Report on the Activities Involved and Observations made during Design Thinking Process

Bachelor of Technology
in
Computer Science and Engineering

by

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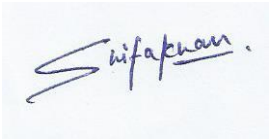
Declaration

I, Shifa Khan (Reg. No 21BBS0255), hereby declare that the report submitted by me, as a partial fulfilment of the course on 'Design Thinking (CBS2003)' registered during the Winter Semester 2022 – 2023, is a record of the activities involved and the observations made by me during the Design Thinking process during December 2022 – April 2023.

To the best of my knowledge, this document has been prepared by me keeping in mind the professional ethics and has not been copied either in part or in full.



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1.Introduction

1.1 Design Thinking

Design thinking is a method of problem-solving that entails comprehending the demands and difficulties of users in order to create creative and efficient solutions. Empathy for the user is the first step in the process, which is then ideation, prototyping, and testing. Design thinking may be used to solve any problem or difficulty and is frequently utilized in industries including product design, engineering, and business.

The design thinking process typically involves the following stages:

1. Empathize: Understand the needs, challenges, and perspectives of the user or customer through observation, interviews, and research.
2. Define: Synthesize the information gathered in the empathy stage to create a clear problem statement and identify the user's needs.
3. Ideate: Generate a wide range of ideas and solutions to address the problem, using brainstorming and other creative techniques.
4. Prototype: Build low-fidelity prototypes of the most promising ideas in order to test and refine them.
5. Test: Test the prototypes with users or customers in order to gather feedback and refine the solution.

Design thinking is a human-centered approach that prioritizes understanding and meeting the needs of the user or customer, rather than starting with a solution and trying to fit the problem around it. It encourages collaboration, iteration, and a willingness to try new and unconventional ideas in order to develop the best possible solution.

1.2 Grocery Store

A grocery store is a type of retail establishment where consumers can purchase food and household goods. Grocery stores typically stock a wide range of commodities, including fresh produce, meat, dairy products, baked goods, canned and packaged foods, beverages, snacks, and home goods like cleaning supplies and toiletries.

Muthugam general store is situated in R block of Mens hostel in Vellore institute of technology. By using design thinking approach, we tend to provide an innovative solution.

2.Empathy

Empathy is an essential part of a successful business, and the retail store is no different. An agreement can be initiated to ensure that small shops meet the needs of their customers. This stage involves understanding customer needs, wants and concerns and then using this information to create a personalized and profitable marketing experience. The first step to starting the mind is to look at the client and listen. By observing their shopping behavior, you can better understand their purchases, likes, and needs. It is important to listen to their feedback and concerns, whether directly or through reviews and observations. This information will be used to customize the store to meet the needs of its customers. Another important part of the empathy phase is building a relationship with the customer. This includes going beyond exceptional customer service, such as welcoming customers when they enter the store, offering personalized recommendations based on their shopping habits, and dealing with their needs and concerns. By building these relationships, small retailers can build trust with customers who will return again and again. One way to build relationships with customers is to provide a personalized shopping experience. This may include creating a loyalty program that rewards repeat customers or offering product recommendations based on their past purchases. In addition, small retailers may offer personalized services such as home delivery or personal shopping services. It is also important that retail stores reflect the interests and preferences of consumers. For example, if the community values local organic products, there should be more of them in store. In this way, the store demonstrates its commitment to meeting customer needs and supporting the local community. Finally, the transition phase should be a continuous process. As customers' needs and preferences change over time, small grocery stores have to adapt and adapt to these changes. This will include regularly soliciting feedback from customers, conducting surveys and focus groups, and keeping up with new trends and innovations in the industry. In summary, a small grocer's level of empathy is an essential part of starting a successful business. By observing and listening to customers, building relationships with them, providing personalized marketing that reflects the benefits of society, and continually adapting to needs and preferences, small retailers can build loyal customers and thrive in a competitive market.

2.1 PROBLEM STATEMENT

The following result can be deduced from above:

--Keeping in mind the pandemic situation, makes customers feel unsafe.

--Due to the relatively large size, finding and searching for items is a tough task for people.

--Not knowing the availability of items before leaving is a severe problem for the customers.

--The entire checkout process, from waiting in queues to scanning the items, to payment and finally getting the items verified with the vendor is the biggest problem customers face on a daily basis ▪ Ideas:

So far, we have understood the problems users are facing in a supermarket,

in this phase, we will try to come up with ideas to solve the said problems.

--Full body sanitization before entering.

--Voice assistants across the store to help out.

--The instant finding of products.

--Online application by which people can get to know the products available in the shop or not and pre-booking of the items so that they don't have to wait in the queues.

Fig 1:Sample questions

Fig2:Sample questions

An empathy map is a tool used to understand the thoughts, feelings, and behaviours of customers or users. It is often used in design thinking and user experience research to gain insights into the needs and motivations of users.

The empathy map is typically divided into four quadrants: think, feel, see, and do. In the think quadrant, researchers try to understand what the user is thinking or saying. This includes their goals, challenges, and pain points. In the feel quadrant, researchers explore the user's emotions and attitudes towards the product or service. This can include their fears, frustrations, and aspirations.

In the see quadrant, researchers analyse what the user is experiencing in their environment. This includes their physical surroundings, social interactions, and cultural influences. In the do quadrant, researchers examine the user's actions and behaviours. This includes their habits, routines, and decision-making processes.

The empathy map can be a powerful tool for businesses and organizations looking to better understand their customers or users. By using the empathy map, businesses can identify areas where their product or service may fall short, and develop solutions that better meet the needs of their users.

To create an empathy map, researchers typically conduct interviews or surveys with users, and use the information gathered to populate the four quadrants of the map. Once the empathy map is complete, researchers can use it to develop user personas, user stories, and other tools that help them better understand and serve their users.

In conclusion, an empathy map is a valuable tool for businesses and organizations looking to better understand their customers or users. By using the empathy map, businesses can gain insights into the thoughts, feelings, and behaviours of their users, and develop solutions that better meet their needs. Whether used in design thinking or user experience research, the empathy map is a powerful tool for gaining empathy and understanding for the user.

