



*FACULTY OF COMPUTER SCIENCE*

## **Group Information**

*In  
The Class of*

*CSCI5193: Technology Innovation*

*By*

**Team - 8**

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## Problem

The Design Challenge that we have taken upon is “Ensure Healthy lives and promote well-being for all at all age.” In today’s hectic lifestyle people easily forgets about the most important aspect of life – “Health”, which begins with a healthy diet. In Northern America, almost 38.41% of the population is consuming fast food at least three times a week [1]. The fast food is conveniently available which saves time in food acquisition, preparation and clean up. Adding to that ready-to-eat food includes many food ranges from bananas to frozen pizza that require little preparation. Eating canned food with preservatives can be more expensive, contains lower nutrition and lead to long-term health problems which can be easily avoided with proper intake of regularly maintained food consumption [2].

Basically, time, money, cooking skills, and planning are some important factors due to which people opt for canned food to satisfy their cravings after their daily hectic work life [3]. People easily avoid a healthy diet which is essential for well-being to save time for their work, studies, and even for entertainment. American spend an average of 47 minutes to prepare dish that is not preferable being a student or worker [4].

## Solution

To tackle this problem, we offer a system that is focused on homemade food delivery – “The Lunch Box”, where emphasises is on introducing a healthy lifestyle in terms of homemade food service with the target audiences such as Students, Athletes, working class, elders etc. This platform provides questionnaire for choices, preferences and allergies. Menu that can be suitable as per diet plans, 7-day meal planning functionality. Membership options are also provided to get the benefits of Nutrition’s advice, extra promotional offers, and free deliveries. A proper easy to use one click UI will be provided as a single page application to enhance the user experience and efficiently order items without wasting their time.

## Lean Canvas

Problem	Solution	Unique Value Proposition	Unfair Advantage	Customer Segments
<ul style="list-style-type: none"> <li>In order to catch up with the busy world, many does not have enough time to cook healthy food due to their hectic lifestyle or their busy schedule.</li> <li>Lack of cooking skills</li> <li>Students who do not have enough time to cook healthy food due to their busy academics.</li> <li>Few workers work multiple jobs to keep their living, so they often avoid a meal to be on time.</li> </ul> <p>The problem of missing a meal due to their work hours and perceived time barriers is a common problem for students and workers.</p>	<ul style="list-style-type: none"> <li>We provide healthy food with delivery option to save time or provide a meal for people who are not able to cook due to their busy schedules.</li> <li>We offer weekly meal plan to get rid of daily food ordering.</li> <li>We provide users option to select items in their meal plan giving the flexibility to decide their meal considering allergies, and diet for better experience.</li> <li>We offer premium benefits based on user premium plan.</li> </ul>	<ul style="list-style-type: none"> <li>We offer consistent quality food items and customization for the order they are placing.</li> <li>We offer food that is suitable for a variety of ages.</li> <li>We offer weekly meal plan which gives users option to customize their weekly plan based on their subscription.</li> <li>easy to navigate and use</li> <li>Time saving</li> <li>One click lunch box</li> </ul>	<ul style="list-style-type: none"> <li>Recipe – Nutritious features.</li> </ul>	<ul style="list-style-type: none"> <li>Students (18 – 35 years)</li> <li>Workers (25 – 45 years)</li> <li>People in Halifax (17+)</li> </ul>
Existing Alternatives	Key Metrics	High-Level Concept	Channels	Early Adopters
<ul style="list-style-type: none"> <li>Hello Fresh</li> <li>Indian Tiffin Service</li> <li>Halo Hub</li> </ul>	<ul style="list-style-type: none"> <li>Active Users</li> <li>Customer survey response</li> <li>Number of Goods Sold</li> <li>Profit</li> <li>Service Rating and Feedback</li> <li>Employee Turnover</li> <li>Inventory Turnover ratio - the number of items restaurant has sold out of its total inventory</li> </ul>	<ul style="list-style-type: none"> <li>Provides hygienic food</li> <li>Help health conscious people with maintaining nutrients</li> </ul>	<ul style="list-style-type: none"> <li>Social Media Marketing</li> <li>Food Bloggers</li> <li>Public events</li> <li>Hosting and Participating in Student Events</li> <li>Email Marketing</li> <li>Advertisements</li> <li>paper pamphlets</li> </ul>	<ul style="list-style-type: none"> <li>International Students</li> <li>Health conscious</li> <li>Athletes</li> </ul>
<b>Cost Structure</b>		<b>Revenue Structure</b>		
<ul style="list-style-type: none"> <li>Employee</li> <li>Hosting of website (20-30 USD/month)</li> <li>Safety Licensing Cost</li> <li>Maintenance of website</li> <li>Website Development</li> <li>Data storage (\$4.44 (\$1.25 per million writes x 3.55 million writes), \$0.89 (\$0.25 per million reads x 3.55 million reads)</li> <li>Sales and architects: <ul style="list-style-type: none"> <li>1 solution architect -90,000 CAD/annum</li> <li>1 sales executive -75,000 CAD/annum</li> </ul> </li> <li>Developers: <ul style="list-style-type: none"> <li>1 Manager-90,000 CAD/annum</li> <li>4 Developers-80,000 CAD/annum for each</li> <li>Supervisor:</li> <li>1 supervisor -30,000 CAD/annum</li> <li>10 packers -15,000 CAD/annum for each</li> </ul> </li> <li>Damaged Costs</li> </ul>		<ul style="list-style-type: none"> <li>Advertising</li> <li>Membership Revenue</li> <li>Collaborate with Universities/colleges to offer food services for off-campus students.</li> <li>Sponsorships.</li> <li>Revenue generated on orders.</li> <li>Delivery charges.</li> <li>Commissions earned on each order.</li> <li>Food trucks at events.</li> </ul>		

Figure 1: Lean Canvas

**Cost Structure:** Our cost structure constitutes of charges like hosting website ((20-30 USD/month), safety licensing cost, Maintenance of website (500 \$/month), website development, data storage (\$4.44 (\$1.25 per million writes x 3.55 million writes), \$0.89 (\$0.25 per million reads x 3.55 million reads). Employee salaries which are described below.

Sales and architects	Developers	Supervisor
<ul style="list-style-type: none"> <li>1-Solution architect \$90,000/annum</li> </ul>	<ul style="list-style-type: none"> <li>1-Manager \$90,000/annum</li> </ul>	<ul style="list-style-type: none"> <li>2-Supervisor \$30,000/annum</li> </ul>
<ul style="list-style-type: none"> <li>2-Junior Architects-\$75,000/annum</li> </ul>	<ul style="list-style-type: none"> <li>3-Developers \$80,000/annum</li> </ul>	<ul style="list-style-type: none"> <li>5-Packers \$15,000/annum</li> </ul>
<ul style="list-style-type: none"> <li>1-Sales executive -\$65,000/annum</li> </ul>		

The total cost structure for a year would be 985,000 \$

## Revenue Structure

We can do advertising on our website, where the cost for an advertisement would be ranging from 700\$-1000\$/month. We have membership plans costing 5\$ per meal, 6\$,8\$ per meal ) .We also intend to collaborate with universities/colleges to provide meal plans to the off campus students where the plans would be costing Bronze: 4\$ per meal , Silver: 5\$ per meal ,Gold :7\$ per meal ) min 100 pax .The other revenue generation plans would be through sponsorships, Revenue generated on orders, Delivery charges , Commissions earned on each order from catering, and events.

