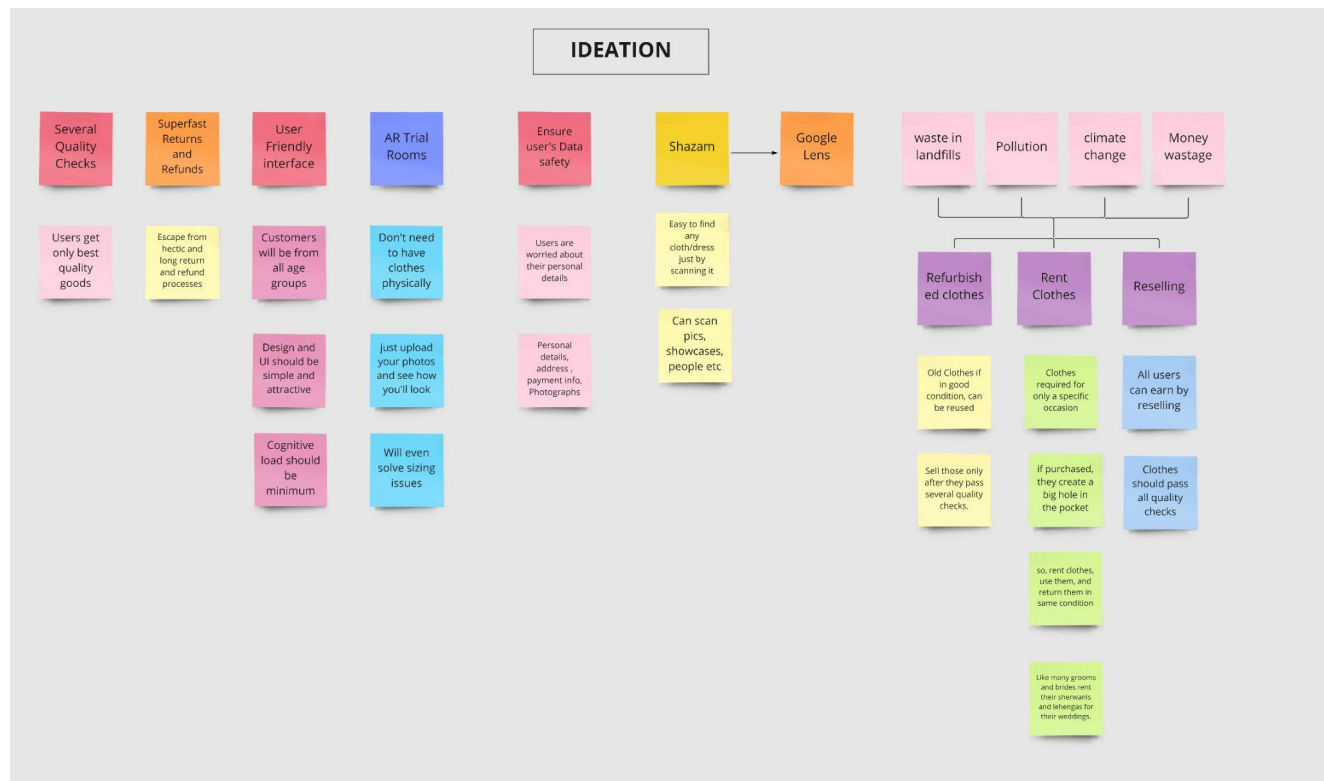
Miro Board Link :

https://miro.com/app/board/uXjVODix7U8=/

Why we chose the the above features specifically :

We tried to implement the least amount of features in our application, however, the most important and relevant ones. We neglected various other features because it might increase the cognitive load to the user experience. We dropped the idea of making a backward button on our application, as most apps have the backward button on the top-left of the page, however, this is not easily reachable by the users according to Fitt's Law. Also, most users use the back button of the mobile phone, therefore, making the back button on the app redundant. However, we have made sure that the IOS version of the application includes the back button. We did not add an option to subscribe to our

application as we have tried to make the delivery cost least and same for most users(depending upon their location).