Fig 3:Empathy map

Lean Canvas is a popular tool used by entrepreneurs and startups to develop and communicate their business models. It is a one-page document that outlines the key elements of a business model, including the problem being solved, the target customer, the unique value proposition, revenue streams, and cost structure.

The Lean Canvas is based on the principles of Lean Startup, which emphasizes the importance of rapidly testing and iterating on business ideas. Unlike traditional business plans, which can be lengthy and time-consuming to develop, the Lean Canvas is designed to be quick and easy to complete. This allows entrepreneurs to focus on testing their ideas and gathering feedback from customers, rather than spending months writing a business plan.

One of the key benefits of the Lean Canvas is that it encourages entrepreneurs to think deeply about their business model and the various components that make it up. By identifying the key elements of their business model, entrepreneurs can better understand their customers, develop a more compelling value proposition, and identify potential revenue streams.

Another benefit of the Lean Canvas is that it allows entrepreneurs to communicate their business model in a clear and concise way. This is particularly important when pitching to

investors, as investors want to quickly understand the key elements of a business model and the potential for growth.

In conclusion, the Lean Canvas is a powerful tool for entrepreneurs and startups looking to develop and communicate their business models. By focusing on the key elements of a business model and encouraging rapid iteration and testing, the Lean Canvas can help entrepreneurs better understand their customers, develop a compelling value proposition, and identify potential revenue streams. Whether used in conjunction with traditional business planning or as a standalone tool, the Lean Canvas is a valuable resource for any entrepreneur looking to launch a successful business.

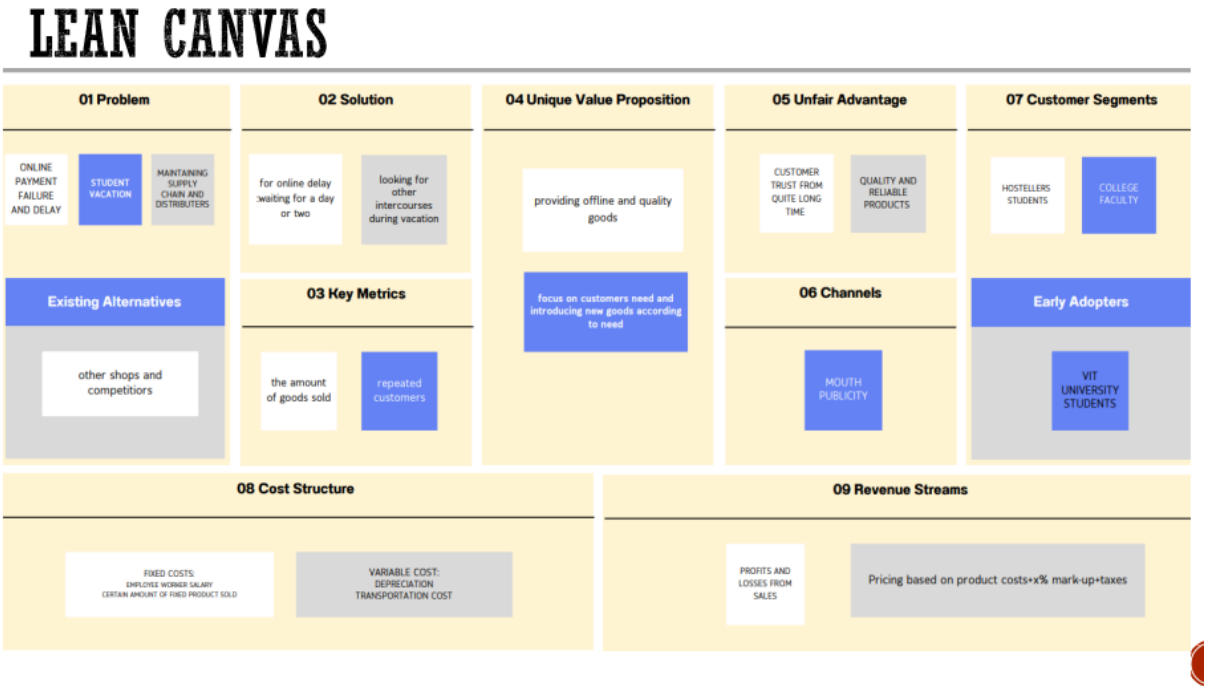

Fig 4:Lean canvas

3. Define

The Define Phase of design thinking is a critical step in the overall design process. This phase comes after the Empathize Phase, where designers gather insights and empathize with the users they are designing for. The Define Phase is where all of that information is synthesized and transformed into a clear problem statement that guides the rest of the design process.

The Define Phase can be broken down into several key steps:

1. Data Analysis

The first step in the Define Phase is to analyze the data collected during the Empathize Phase. This data may come from interviews, observations, surveys, or other research methods. The purpose of data analysis is to identify patterns, themes, and insights that will inform the problem statement. Designers can use methods like affinity mapping, mind mapping, or other visualizations to help them make sense of the data.

2. Developing a Point of View

Once the data is analyzed, designers can develop a point of view (POV) that summarizes the user's needs and goals. The POV is a concise statement that captures the essence of the user's problem or challenge. The POV should be framed in a way that inspires the design team to think creatively and generate innovative solutions. An example of a POV statement might be: "Our users struggle to keep track of their daily tasks and need a solution that simplifies their to-do lists."

3. Creating a Problem Statement

The next step is to use the POV to create a clear and concise problem statement. The problem statement should be focused on the user's perspective and should avoid making assumptions about the solution. It should also be specific enough to guide the ideation and prototyping phases of the design thinking process. An example of a problem statement based on the POV above might be: "How might we create a task management app that simplifies the process of tracking and completing daily tasks for busy professionals?"

4. Validating the Problem Statement

Once the problem statement is developed, the design team should validate it by sharing it with users and stakeholders. This feedback can help to refine the problem statement and ensure that it accurately reflects the user's needs and goals. Designers can use methods like user testing, surveys, or focus groups to gather feedback.