$700\$ * 12 \text{ brands} = 100,800 \$/\text{annum}$ ,  $1000 * 15\$ (\text{3 meals a day}) = 450,000 \$/\text{annum}$ , and  $1500 \text{ students} * 12\$(\text{3 meals a day}) = 540,000 \$/\text{annum}$  which makes the total revenue generated would be  $1,090,800 \$/\text{annum}$ .

## Survey

- A survey has been done to identify the various components of the application. The survey helped to identify a specific age group, their occupation, major problems, cooking skills, preference for homemade food and fast food.
- A study was very helpful as we contacted some potential customers in person and over the phone as well to figure out the issue of consuming the healthy food is common across Canada between the age group of 17 – 30 (Basically workers and students).

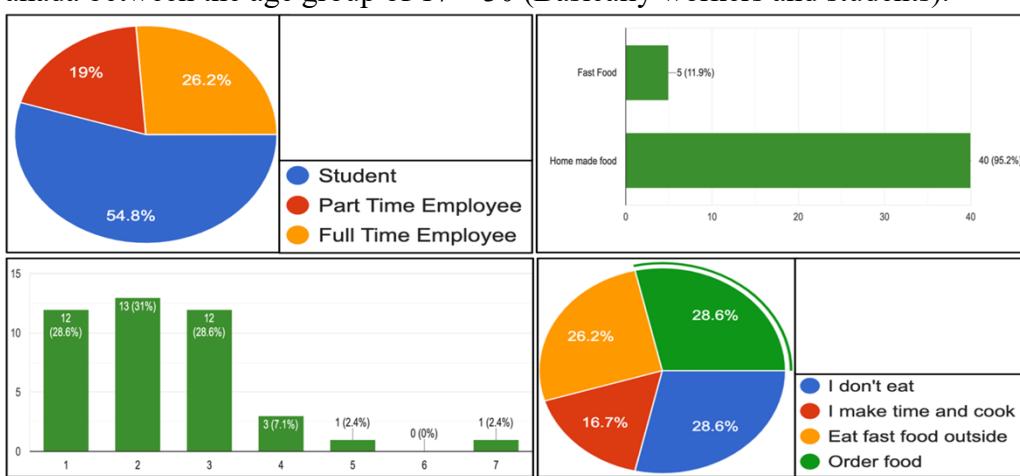


Figure 2: Customer Survey

## Compiling Cases

Eva is current Master's in Applied Computer Science Student at Dalhousie University. She has 2 part-time jobs and with the hectic study schedule she does not have time to cook at home. She does not want to eat junk food. She wants healthy and balanced diet. She wants a healthy diet, so she can maintain the 2 jobs and perform well academically.

Archie is an international student who came to Halifax about a month ago. He does not know how to cook. He has been eating a lot of junk food as none of his roommates know how to cook either. Doing this for a whole month, he gained a noticeable amount of weight, and now he is worried about health problems. He wants to eat a healthy and balanced diet that helps him maintain his strength and lose fat. He misses healthy homemade food. He needs a place that fulfils all his precedent needs.

Joseph is a workaholic. He works more than 40 hours a week. He loves his job and wants to be the best at what he does. His time is spent on his work he cannot make a decent meal at home. He needs a nutrient-rich diet to maintain his sharp edge at his job. Getting nutrient-rich and balanced food is a must for him.

## Business Model

The initial solution to our problem was to provide a certain delivery system through which a person can have the food cooked at their home at their offices, collages, and work places. The survey from 60 people helped improvise the business plan as some international students are busy and don't have facilities of home-made cook.

Considering the problem at hand we improvised the idea and thought about managing to create our own homemade food. We did analysis on that as well and got the requirements for establishing the inventory for organizing the entire business. We contacted the Canadian Institute of food and safety to get their insight on our idea to see the feasibility. After contacting around 20 people we get the idea of requirements such as, dedicated rental place for cooking,

health and safety licencing, and fire safety licencing. We also contacted some catering services at the end from where we opted totally new area through which those costs can be avoided.

Finally, we reached at the conclusion of working with catering vendors who can be managed by our own supervised business plan. Through the application the details can be fetched for orders and the food can be prepared using healthy ingredients with a proper technique and supervision. Through bulk order with catering services the cost of acquiring dedicated space for cooking, licencing, and inventory costs can be reduced.

The solution we offer is a web portal for students and workers and focuses on limited features making it easy to use and to stay focused.

- Index of the information of the all the included ingredients in the dish offered.
- Platform that helps to plan the weekly food by providing two options: one is chef's special menu, and another is considering the calories.
- Membership offers to attract customers by providing the free delivery, nutrition advice, coupons for discount, etc.
- Customer feedback on the dishes they order.

### [High level Description of Solution](#)

#### **Feasibility of solution:**

The proposed solution is a platform provides home made food to ensure healthy life and proper meal planning considering the nutrition. Students who want to eat healthy but due to hectic lifestyle cannot manage to cook, they can explore dishes which is being provided with the nutrition included from this website and order the food. The idea includes dedicated space for cooking and resources to cook the rich nutritious food. We are going to hire the catering that considers the nutrients which cooking. Also, we have contacted the gym trainers' and dietitians to get more knowledge on the dishes. The solution includes the human resources to develop the software solution. There are plenty of technologies such as Cloud computing to host and

automatically scale the web application. Also, we are considering the ReactJS for the front-end technology which is popular front-end framework that gives benefit to find out the solutions easily. This makes the proposed solution feasible and practical to implement.

#### Features of the application

Login/Signup	User profile	Menu with Nutrition	Cart	Meal planner
Payment	Feedback	Membership	Promotional Offers	Chat

The mentioned features resolve several existing problems such as Lack of proper nutrition food which being in hectic lifestyle, inability to cook but misses homemade food, never thought of calories before eating the dish, absence of events for students to collaborate, unable to reach out to proper food guide, genuine feedback from customers about the dishes.

#### [The Progress Report](#)

The idea of providing a homemade and healthy food is mainly focus on the accomplishing a task of achieving health conscious society. People really enjoys homemade food and hope to eat it throughout their busy schedules. The application comes in handy especially when people don't have enough time to cook the food and they have to skip their meals or make some time. To solve this problem we are focusing on the web application that can help people intake healthy food in terms of diet and physical health. Our team has completed the ideate phase and we are turning towards the point of accomplishing responsive and elegant webpage with some awesome features as mentioned earlier.