We added the various promotional offers, coupons and deals on top of the home page so that the user is not unheard of these deals, allowing them to experience a more affordable shopping experience.
Lastly, we first tried to let the renting and thrifting option always available on the home screen. Later we moved it to the unimportant section, realising that all the users do not want to sell clothes or rent clothes. Thus we decided to make a main screen having the most important features.
Furthermore, we added the option of trying the clothes with AR on every dress, such that the user can easily try out the clothes virtually and does not face any difficulties. Using AR clothing try on technology customers can visualise themselves in a variety of styles and sizes before making a purchase, helping to significantly reduce costly return rates and the hectic process .

Information Architecture:
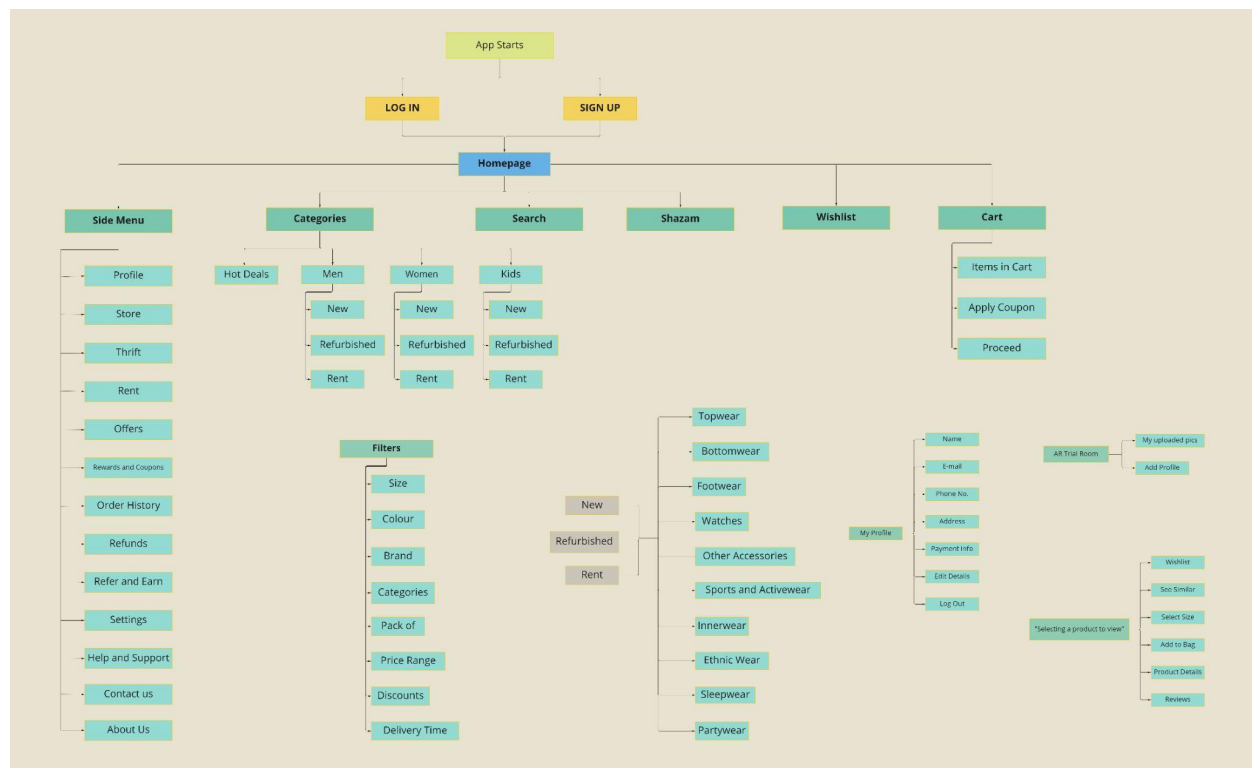
 This is the information architecture of our application which shows the flow of different options and areas.
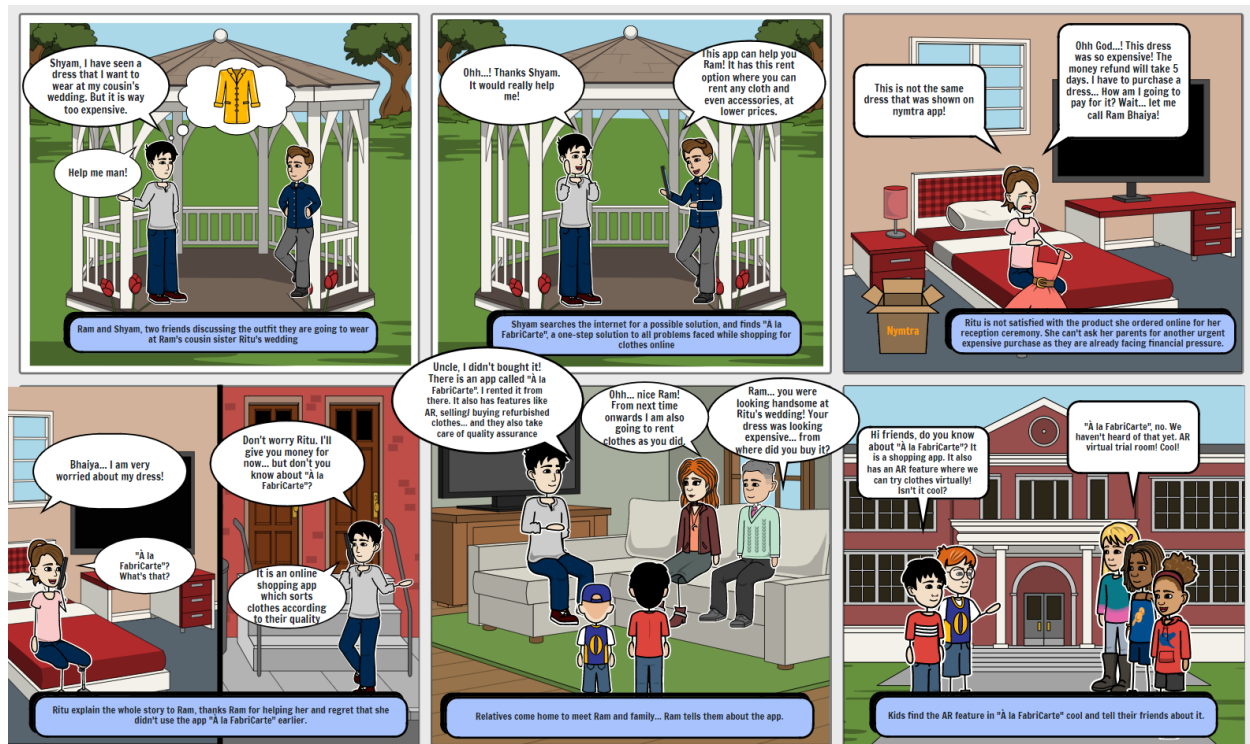
App Flow :
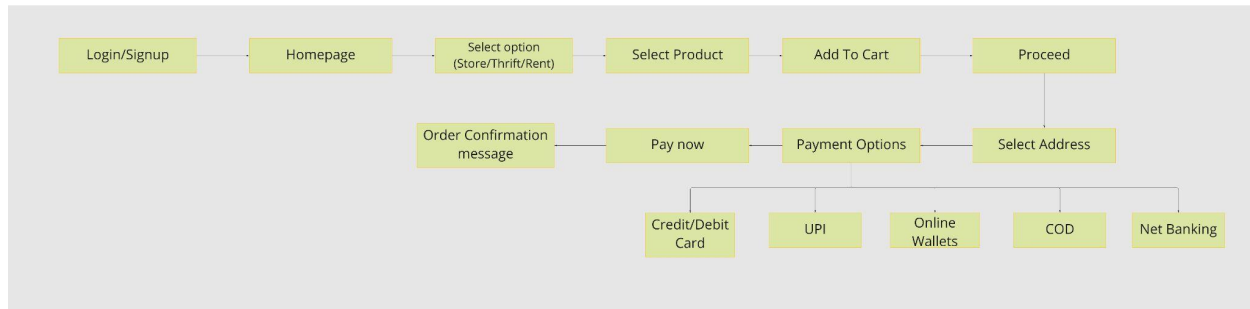
Storyboard:

Low-fi Prototyping :

The low-fi prototyping, as studies, is done using pen and paper. It is a rough design of our application, its features and user interface. It is further used in designing the mid-fi and hi-fi prototype.

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Hi-fidelity Prototyping

We tried to implement and enhance our low-fidelity prototype into a more functional experience, for further testing and evaluation/early reviews by the users. For this, we used the platform "Figma".
The Hi-fidelity prototype is a clickable prototype made on Figma.

Figma link: https://bit.ly/3L1MF5q

Evaluation Plan

We will evaluate the future regarding our designed application from questionnaire, and user testing which will be one of the best ways to evaluate our application. We will try to include users from all age groups and all genders to make things as even as possible.

Evaluation

We evaluated our high fidelity prototype using various interactive and sophisticated methods like google forms and interviews.
Here is the link to the various interviews conducted by the team for the evaluation of our prototype :
Evaluation_Interview
Below is the link for the evaluation google form :
https://docs.google.com/forms/d/14o8CysHAmbeKp-B5HnBWBj0gT-HuYqE738b02WdTABE/viewform?edit_requested=true

Evaluation criteria
We clearly defined an evaluation criteria where we will get our prototype evaluated by the users and then use those user reviews to iterate over our application.

Early prototype before any iterations:
https://www.figma.com/proto/9PaXfXZIQBTqSvf15bh9ID/Fabricarte?node-id=2%3A5&scaling=scale-down&page-id=0%3A1&starting-point-node-id=2%3A5

According to the various responses from the users, we found that while many users liked our prototypes, many mentioned some useful downsides in our early prototype. We have mentioned some critical responses in depth below.


In our early prototype, the user was not able to see if he/she is on the homepage or somewhere else, due to lack of any location indicator. We overcame this problem by making the colour of the icon of present location slightly darker and highlighted as compared to other icons.

Furthermore, we changed the colour theme of our application to a more subtle and soft colour, with light accent colours. This helped us reduce the contrast of the application, as mentioned by some of the early testing users.

We added the *About us* section in the hamburger menu of the application, to let users get an insight of our product and application's core purpose. We also changed the profile icon

from a preset image to a customisable image. The users can now add their profile pictures on the application.
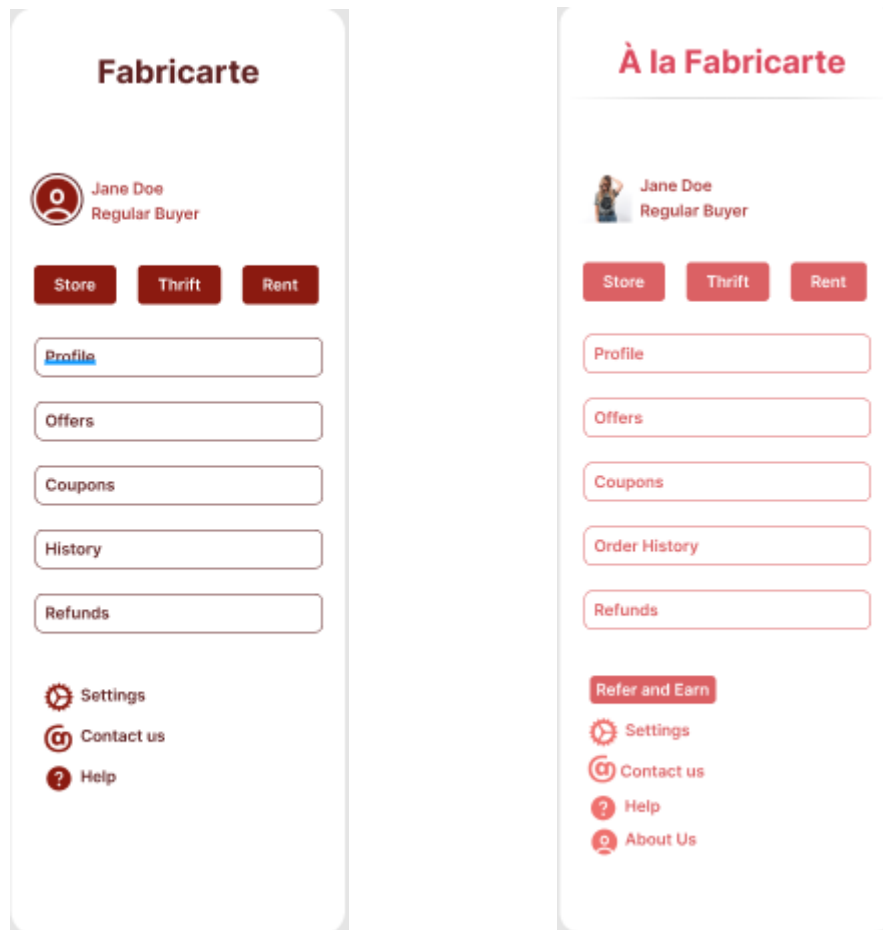

Further, as shown below, the My profile page in the early iteration was unorganised and not symmetrical, with various menus placed at random order. We removed the RATE US tab to reduce the cognitive load. Also, we added the bottom menu to the profile page as well, in absence of which, users were finding it hard to navigate easily to desired location.