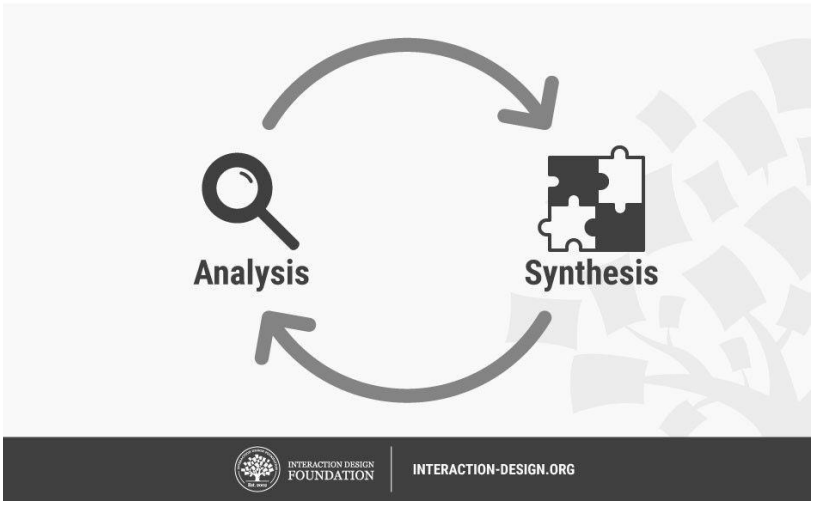

Fig 5: Define

Here is a flow diagram that summarizes the Define Phase:

[Empathize Phase] -> [Data Analysis] -> [Point of View] -> [Problem Statement] -> [Validate]

3.1 Methods which will Help you Synthesize:

1. User Stories

2. User Personas

1. User Stories:

- User stories are short statements *about* a feature, written from a user's perspective.
- A well-defined user story does not spell out the exact feature,
- but rather what the user aims to achieve, to give agile teams the freedom to identify the best possible way to implement the feature.
- While there is **no standard format for creating user stories**, teams commonly write them as single-line statements.
- Some teams may also include design deliverables such as
    - **personas,**
    - **storyboards** or short movies and include details about the users' activities, thoughts and emotions.

2. User Personas:

- Personas are fictional characters, which you create based on your research in order to represent the different user types that might use your service, product, site, or brand in a similar way.
- Creating personas helps the designer to understand users' needs, experiences, behaviors and goals.
- **Personas Are More Than "People"**
    - Personas are **refined essences of real users**.
    - **use personas to build empathy with target users and focus on their world**.
    - You should **always create personas from *observations* about *real users,*** personas should never be invented out of your assumptions about your users.

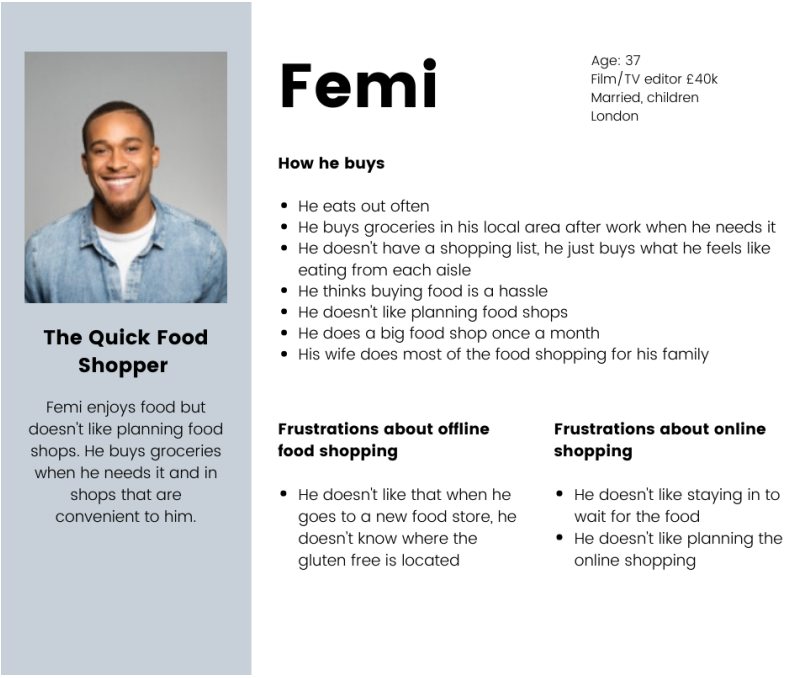

Fig 6: USER PERSONA OF THE GROCERY APP

3.2 Point of View – Problem Statement:

- In the Define mode, you should end up **creating an actionable problem statement** which is commonly known as the Point of View (POV) in Design Thinking.
- You should always base your Point of View on a deeper understanding of your specific users, their needs and your most essential insights about them. In the Design Thinking process, you will gain those insights from your research and fieldwork in the Empathies mode.

- **your point of view is your unique design vision that you crafted based on your discoveries during your empathy work**.
- The meaningful challenge to address and the insights that you can leverage in your design work is fundamental to creating a successful solution.
- **Your Point of View (POV) defines the RIGHT challenge to address** in the following mode in the Design Thinking process, which is the Ideation mode.
- A good POV will allow you to ideate and solve your design challenge in a goal-oriented manner in which you keep a focus on your **users**, their **needs** and your **insights** about them.
- You should **construct a narrowly-focused problem statement** or POV as this will generate a greater quantity and higher quality solutions when you and **your team start generating ideas during later Brainstorm, Brainwriting, SCAMPER and other ideation sessions**.

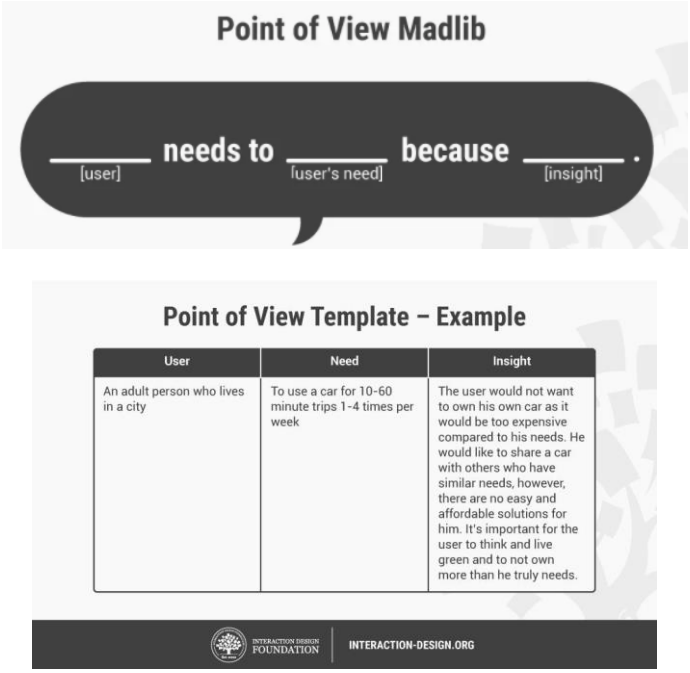

Fig 7:Point of view

3.3 What is a problem statement?

- A problem statement **identifies the gap between the current state** (i.e., the problem) **and the desired state** (i.e., the goal) of a process or product.
- A problem statement is also referred to as a **point-of-view** (POV), a written expression **(actionable)** of the problem for which you want to find a solution.
- It provides a clear description of the issue that the designer seeks to address, **keeping the focus on the user at all times**.
    - **From the user's perspective**