Completed Tasks	Tasks in Progress	To be Completed Tasks
<ul style="list-style-type: none"> <li>• Ideation</li> <li>• Lean Canvas Preparation</li> <li>• Customer Survey</li> <li>• Research on Food industry work</li> <li>• Tools and Technology selection</li> <li>• Feature Discussion</li> <li>• Database Design</li> </ul>	<ul style="list-style-type: none"> <li>• Frontend Design</li> <li>• AWS Database Setup</li> </ul>	<ul style="list-style-type: none"> <li>• Backend as a Service (BaaS) Task Completion</li> <li>• Combining backend and frontend logic</li> <li>• Testing Application</li> <li>• The Pitch – to represent our product</li> </ul>

## Appendix

### Survey Questions

#### To users:

1. What is your occupation?
2. Can you cook?
3. How much time it takes for you to cook?
4. How many items you can cook?
5. What will you choose if the cost will be same?
6. How frequently you order from outside per week?
7. Do you plan for a week or cook anything you want?
8. On busy schedule do you skip a meal or cook?

#### For existing tiffin service systems:

1. Do you hire catering for cooking or provide homemade food?
2. How many dishes should we consider at initial stage?
3. Do people adopt the tiffin service? Why?
4. Do you take charge on the dishes you prepare?
5. Have you pre-decided the menu?
6. Do you use any platform for users? If no, how can you take orders?
7. What difficulties you have faced till now?

#### For Food delivery system:

1. what is the cost for the delivery?
2. how fast is your delivery?
3. At the same time, to how many people can you deliver?
4. If we are giving the food orders to you, how much profit will we earn?

#### For Catering services:

1. Will you be able to cook considering the diet?

2. Also considering the nutrients.
3. How much profit can we earn by giving the orders to you?
4. At the same time, how many dishes you can prepare?

### Survey Form

**Project survey - The LunchBox**

Survey for home made food delivery project

Email \*  
Valid email

This form is collecting emails. [Change settings](#)

Name  
Short answer text

What is your occupation?  
 Student  
 Part Time Employee  
 Full Time Employee

On busy schedule do you skip a meal or cook?  
 I don't eat  
 I make time and cook  
 Eat fast food outside  
 Order food

Comments  
How do you prefer home made delivery system.  
Long answer text

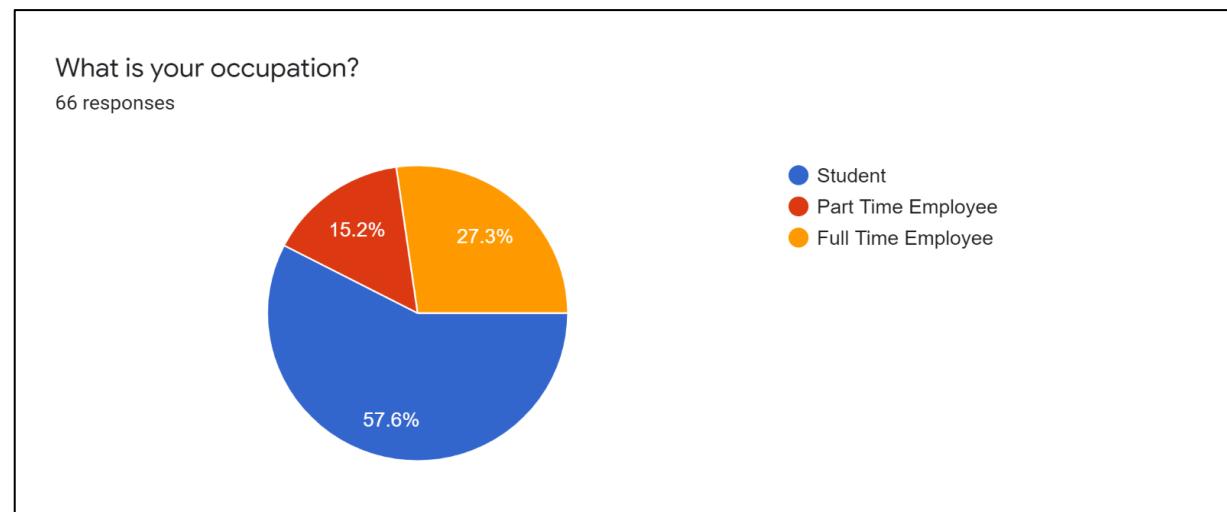
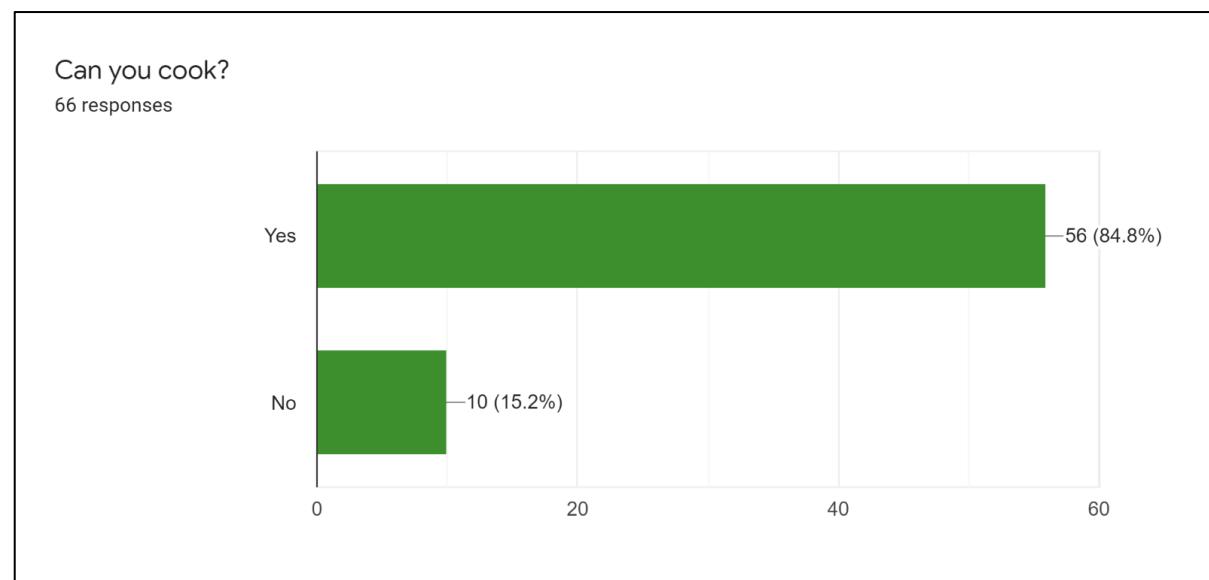
How much time it takes for you to cook?  
 30 minutes  
 60 minutes  
 90 minutes  
 120 minutes