In addition, we tried to iterate over the logo of the application and made many previous designs. Finally, we decided to choose a simple and elegant logo for our application, adding on to the aesthetics of the application.

An early approach to the app logo
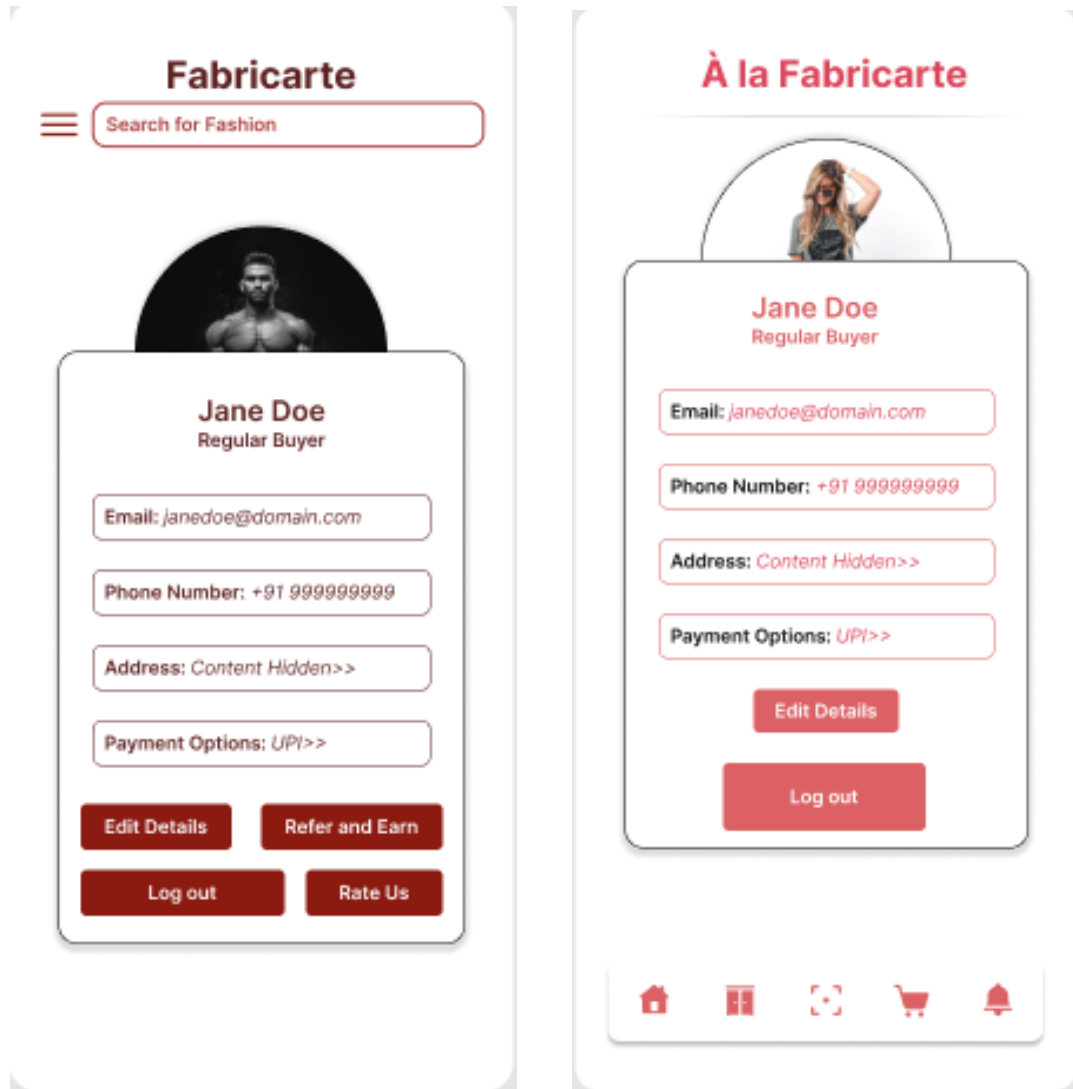
We tried to make a creative logo for the thrift section of the application, but got negative reviews regarding the same. We found out that the users preferred consistency of the application. This led us to changing the section logo to another logo, having a similar font and colour profile to the rest of the application.