- **From a user research perspective**
- **Based on the four W's—who, what, where, and why**

3.4 Affinity Diagrams:

An affinity diagram is a tool used in design thinking to organize a large amount of data, ideas, or observations into logical groups or categories. It is often used in the early stages of the design thinking process to help identify patterns, connections, and themes that might not be immediately apparent.

To create an affinity diagram, a team gathers all of the data they have collected and writes each idea or observation on a separate sticky note. The team then begins to group the notes into related clusters based on similarities and themes. This process continues until all of the notes have been categorized into groups.

The resulting affinity diagram provides a visual representation of the data that helps the team to better understand the underlying patterns and themes. This can then be used to inform the design process and generate new ideas and solutions.

For example, in the context of a grocery store design project, an affinity diagram might be used to organize customer feedback and observations about the store. The team could gather notes from customer surveys, interviews, and observations, and group them into categories such as "product availability," "store layout," "customer service," and so on. This would allow the team to identify key areas of focus and develop targeted solutions to address customer needs and pain points.

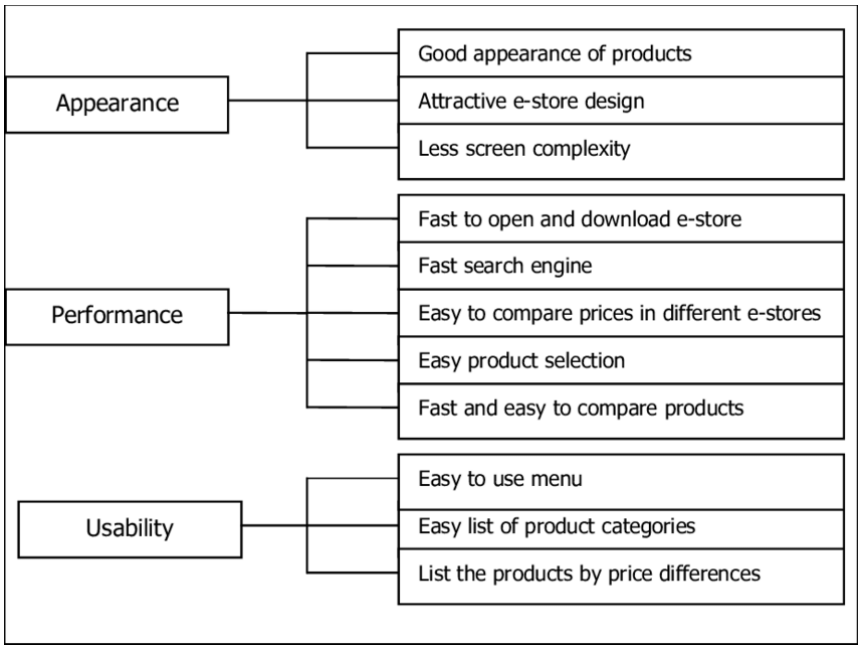

Fig 8: AFFINITY DIAGRAM

To illustrate the Define Phase in action, let's consider an example of a design challenge. Imagine that a hospital is trying to improve the patient experience in the emergency department. The design team might begin by conducting interviews with patients and staff to gather insights into the challenges they face. Through data analysis, the team might identify that patients often wait for hours in the emergency department, leading to frustration and dissatisfaction. Based on this insight, the team might develop a POV statement like: "Our patients need a faster and more efficient process for accessing emergency care."

Using this POV, the team could create a problem statement that guides the rest of the design process. The problem statement might be: "How might we streamline the patient intake process in the emergency department to reduce wait times and improve the patient experience?" The team could then validate this problem statement by testing prototypes of new intake processes with patients and staff, gathering feedback, and iterating on their solutions.

In conclusion, the Define Phase is a critical step in the design thinking process. It helps designers synthesize the data collected in the Empathize Phase and transform it into a clear problem statement that guides the rest of the design process. By following the steps outlined in the Define Phase, designers can create solutions that meet the needs of their users and lead to better outcomes.

Based on our Mrs. Mutula’s case study:

Design thinking is a human-centered approach to problem-solving that involves understanding the needs and wants of customers, generating ideas, and prototyping solutions. The design thinking process is typically divided into five stages: Define, Empathize, Ideate, Prototype, and Test. In this essay, we will focus on the first stage of the design thinking process, the Define phase, using the example of Mrs. Mutula’s grocery store.

The Define phase is the first stage of the design thinking process, and it involves defining the problem or challenge that needs to be addressed. In this phase, we try to gain a deeper understanding of the problem by conducting research, analyzing data, and synthesizing information. The goal of the Define phase is to develop a clear and concise problem statement that can guide the rest of the design thinking process.

Fig 9:Survey

In the case of Mrs. Mutula's grocery store, the Define phase involved conducting a survey of Mr. Mutula and his customers to understand their needs and pain points. The survey helped us to identify three main problems that customers were facing on a daily basis: feeling unsafe due to the pandemic, difficulty finding and searching for items in the store, and not knowing the availability of items before leaving the store. The biggest problem was the entire checkout process, which involved waiting in long queues to scan and pay for items and then verifying the items with the vendor.

To further analyze these problems, we used a variety of tools and techniques, such as customer journey mapping, affinity mapping, and persona development. Customer journey mapping helped us to understand the entire shopping experience of customers, from entering the store to leaving with their purchased items. Affinity mapping helped us to group and prioritize the data collected during the survey, while persona development helped us to create fictional characters that represented the different types of customers who shop at the store.