How many items you can cook?  
 0 1 2 3 4 5 6 7 8 9 10  
 None  Many

What will you choose if the cost will be same?  
 Fast Food  
 Home made food

How frequently you order from outside per week?  
 1 2 3 4 5 6 7  
 Never  Everyday

Figure 3: Survey Form

**Survey Analysis***Figure 4: Question 1: analysis of customer occupation**Figure 5: analysis of cooking skills*

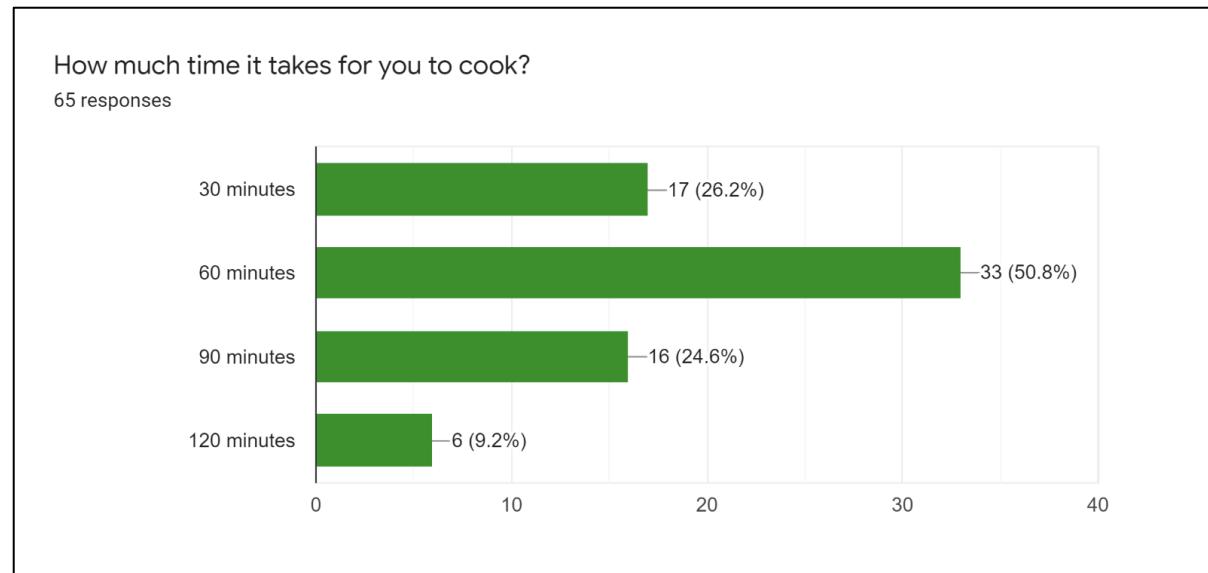


Figure 6: Analysis on cooking time

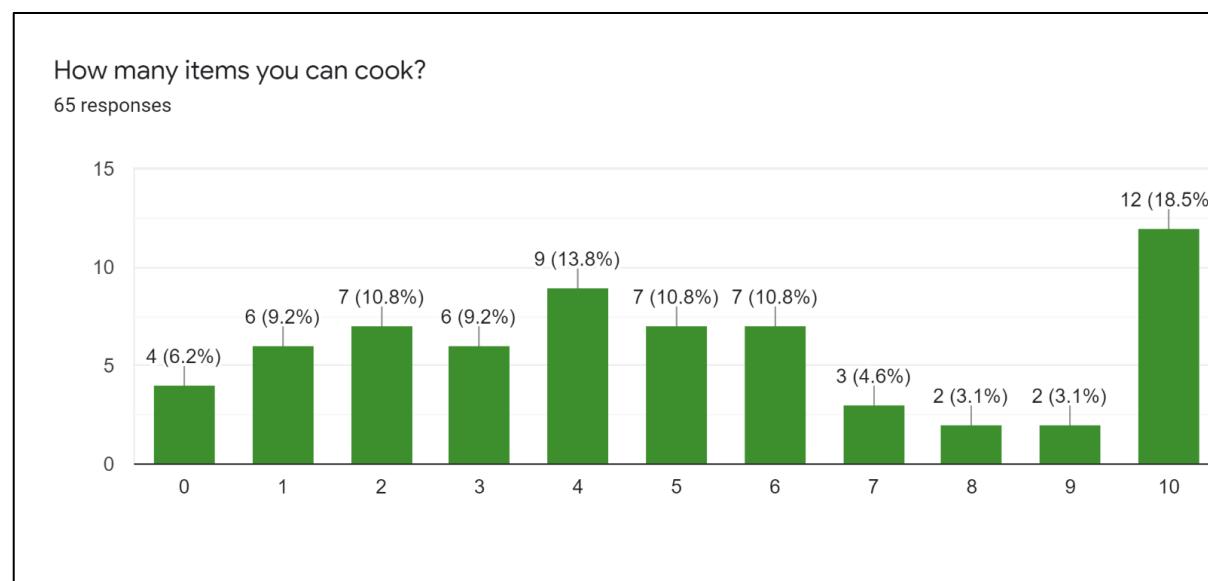


Figure 7: Analysis for Cooking Items

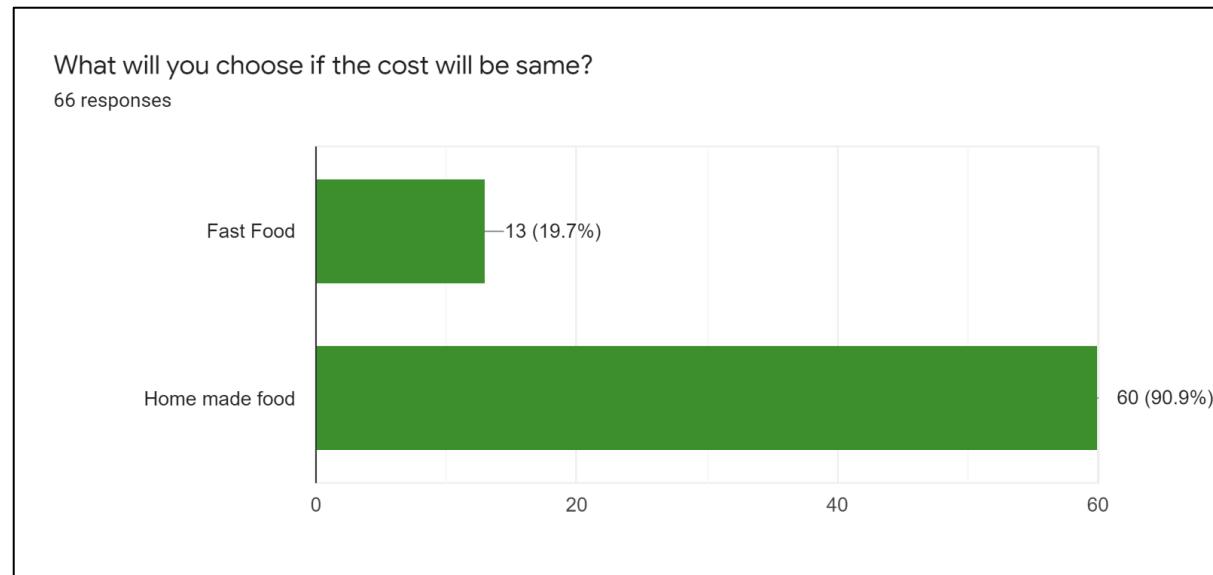


Figure 8: analysis of choice between fast food and homemade food

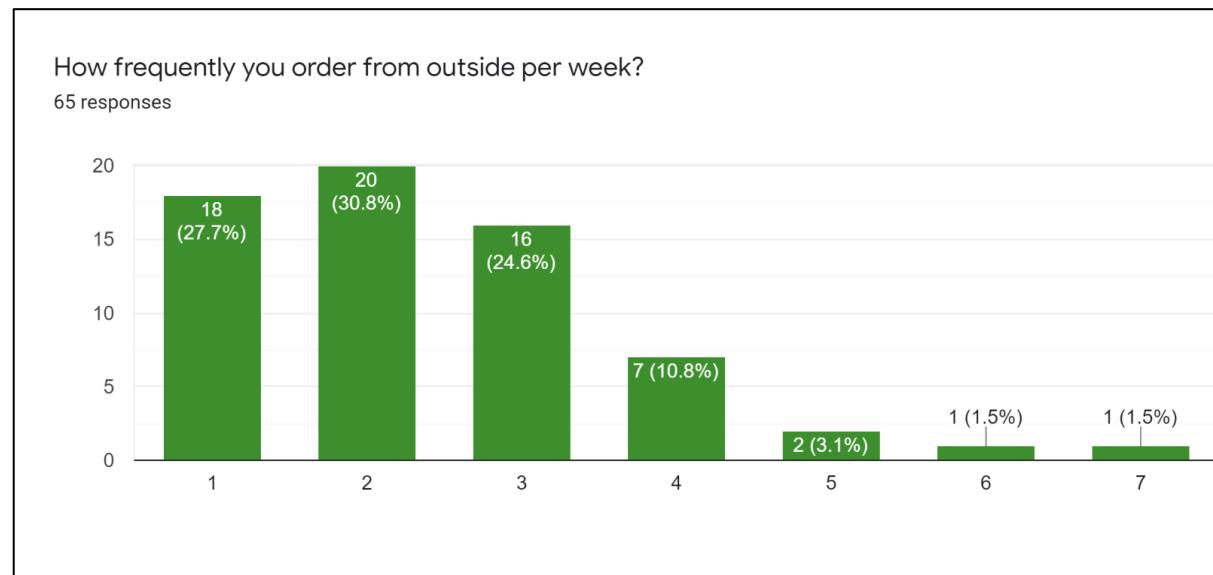


Figure 9: analysis of food order frequency

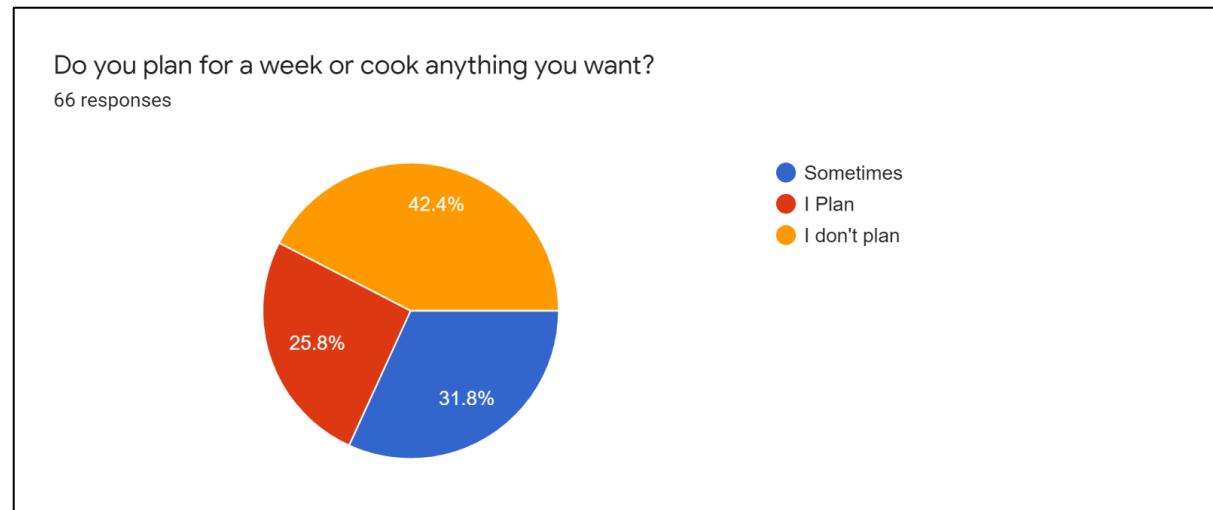


Figure 10: analysis of planning on food menu



Figure 11: analysis of eating habits

## Sprint Planning

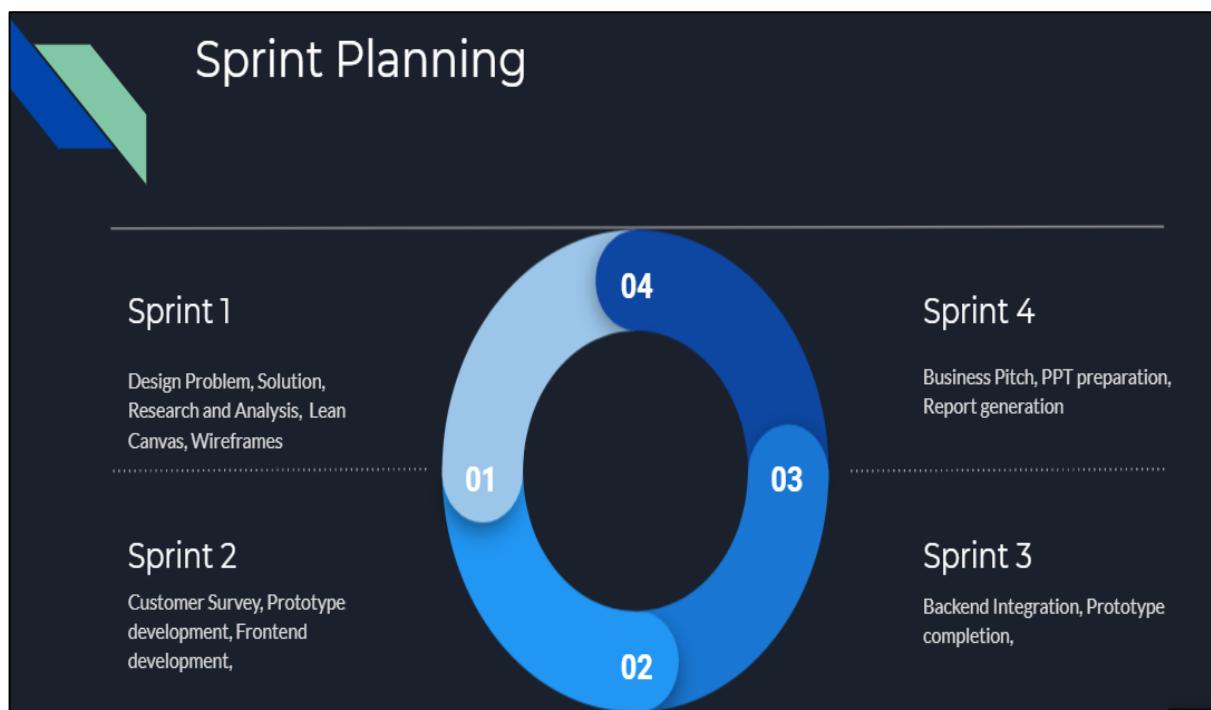


Figure 12: Sprint Planning

## Website flow

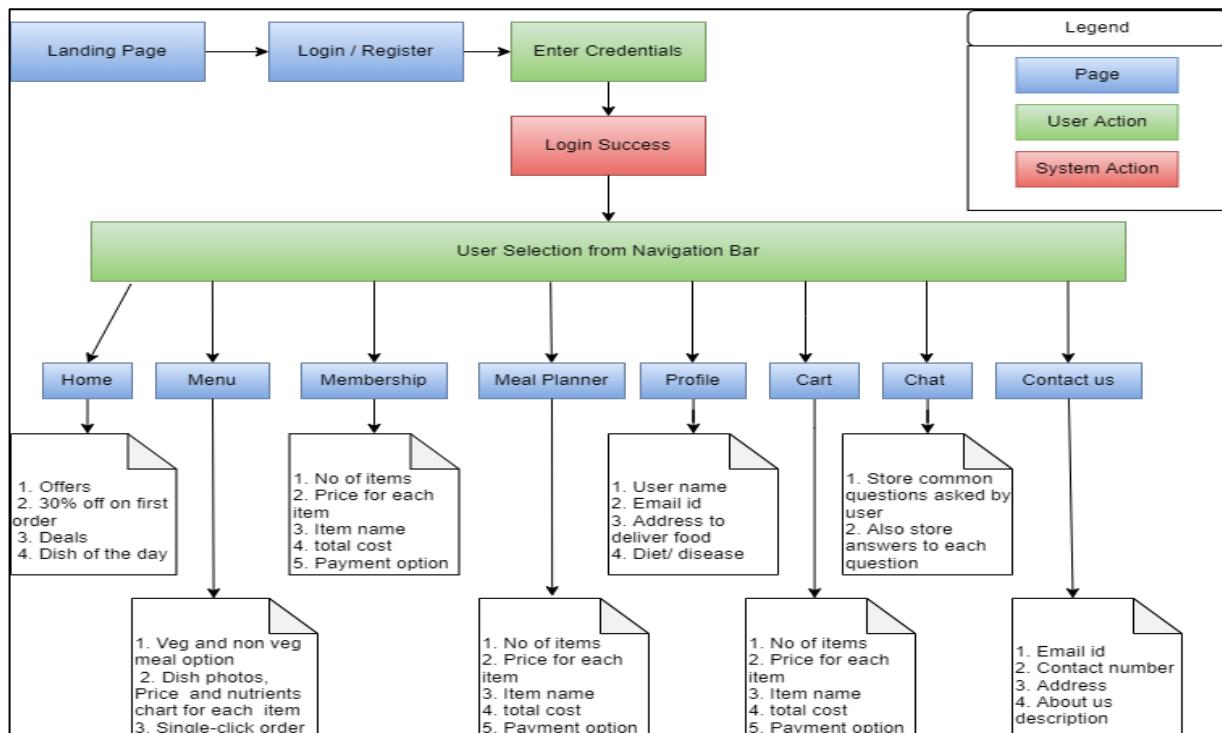


Figure 13: Website Flowchart

## Database design

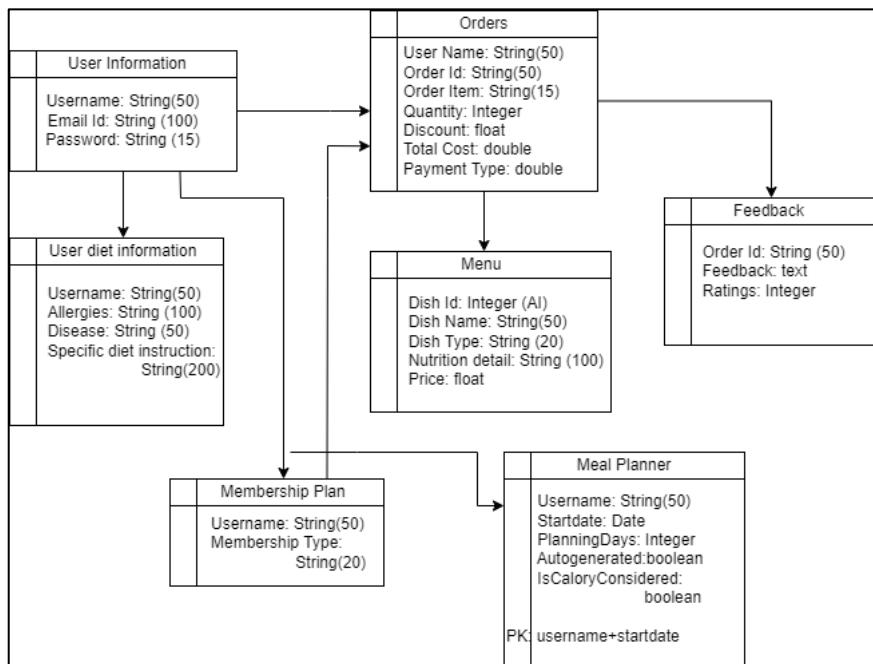
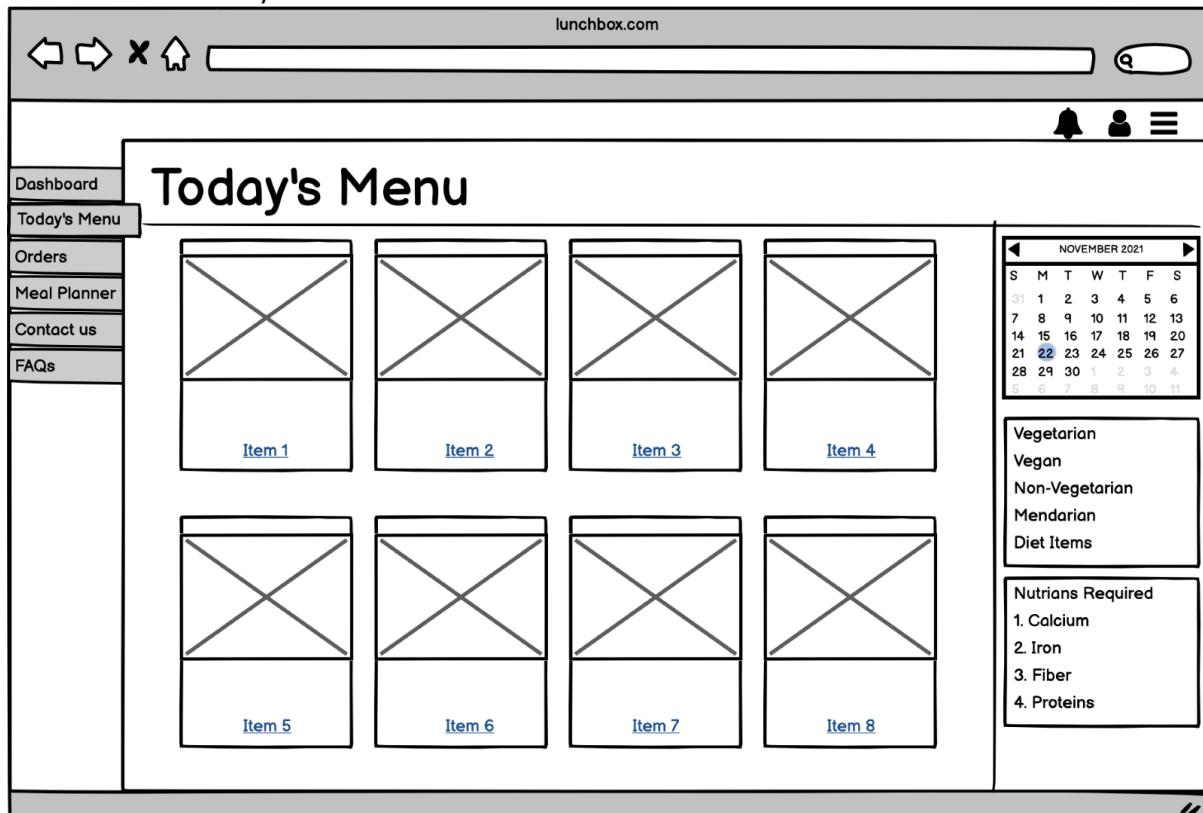


Figure 14: Database Design

## Wireframes

### 1. Today's Menu



*wireframe for menu page*

2. Order History

