FACULTY OF COMPUTING

SECP1513-01-04-2024/2025 1: TEKNOLOGI DAN SISTEM MAKLUMAT

LECTURER: DR ARYATI BAKRI

DESIGN THINKING PROJECT

COURSE: BACHELOR OF COMPUTER SCIENCE (Hons.)

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1. <u>INTRODUCTION</u>

Our understanding of current design thinking methods have been a simple inology of the method made by our peers and our understanding of technology. In our coursework of Technology and Information System (SECP1513), we are required to carry out a project based on "Design Thinking''. To demonstrate our understanding of the subject,

we initiated a fundamental approach and crafted solutions with a view to overcome the issues that we confront in our daily lives. We concluded on an application where users are able to check prices retailed by different supermarkets, compare and make the best decisions on the financial knowledge provided.

In this current era, store branches have expanded to a front where different brands have different prices. The current user would find themselves not knowing what brand to take with in regards to the expansion of the store businesses recently. Our idea on the application of a universal price checker would be able to help and make easier decisions on grocery market purchases and allow users to shop smarter and make economic decisions.

To guarantee the stability of our proposal, we will use a design thinking method and decide on things such as empathy questions and evaluate possibilities of the application based on emotional and empathy questions, we further proceed by conducting a brainstorming process and collect an insights on how the prototype will be made based on the problem statements analyzed. The design thinking process consists of five stages which are empathizing, defining, ideating, prototyping and testing conducted to overcome the problems identified. Implementation will be carried out accordingly.

Lastly, we will asset our understanding and will do individual reflection on our idea and conducting process with hope of our knowledge wide. In conclusion, we hope to be able to widen our knowledge in design thinking and how it could help us in development and future projects and course work

2. <u>DETAIL STEP AND DESCRIPTIONS IN DESIGN THINKING</u>

LOGBOOK:

DATE	ACTIVITIES
16th of November, 2024	**Briefing session with Dr Aryati discussing the assignment.** - Group distribution took place and instructions with the relevant criterias were explained. - Rubric guide was provided acting as a reference.
16th of November, 2024	**Brainstorming session with team members.** - Brainstorming ideas included drawing samples and question drafting. - Relevant questions were put into consideration to get accurate insights.
18th - 22th of November, 2024	**Topic & interview questions selection.** - Relevant questions were finalized focusing on our idea. - Meeting adjourned to finalize the project interview session.
7th of December, 2024	**Idea pitching session with the lecturer and input exchange session.** - Lecturer advised on the improvements needed and confirmed idea creation. - Once pitching session was finalized, begun the search for interviewees
9th - 13th of December, 2024	**Interviewing session with candidates.** - Interviews were conducted with a few candidates and properly documented. - Pointer notes taken from the interviews. - Candidate insights were gathered.
14th - 20th of December, 2024	**Prototype making.** - Task for each member was agreed and distributed - Prototype designing based on selected concepts was started. - UI Prototype making and Application Design were created.
21st - 28th of December, 2024	**User Review.** - Reviews from the selected users were gathered. - Report writing included intel and insights gathered. - Videos were produced as evidence.

27th of December, 2024	**Project Final Preparation.** - Report was finalized, proofread & formatted accordingly. - Materials for the presentation were finalized and prepared.
28th of December, 2024	**Project Presentation.** - Report submission and project presentation were both conducted. - Problem statements and solutions were explained. - Prototype was introduced explaining the functionality and UI design and usages were introduced.

3. <u>DETAILED DESCRIPTIONS OF PROJECT INCLUDE PROBLEM, SOLUTION AND TEAM WORKING</u>

Our project is focused to overcome the user's difficulty in comparing the different prices of the same product being sold at different supermarkets. Malaysia offers a wide range of supermarket choices and each supermarket retails a different price and offers different promotions. Malaysia's retail landscape includes a diverse range of shopping

venues, from massive shopping malls and department stores. With so many items at different prices, it is proven very difficult to get the best economic price.

Problems identified from the interview sessions are as below:

1. Consumers often buy the same products at higher prices from different supermarkets due to price inconsistencies.
2. The lack of a simple tool to compare prices across multiple stores leads to missed savings opportunities.
3. Consumers struggle to make informed, cost-effective decisions when shopping for everyday goods.

Solution

The idea creation was implemented based on the problem statements identified. Our prototype will enable potential users to compare the different product prices sold at different supermarkets. With the current fluctuation crisis that Malaysia is undergoing, this creation will ideally benefit the users to make the best financial decision without overspending unnecessarily.