After the identification of the problem and the available resources, the next step in the Define phase is to clearly define the problem statement. In our case, the problem statement is: "How can we improve the grocery shopping experience for customers at Mrs. Mutula's store, considering the challenges faced due to the pandemic, large store size, and long checkout process?"

The next step is to analyze and synthesize the information collected during the research phase. In our case, we found that customers feel unsafe due to the pandemic, struggle to find items in the large store, and face a long checkout process. We also identified that customers prefer a faster and more convenient checkout process and a way to check the availability of items before leaving home.

Based on this analysis, we proposed several solutions to improve the grocery shopping experience. These include the development of a mobile app that allows customers to scan and pay for items from their phone, pre-booking items to reduce wait time, and installing voice assistants to help customers locate items in the store. We also suggested creating a dynamic site to track the sales progress of Mrs. Mutula's store and competitors.

The Define phase of design thinking is essential as it helps to understand the problem and create a clear problem statement. This phase sets the foundation for the subsequent steps of the design thinking process, where we can brainstorm ideas and prototype solutions. By incorporating analysis and synthesis, we can ensure that our proposed solutions address the needs and pain points of our customers effectively.

In conclusion, the Define phase of design thinking is crucial for understanding the problem, creating a clear problem statement, and synthesizing the information collected during the research phase. By analyzing and synthesizing this information, we can propose solutions that meet the needs and preferences of our customers, thereby improving the grocery shopping experience for customers at Mrs. Mutula's store.

4. Ideate

The ideate phase is a stage in the design thinking process where the team generates a large quantity of ideas and potential solutions to address the problem identified in the earlier stages of the process. The goal of the ideate phase is to encourage creative thinking, explore a variety of perspectives, and generate a diverse set of ideas.

During the ideate phase, team members brainstorm and share their ideas in a supportive and non-judgmental environment. They may use techniques such as mind mapping, sketching, or rapid prototyping to help visualize and communicate their ideas. The team should aim to generate as many ideas as possible, even if they seem impractical or far-fetched at first.

Once the ideation session is complete, the team can evaluate and refine the ideas generated, focusing on those that are most promising or innovative. The goal is to arrive at a smaller set of ideas that are feasible, desirable, and viable for the project.

Overall, the ideate phase is a crucial step in the design thinking process, as it allows the team to explore a broad range of possibilities and generate a diverse set of ideas that can lead to innovative solutions.

1. Contactless Shopping: One idea to address the pandemic situation and make customers feel safer is to implement contactless shopping. This can be achieved by offering online ordering and delivery services, or by setting up self-checkout stations where customers can scan and pay for their items without having to interact with a cashier.

2. Navigation and Search: To make it easier for customers to find items, the grocery shop can implement a digital navigation system that guides customers to the items they are looking for. Additionally, a search feature can be added to the grocery store's website or app, so that customers can check the availability of items before they visit the store.

3. Inventory Management: The grocery store can use inventory management software to keep track of the availability of items and update it in real-time. This can help customers avoid the frustration of finding out that the item they came to buy is out of stock.

4. Queue Management: To address the long checkout queues, the grocery store can implement a queue management system that allows customers to reserve a spot in line before they arrive. This can be done through a mobile app or a website. Additionally, the store can also introduce self-checkout kiosks to reduce wait times.

5. Loyalty Programs: To incentivize customers to shop at the grocery store, the store can introduce a loyalty program. This can include discounts, special offers, or rewards for frequent shoppers.

6. Personalized Shopping: The grocery store can offer personalized shopping experiences by using customer data to recommend products or offer discounts on items that

the customer regularly purchases. This can be achieved through a mobile app or a website that tracks the customer's purchase history.

- Gamification: Introducing a gamification system to the grocery store experience can make it more engaging and enjoyable for customers. For example, customers could earn points for every purchase they make or for completing certain actions in the store, such as scanning a QR code.

- Social Responsibility: Incorporating social responsibility initiatives into the grocery store can help to build a strong relationship with customers. For example, the store could donate a percentage of its profits to a local charity or offer environmentally friendly packaging options.

- Virtual Reality: The grocery store can implement a virtual reality experience to help customers navigate the store and locate items more easily. This can be particularly helpful for customers who are unfamiliar with the store layout or have mobility issues.

- Mobile Checkout: Introducing a mobile checkout system can reduce wait times for customers and provide a more convenient shopping experience. Customers could use their mobile devices to scan items as they shop and then complete the payment process without needing to visit a checkout counter.

- Personal Shopping: Offering a personal shopping service where customers can request a dedicated staff member to assist them with their shopping can create a more personalized experience. This could include assistance with finding items, carrying groceries, and offering recommendations.

- Smart Carts: Implementing smart carts that can track the items customers have selected and automatically calculate the total cost can streamline the checkout process and reduce errors.

5. PROTOTYPE

To increase productivity and monetary funds for a general store in a highly competitive market, here are some strategies that can be implemented:

Offer unique products or services: To stand out from the competition, the general store can offer unique products or services that are not easily available at other stores. This can attract customers and increase sales, leading to higher profits.

Improve customer service: A friendly and helpful customer service experience can go a long way in retaining customers and attracting new ones. The store can train its staff to be courteous, knowledgeable and provide quick and efficient service to customers.

Optimize inventory management: The store can analyze sales data to identify the popular products and ensure they are always in stock. This will avoid lost sales due to out-of-stock situations, reduce excess inventory, and optimize the use of available resources.

Offer discounts and promotions: Offering discounts, loyalty programs, or bundle deals can help the store retain customers and attract new ones. These promotions can be advertised on social media and on the store's website to attract customers.

Use technology: The store can use technology to streamline its operations and increase efficiency. For example, using a point-of sale (POS) system can help the store manage inventory, sales data, and customer information more efficiently.

Improve store layout and design: The store can improve its layout and design to make it more attractive and appealing to customers. A well-designed store can create a positive shopping experience and increase the likelihood of customers making purchases.

Expand product range: The store can expand its product range by offering a variety of products in different categories. This will increase the options available to customers and improve the chances of them finding something they need or want.