The wireframe for the Order History page shows a header with a search bar and user icons. A sidebar on the left includes links for Dashboard, Today's Menu, Orders (which is selected), Meal Planner, Contact us, and FAQs. The main content area displays a table of ordered items with columns for Ordered Item, Price (\$), Date, and Review (with checkboxes). To the right of the table is a November 2021 calendar, a section for diet filters (Vegetarian, Vegan, Non-Vegetarian, Mendarian, Diet Items), and a section for Nutrients Required (Calcium, Iron, Fiber, Proteins).

Ordered Item	Price (\$)	Date	Review
Tofu (Ingredients)	10	2021/11/19	<input type="checkbox"/>
Salad (Ingredients)	5	2021/11/19	<input checked="" type="checkbox"/>
Vitamin Juice (Ingredients)	10	2021/11/19	<input type="checkbox"/>
Chickpea Masala (Ingredients)	10	2021/11/15	<input checked="" type="checkbox"/>
Paneer Butter Masala (Ingredients)	15	2021/11/15	<input checked="" type="checkbox"/>
Spiced Rice (Ingredients)	10	2021/11/15	<input checked="" type="checkbox"/>
Stuffed Capsicum (Ingredients)	10	2021/11/14	<input checked="" type="checkbox"/>
Mishal Pav (Ingredients)	10	2021/11/14	<input checked="" type="checkbox"/>
Rice (Ingredients)	10	2021/11/14	<input checked="" type="checkbox"/>
Kidney-Beans (Ingredients)	15	2021/11/13	<input checked="" type="checkbox"/>

*wireframe for order history*