For some users finding it confusing the know the purpose of the page they are currently on, we added the purpose clearly on the top of the page.
The page below is named explore section of the *thrift subcategory* of the application.
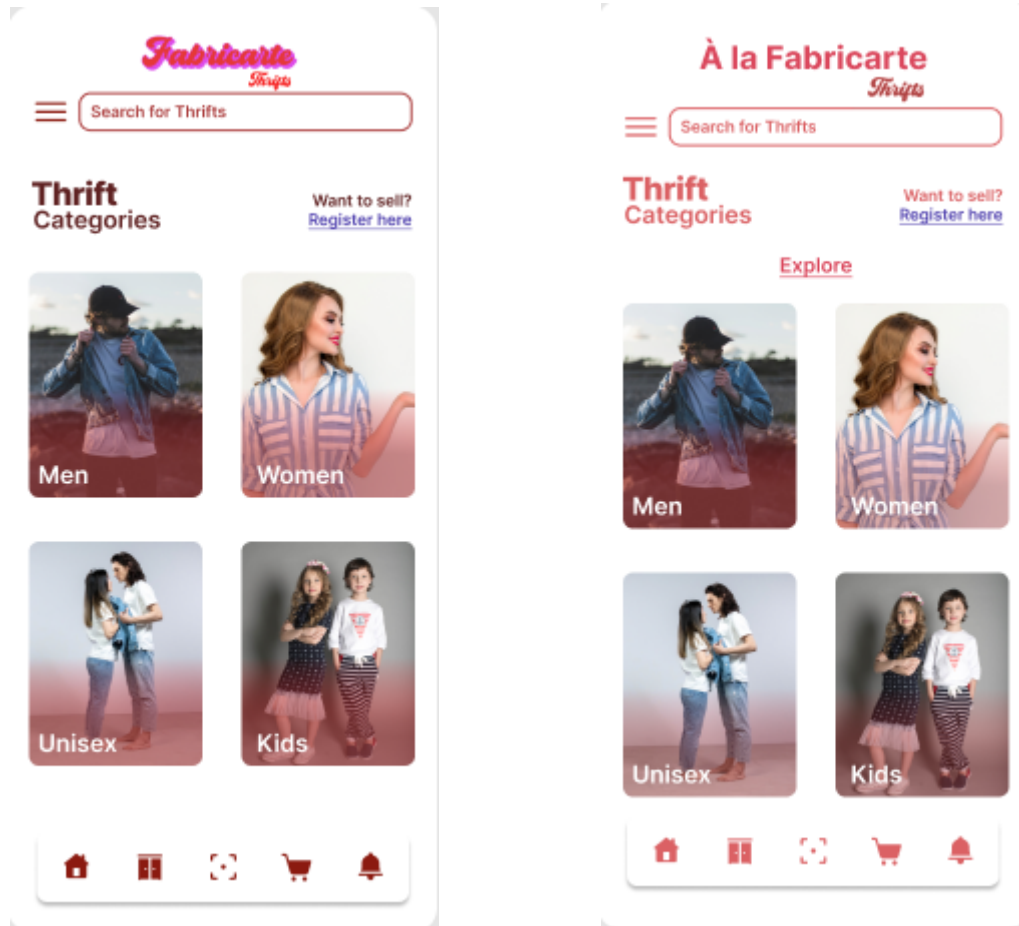
Finally, we found out that the scan gridlines interfered with the camera viewfinder of the shazam section of the application.
Hence, we blurred the grid line indicator. We also made the menu of adding from gallery more consistent with other options. These were some of the many improvements we made to our prototype keeping in mind the user feedback and suggestions.
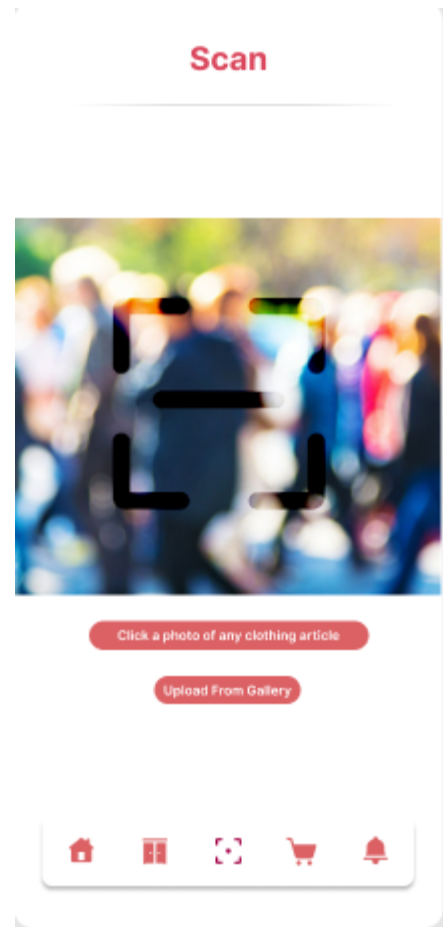
ANALYSIS