4. DESIGN THINKING ASSESSMENT POINTS

a. During the final demonstration of the project

At the end of the project, our team will present our app titled 'Beans & Bargains' to selected candidates to rate the results and effectiveness of the app at its best. This rating is analyzed to determine the function convenience hoping it will meet the users' expectations. The focus of this project is divided into three main criteria: convenience,

functionality, and user satisfaction. For convenience, it was assessed by noting how accessible the app is and fulfilling the necessary requirements. For functionality as well, it was assessed by testing whether the app was accurately displaying supermarket information and compared prices as desired by these apps. Finally, user satisfaction was measured through feedback about the design and overall features of the app. This assessment provides key insights into the strengths and areas for improvement of the app, ensuring it is practical and user-friendly.

**b. During the transition between design thinking phases**

Throughout the project, our team conducted assessments transitions between phases in the design thinking process. After conducting user interviews in the empathy phase, we thoroughly analyzed the data to ensure a deep understanding of the users needs before moving to the problem defining phase. In the transition from defining to generating ideas, we evaluate the creativity and usability of the generated ideas and make the selection that best suits the users challenges. Before creating a prototype, our team also evaluated whether the chosen idea can be implemented realistically and later provide value and impact to users. Likewise, before the testing phase, we conducted an internal evaluation of the developed prototype and correct any major issues before presenting it to external users. This continuous assessment helps maintain focus, encourages creativity, and ensures user needs are always at the top priority of our projects.

5. DESIGN THINKING EVIDENCE

A. THE SAMPLE WORK BY STUDENTS WORKING TO SOLVE THE DESIGN CHALLENGE

Task distribution was conducted to segregate the workload amongst ourselves and decisions on the prototype creation were made. The decision on making a simple UI is proven due to the lack of knowledge and understanding of creating UI in most communities. We performed with satisfaction to create a proper UI suitable based on