## 3. Meal Planner

The wireframe for the Meal Planner shows a header with a search bar and navigation links for Dashboard, Today's Menu, Orders, Meal Planner (selected), Membership, Contact us, and FAQs. The main form allows users to select meal type (vegetarian, vegan, non-vegetarian), choose days (3 days), set start date (22/11/2021), and specify meal type (Lunch, Dinner). It also provides options for menu creation (Chef Special Menu, Menu based on Calories, Select Items for Menu) and displays a preview table for the selected days.

Date	Menu	Meal
22/11/2021	Paneer Paratha	Lunch
23/11/2021	Chole Puri	Lunch
24/11/2021	Dosa	Lunch

*wireframe for meal planner: chef special menu*

A Web Page  
 https://

Dashboard Today's Menu Orders Meal Planner Membership Contact us FAQs

Select Meal Type

For how many days you want to generate menu:

Start date for menu:

Meal:  Lunch  Dinner

Choose one of the option for menu creation:

I want to eat

wireframe for meal planner: Menu based on Calories

A Web Page  
 https://

Dashboard Today's Menu Orders Meal Planner Membership Contact us FAQs

Select Meal Type

For how many days you want to generate menu:

Start date for menu:

Meal:

Choose one of the option for me

I want to eat

Nutrition calculator

I want to

I am

Height

Weight

Age

Bodyfat

Activity level

wireframe for meal planner: nutrition calculator

A Web Page