In summary, to increase productivity and monetary funds for a general store, it is essential to offer unique products or services, improve customer service, optimize inventory management, offer discounts and promotions, use technology, improve store layout and design, and expand the product range. By implementing these strategies, the store can stand out in a highly competitive market and increase profits.

5.1 BASIC DESIGN AND LAYOUT:

Home Page:

The home page should have an attractive design that showcases the store's products and services, along with any current promotions or discounts. It should have a search bar where customers can search for products they want to buy. It should also have a "Login" button for customers to log in to their accounts or create new ones if they are new to the store.

Product Pages:

Each product should have its own page with a detailed description of the product, its price, and any available variants or customization options. Customers should be able to add the product to their cart from this page.

Cart Page:

The cart page should show a summary of the customer's order, including the items they have added, their quantities, and their total cost. Customers should be able to modify their order from this page by adding or removing items.

Checkout Page:

The checkout page should allow customers to enter their delivery address, payment information, and any special instructions or notes for their order. Customers should also be able to select a delivery time slot and delivery method.

Order Tracking:

Customers should be able to track the status of their order from the moment it is placed until it is delivered. They should be able to see estimated delivery times and receive updates on their order status via email or text message.

Customized Maggi Homemade Page:

This page should allow customers to select their preferred Maggi flavor, ingredients, and customization options. Customers should be able to save their custom Maggi recipes and order them again in the future.

Account Page:

Customers should be able to view their order history, track their current orders, and manage their account settings from this page. They should also be able to view and redeem any rewards or loyalty points they have earned.

Contact Us Page:

This page should provide customers with a way to contact the store's customer service team with any questions, concerns, or feedback they may have. It should include a contact form, phone number, and email address.

HOMEPAGE:

We know how busy life can get, and sometimes it can be hard to find the time to visit your local grocery store.

That's why we've created an app that makes shopping for your everyday essentials simple and convenient.

With our app, you can browse through a wide selection of groceries, household essentials, and personal care items from the comfort of your own home. Simply add the items you need to your cart, and our team of trained professionals will carefully select and pack your order for delivery straight to your doorstep.

We pride ourselves on providing a seamless shopping experience, from start to finish. Our app features easy navigation, detailed product descriptions, and secure payment options. Plus, our friendly customer service team is always available to answer any questions you may have. We understand the importance of quality and freshness when it comes to your groceries. That's why we work with trusted suppliers to ensure that all of our products are of the highest quality, and we always prioritize freshness.

So why wait? Download our app today and start enjoying the convenience of online general store delivery!

5.2 ORDERING SECTION:

User-friendly interface - The interface should be intuitive and easy to navigate, allowing users to quickly find the products they need and add them to their cart.

Clear product information - Each product should have clear information, including images, descriptions, prices, and any other relevant details.

Customization options - The app should allow users to customize their orders, such as by selecting different sizes or adding special instructions.

Payment options - The app should offer a variety of payment options, including credit/debit cards, PayPal, and other popular payment methods.

Delivery options - The app should allow users to choose their preferred delivery method, such as home delivery or in-store pickup, and provide estimates for delivery times.

Order tracking - The app should provide real-time updates on the status of the order, including when it has been picked up, when it is in transit, and when it has been delivered.

Customer support - The app should provide easy access to customer support, such as a chatbot or phone support, to help users with any issues they may encounter.

Overall, the ordering section for an app for an online general store delivery service should prioritize ease of use, clear product information, customization options, and reliable delivery and support services.

REPORTING:

To develop an efficient online grocery delivery app, it is essential to include various features that cater to the needs of different user groups. A grocery delivery platform must have a customer-side app, an admin panel, a delivery person-side app, and a grocery store-side app. The customer-side app must offer essential features such as profile creation, login and signup, searching for groceries, adding items to the cart, scheduling orders, payment gateways, order history, real-time order tracking, customer feedback, and reviews.

A fully-fledged platform would provide a delightful customer experience while saving time. Different types of grocery apps exist depending on the business model, from bringing together multiple stores into a single app to featuring produce from a specific grocery chain. Consistent product representation and a hub for integrating with partner systems are essential features.

An app-building partner should research ready-made components to avoid developing everything from scratch, which is immensely expensive and slow to catch up with the market. The aim of an online grocery delivery app is to offer better inventory and order management, convenience, and analyzing consumer behavior to deliver personalized offers and enhance customer loyalty by offering loyalty programs. The development of a grocery delivery app requires a team structure and the use of the latest technology.

5.3 Functional features and user interfaces

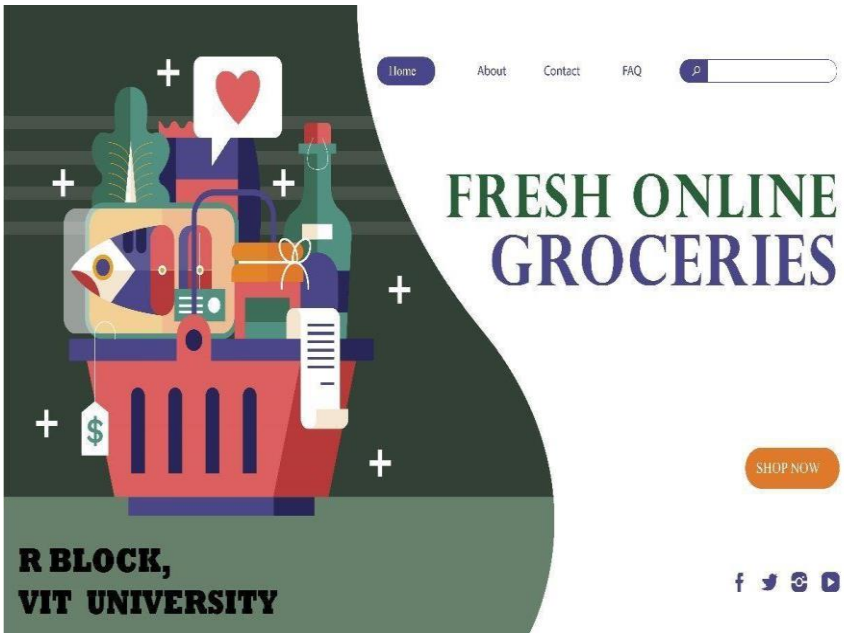

Fig 10: Functional features and user interfaces

The homepage of an online grocery delivery app for a general store should include a clear and concise message about the app's unique features and benefits, such as low prices, fast delivery, and a wide selection of products. It should also have a user-friendly interface that allows customers to easily search for products, add them to their cart, and checkout. To stand out from competing shops, the app should highlight its special offers and promotions, such as discounts for firsttime users or free delivery for large orders. Additionally, the app should include features such as live order tracking, customer support, and a rating system to build trust and loyalty among customers.