Here is the link to the various interviews conducted by the team:
Interview

From the above graphs, pie charts, surveys, and interviews, we analysed the following results:

Firstly, we discovered that most of the people who shop for clothes online are of the age group 18 - 22 years (responses could be biassed and may reflect errors). After that, we examined that most of the existing community of online shoppers are not satisfied with their experiences. Most of them rely on online shopping for their clothes but still face some significant issues.

Multiple people want to return the clothes they have purchased online, but most of them find it hard to return them. They also acknowledge that the money refund takes more time than expected by the consumers.

Further, we found that the users liked trying out their clothes virtually, on the application, rather than going to shopping marts and standing in queues. Most people found our approach to be more convenient.

On the other hand, there are also some limitations. The bulk of the people are not ready to spend their money on refurbished clothes, but most of them desire to sell their old clothes, which poses a substantial issue for the application. This conveys that some segments are not feasible in the long run if people are not willing to try them.

On a positive note, many people recommended great features to improve our application. Here are some of the insights from the responses:

> Yes, your app should also show some discount features and monthly points which can be redeemed during the purchase as I oftenly purchase through online website which lack such options. It can be beneficial to you and to us too. The shazam feature is also good which is very unique and is not found in other online websites.

> outfit maker

> Try to available COD option,

> There should be a genuine quality check which tells about how old it is and what quality content it is.

Few Takeaways from the project :
- How might we identify our goals.
- What are the various steps in application designing and different stages of the design process.
- Embrace what you don't know.
- One should focus on learnings and not the deliverables.
- Be prepared to deal with all kinds of reactions.

Some limitations of our proposed solution (Prototype):
- The AR technology currently available is not up to the mark to the users trying various kinds of clothes (we can show an avatar but not the user exactly).
- Providing solutions to all the problems will be convenient for most of the users but, there might be some users who would find it messy and chaotic.

FUTURE WORK AND CONCLUSION

There is a lot of future work and space for improvement in our product. As we found from the analysis, many people prefer offline shopping for clothing. We would have to implement our application in such a way that the offline buyers are also intrigued by our approach. Moreover, Future work would be to make the application easy to use for all humans and make sure that it is inclusive and accessible over all platforms.
In future, we would have to iterate more over the product and make a similarly aesthetically appealing dark theme for our application. More work includes refining the AR implementation, perfecting the animations. One of the biggest work will be to assure the users and gain their trust, in addition to assuring them of the quality of the refurbished clothes.
Furthermore, we would personally like to pursue this application approach in real life in our upcoming semesters.

In conclusion, we have collated and analysed the various data and opinions we got from the users and we tried to implement them and took them into consideration while making our application. In addition, we noted major takeaways from our analysis for a smooth design process of our application, appealing to most of the user base.