This wireframe shows a meal planning interface. At the top, there's a navigation bar with links: Dashboard, Today's Menu, Orders, Meal Planner (which is highlighted in blue), Membership, Contact us, and FAQs. Below the navigation bar, there are buttons for 'vegetarian', 'Vegan', and 'Non-Vegetarian'. A text input field says 'For how many days you want to generate menu:' followed by a button '3 days'. A date picker shows 'Start date for menu: 22/11/2021'. Under 'Meal:', there are checkboxes for 'Lunch' (checked) and 'Dinner'. Below these, there are three buttons: 'Chef Special Menu', 'Menu based on Calories' (which is highlighted in blue), and 'Select Items for Menu'. A table below the buttons shows a menu for three days:

Date	Menu	Meal	Calories
22/11/2021	Paneer Paratha	Lunch	276
23/11/2021	Chole Puri	Lunch	427
24/11/2021	Dosa	Lunch	310

*Wireframe for meal planner: Menu generated based on calories*

A Web Page

This wireframe shows a meal planning interface similar to the previous one, but with a different focus. It has the same navigation bar and meal selection options. The 'Select Items for Menu' button is highlighted in blue. Below the buttons, there are seven empty square boxes, each containing a large 'X'. Underneath these boxes, there are three rows of date and meal information: '22/11/2021 Lunch', '23/11/2021 Lunch', and '24/11/2021 Lunch'. Each row has a corresponding empty square box with a large 'X'. At the bottom left is a 'Special Instructions' input field, and at the bottom right is a 'Save' button.