This is a simple Java program that simulates an online delivery store for a college general store app. The program defines three classes: Item, Order, and Customer. The Item class represents an item that can be ordered, with a name, price, and quantity. The Order class represents a customer's order, with a list of items and a total price. The Customer class represents a customer, with a name and a list of orders.
The main method creates a customer, adds two orders to the customer, and then prints out all of the customer's orders. The output of the program will display the items in each order, along with the quantity and total price for each item, as well as the total price for the order.

5.4 AT A GLANCE:

Fig 11: glance1

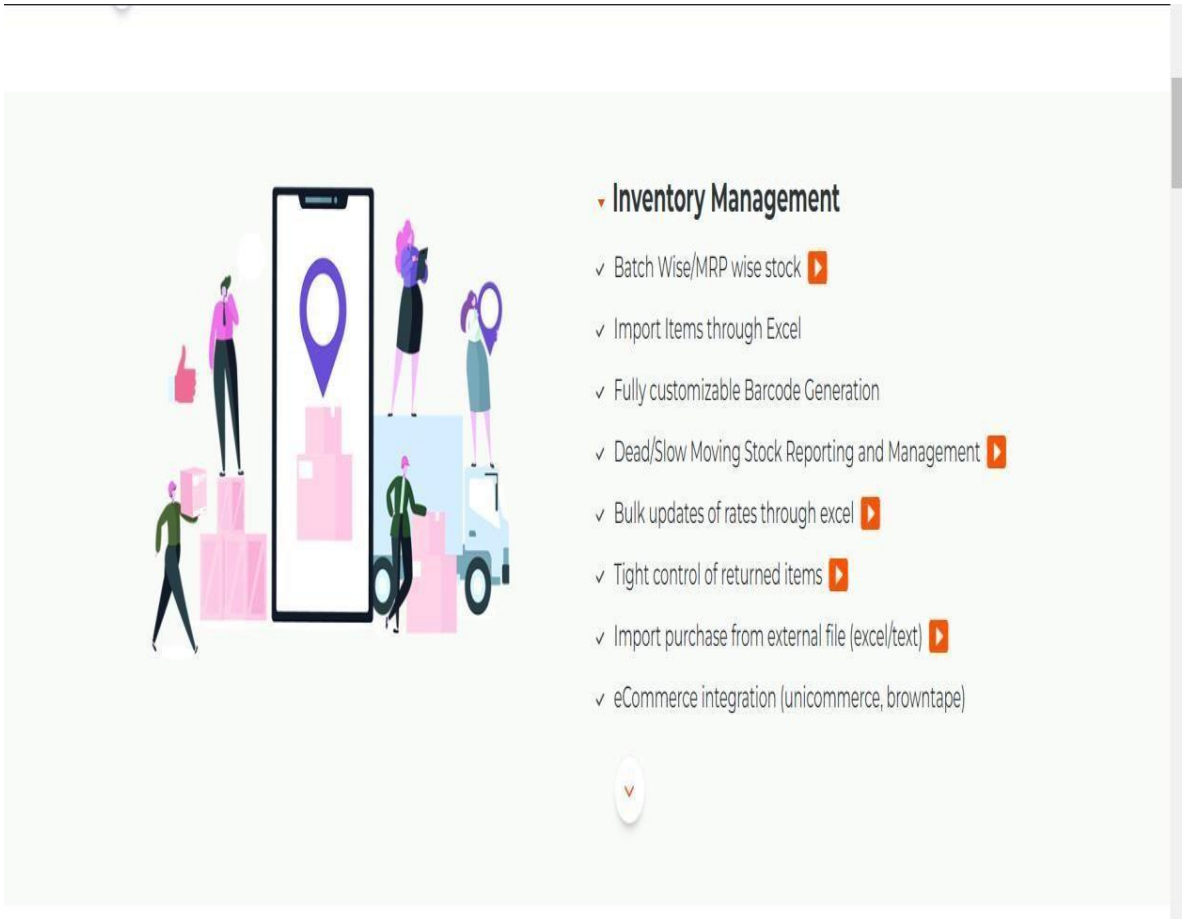

Fig 12 glance2

Fig 13:glance3

5.5 Frequently Asked Questions

Most Common Questions asked by our Clients

What is General Store Retail ERP Software?

General Store Retail ERP Software is a software application which helps General Stores to opt for digitation of their records, reduce manual paperwork and run the businesses efficiently. General Store Retail ERP Software also provides keen insights into your business which helps in taking timely decisions which result in cost saving and reducing overheads. General Store Retail ERP Software helps the business maintain accurate and fast billing, inventory, expiry, orders, schemes and discounts, CRM and loyalty management, home delivery app, accounting, GST E-Filing and detailed reporting, and insights into your business.

2. Who should use General Store Retail ERP Software?

Kirana Store Retail ERP Software is mostly used by General Stores, Grocery Stores, Supermarkets, Departmental Stores, Hypermarkets, Kirana Stores etc. dealing in FMCG retail. The number of SKU`s or products currently in the market is huge and to manage these manually is quite a tedious task. There is also the management of expiry, dead and slow-moving stock, discounts, and schemes offered by the companies, shortages and pilferage, timely replenishment of stock which can only be done through a proper General Store Retail ERP Software.

How can your business benefit from using General Store Retail ERP Software?

The benefits of a powerful General Store Retail ERP Software can have huge benefits for your business. It can bring many efficiencies into your business which may result in cost saving, reducing wastage, customer satisfaction, increase in business through timely replenishment of your inventory or stock. Some of the main benefits can be listed as below:

- Accurate and fast GST billing.
- Better inventory and stock management.
- Sale of inventory based on FIFO method based on expiry i.e., the software can suggest selling the stock which is to expire first.

- Timely replenishment of inventory based on various methods like fast selling items, seasonal items etc.

- Track refilling of inventory through purchase orders management.