REFERENCES

- https://naerjournal.ua.es/article/view/v8n2-4
- https://docs.google.com/forms/d/1dBhWRikrH3v2ehPZRqw1qQBMCf5vkNuJtNRmJW6e7Gs/edit?ts=6228638e#responses
- https://www.google.com/search?q=age+shopping+clothes+online+the+most&ei=91s3YviWG9SeseMPvPG4gA4&ved=0ahUKEwi47rG4k9X2AhVUT2wGHbw4DuAQ4dUDCA8&uact=5&oq=age+shopping+clothes+online+the+most&gs_lcp=Cgdnd3Mtd2l6EAM6BwgAEEcQsAM6BggAEA

gQHkoECEEYAEoECEYYAFD8BFijD2DEEGgBcAF4AIABtAGIAecIkgEDMC44mAEAoAEByAEIwAEB&sclient=gws-wiz

- https://v1.overleaf.com/latex/templates/acm-conference-proceedings-primary-article-template/wbvnghjbzwpc.pdf
- https://optinmonster.com/online-shopping-statistics/
- https://www.cgsinc.com/blog/top-6-biggest-challenges-implementing-ar-technology-2021
- https://www.themanufacturer.com/press-releases/top-5-augmented-reality-apps-android-ios/
- https://www.thehindu.com/life-and-style/fashion/post-pandemic-india-sees-increase-in-renting-luxury-designer-clothes/article37468969.ece
- https://www.thebudgetfashionista.com/archive/online-clothing-stores/
- https://www.oberlo.in/blog/augmented-reality-apps
- https://freekaamaal.com/miscellaneous/top-10-online-clothing-shopping-sites-in-india-update-2019
- https://www.genevaenvironmentnetwork.org/resources/updates/sustainable-fashion/
- https://optinmonster.com/online-shopping-statistics/
- https://miro.com/app/board/uXjVODix7U8=/
- https://www.thefreedictionary.com/a+la+carte
- https://www.roadrunnerwm.com/blog/textile-waste-environmental-crisis
- https://www.bbc.com/future/article/20200710-why-clothes-are-so-hard-to-recycle
- https://www.bbc.com/future/article/20181120-the-surprising-source-of-the-tokyo-2020-olympic-medals
- https://calpirg.org/blogs/blog/cap/fashion-industry-waste-drastically-contributing-climate-change
- https://www.fibre2fashion.com/industry-article/8736/fashion-waste-is-rubbish-yes-but-this-is-not-the-issue#:~:text=How%20much%20clothing%20is%20thrown,end%20up%20in%20a%20landfill.
- https://www.glamour.com/story/how-much-time-do-you-spend-dec
- https://www.google.com/search?q=TIME+SPENT+IN+LIFE+TRYING+CLOTHES&oq=TIME+SPENT+IN+LIFE+TRYING+CLOTHES&aqs=chrome..69i57.13617j0j7&sourceid=chrome&ie=UTF-8
- https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.sciencedirect.com%2Fscience%2Farticle%2Fpii%2FB9780323854030000049&psig=AOvVaw0OFEbYw0fKEnuQCR3_1sm-&ust=1647887025972000&source=images&cd=vfe&ved=0CAwQjhxqFwoTCJi5vNqn1fYCFQAAAAAdAAAAABAD
- https://www.google.com/url?sa=i&url=https%3A%2F%2Fwri-india.org%2Fblog%2Fcircular-fashion-rethinking-way-forward-india%25E2%2580%2599s-fashion-industry&psig=AOvVaw2-OlQ2xDyV3UeBdEnlDY1t&ust=1647887061788000&source=images&cd=vfe&ved=0CAwQjhxqFwoTCJCCvumn1fYCFQAAAAAdAAAAABAD
- https://www.google.com/url?sa=i&url=https%3A%2F%2Fsanvt.com%2Fjournal%2Fenvironmental-impact-of-fast-fashion-infographic%2F&psig=AOvVaw3APkyjox_hSjucDQlcFgVe&ust=164

<u>INDIVIDUAL CONTRIBUTIONS</u>

- Naman Garg (2021171) - took all interviews, future work, framed questions, Evaluation plan
- Pratham Singhal (2021347) - problem definition, dive deep into the problem, analysis, low-fi prototype, presentation
- Vivek Jain (2021218) - motivation, stakeholders and their roles, challenges, Ideation, Competitive analysis, information architecture, conclusion
- Vansh (2021363) - requirement gathering, report making, story board
- Shivanshu Aggarwal (2021203) - conducted google forms and surveys , hi-fi prototyping