*Wireframe for meal planner: select items from menu*

## 4. Membership

A Web Page

Offers	Bronze	Silver	Gold
Discount per order	10%	20%	30%
Nutrition advice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Free delivery	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Price	200\$/month	250\$/month	300\$/month

Choose membership      Bronze    Silver    Gold

Save

Special Instructions      Save

Wireframe for meal planner: membership page

## Prototype

## Screen 1) Menu items

HOME MENU ORDERS MEAL PLANNER MEMBERSHIP TESTIMONIALS NEWSLETTER

## FAVOURITE ALL THE TIME!



chickpeas masala  
\$22.4/pcs

BUY NOW



Healthy Salad  
\$5.5/pcs

BUY NOW



Bajri rotla  
\$8/pcs

BUY NOW

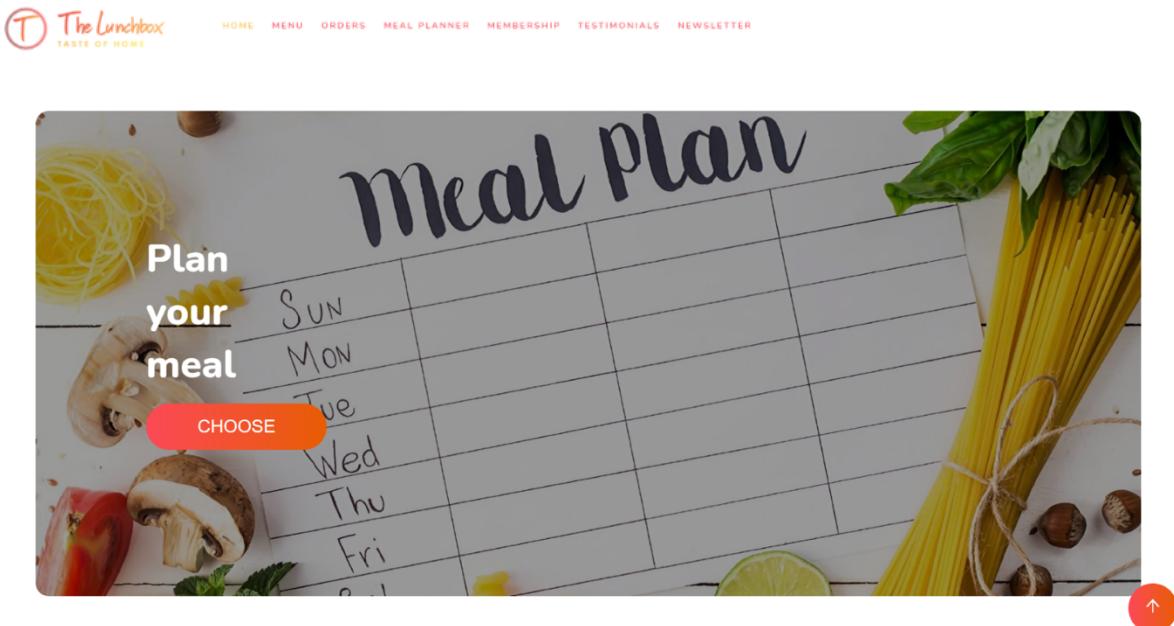


Frenkie  
\$12.5/pcs

BUY NOW

Menu option page

## Screen 2) Meal Planner

*Meal planner page*

## Screen 3) Membership

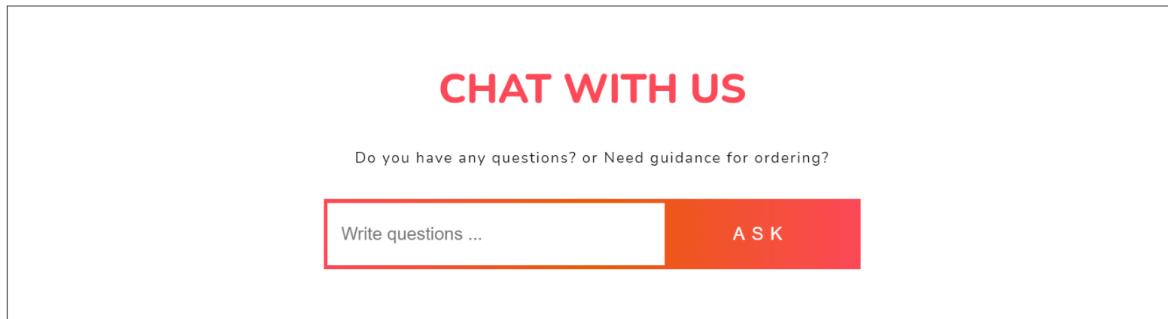
The image shows the membership planning page of the The Lunchbox website. At the top left is the logo 'The Lunchbox TASTE OF HOME'. Below it is a navigation bar with links: HOME, MENU, ORDERS, MEAL PLANNER, MEMBERSHIP, TESTIMONIALS, and NEWSLETTER. The main content is a table titled 'Select Plans!' comparing three membership levels: BRONZE, SILVER, and GOLD. A 'BUY NOW' button is located in the top-left corner of the table. The table rows represent different perks: Discount per order, Free delivery, Weekend offer, and Price.

Select Plans!		BRONZE	SILVER	GOLD
<a href="#">BUY NOW</a>	Discount per order	5%	10%	12%
	Free delivery	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Weekend offer	Buy 1 Get 7% off on next order	Buy 1 Get free drink	Buy 1 Get 1
	Price	50\$/month	70\$/month	100\$/month

*Membership planning page*

## Screen 4) Chat





*Chat page*

## References

- [1] Published by Statista Research Department, & 2, J. (2021, July 2). *Canada - average fast food consumption per week 2016-2018*. Statista. Retrieved November 30, 2021, from <https://www.statista.com/statistics/561254/canada-average-fast-food-consumption-per-week/>.
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- [4] *Americans spend an average of 37 minutes a day preparing and serving food and cleaning up.* USDA ERS - Americans Spend an Average of 37 Minutes a Day Preparing and Serving Food and Cleaning Up. (n.d.). Retrieved November 30, 2021, from <https://www.ers.usda.gov/amber-waves/2016/november/americans-spend-an-average-of-37-minutes-a-day-preparing-and-serving-food-and-cleaning-up/>
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