- Weeding out of slow moving, low volume, and less profitable items.

- E-Commerce integration.

- Barcode generation and integration.

- CRM and Loyalty management to give encourage customer loyalty.

- Mobile POS for better and faster billing.

- Track product margins, pricing, schemes, discounts to get better deals from suppliers or vendors.

- Helps manage the accounts, TDS, TCS, GST returns and other accounting related areas of the business.

6. Test

6.1 Test Case Scenario:

A new customer wants to order customized Maggi noodles and have them delivered to their home. They want to create an account, customize their Maggi noodles, add them to their cart, and complete the checkout process.

6.2 Testing:

Open the homepage and verify that it loads properly with an attractive design showcasing the store's products and services, current promotions or discounts, and a search bar for customers to search for products.

Click on the "Login" button and verify that it takes you to the login or account creation page.

Create a new account with a valid email address, name, and password.

Go to the customized Maggi page and verify that it allows you to select your preferred Maggi flavor, ingredients, and customization options.

Save the custom Maggi recipe and verify that it is saved to your account.

Add the custom Maggi noodles to your cart and verify that it appears on the cart page with a summary of your order, including the item you added, its quantity, and its cost.

Modify your order by removing the custom Maggi noodles and verify that the cart page updates accordingly.

Add the custom Maggi noodles back to your cart and proceed to checkout.

Verify that the checkout page allows you to enter your delivery address, payment information, select a delivery time slot, and add any special instructions or notes for your order.

Complete the checkout process and verify that your order is confirmed and the estimated delivery time is provided.

Track your order from the account page and verify that you can view your order history, track your current orders, and manage your account settings.

Contact the customer service team from the Contact Us page and verify that it provides a contact form, phone number, and email address.

Receive your custom Maggi noodles and verify that they are prepared according to your specifications and delivered within the estimated delivery time.

Overall, the prototype should be tested thoroughly to ensure that it meets the requirements and functionality specified in the given information. Any bugs, issues, or user experience problems should be reported and addressed accordingly.

7. Conclusion

Ms.Mutula had several problems and we could provide the solution as GROSHO. General store can increase its productivity in terms of monetary funds and also gain customer support.

Here we could se as we were using design thinking approach, we could easily trace out path and find a user-friendly solution. During each and every stage like empathy, define, ideate, prototype and test let us grow more compatibility with customer and helped inculcating innovative thinking.

During empathy phase we tried to put ourselves in Ms. Mutula shoes to understand her perspective. During empathy phase we took an interview to analyze her better. In define phase we defined what is the actually problem she faced. In ideate, we tried to find various possible solutions and in prototype we came up with Grosho an app that can ease out various problems faced by Ms. Mutula. In test phase we tried to implement it with sets of students and finally came up with solution.

7. Reference

Video link: https://youtu.be/CWlfjSdvycU

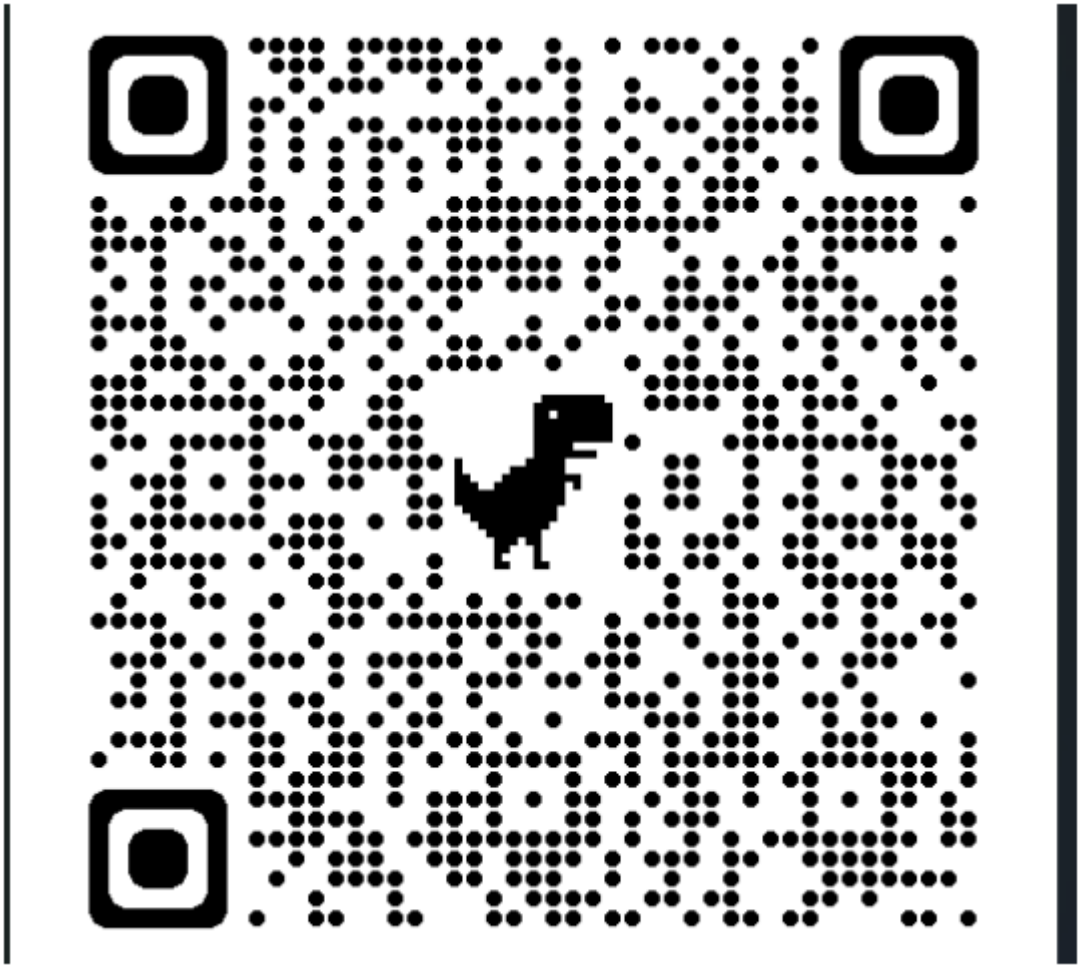

Fig 14:QR code for video

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