the requirements needed. Various online meetings amongst ourselves were conducted and members of the group successfully learned about each individual's strengths and weaknesses. This will allow contributions made to the project very practical and strategic. Each member participated and responded actively to achieve project success while improving team efficiency.
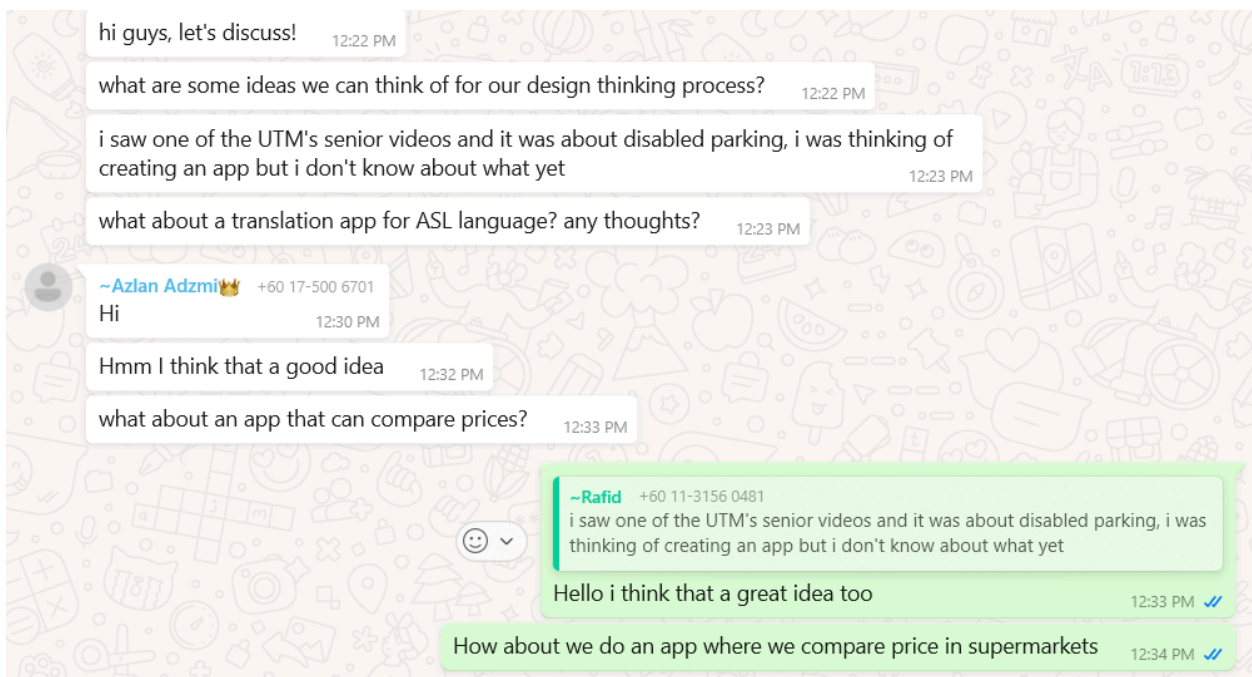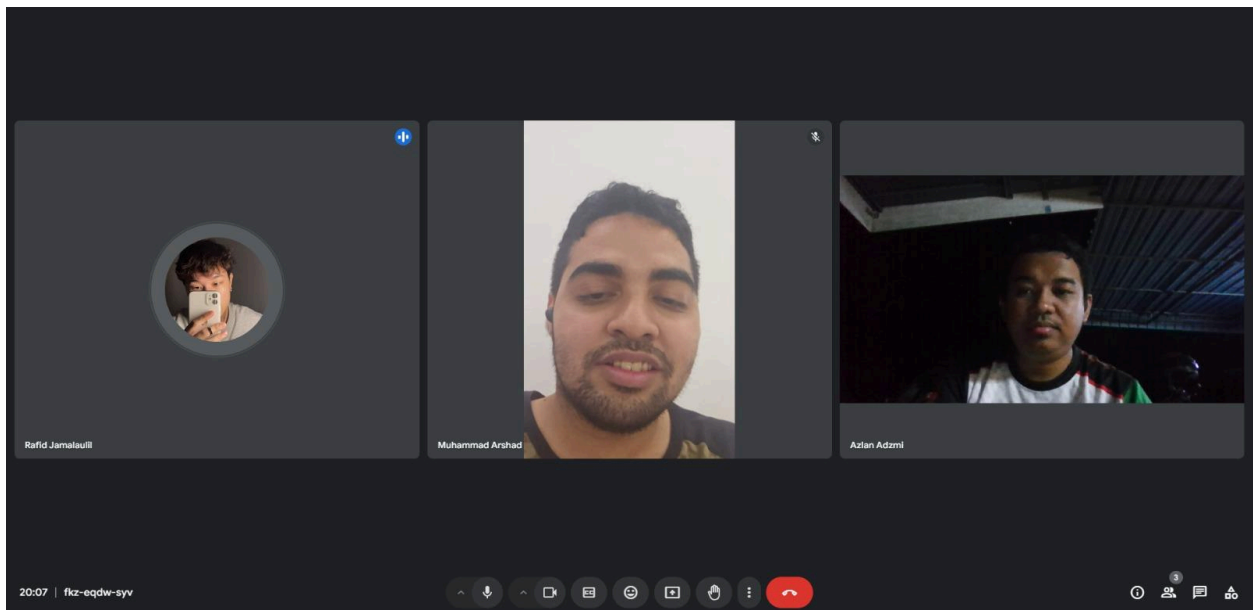
B. RECORD FOR EACH PHASE

The 3 phases relevant are empathy, define, and ideate.

1. <u>EMPATHY</u>

Objective

In the Empathy phase, we conducted an interview with users and asked them questions via a questionnaire that had been prepared. Information about their shopping behaviors were collected, emphasizing on the difficulty in price comparing for supermarket goods. Analysis was made and insights were gathered in order to overcome the highlighted problems.

<u>Questionnaire questions samples are as below:</u>

Questionnaire
- Please introduce yourself (name, sex, occupation)
- Where do you always shop for groceries? (physical, online)
- Which supermarket do you always shop at?
- What is the most important thing when shopping at the supermarket?
- What challenges do you face when shopping at the supermarket?

Composite character (Persona)

Name : Muhammad Azlan Bin Adzmi

Age : 37 years old

Background : Working as system support manager at a software company. Married and his wife is a housewife and has 4 children, 3 of them are at school. In the family only azlan is working and with his salary he needs to be smart to manage the financial plus have savings for the future.

Goal : An efficient app to manage and compare prices real time between supermarkets and other groceries available.

2. <u>DEFINE</u>

In the define phase, input data was analyzed during the empathy stage to help identify the challenges of user difficulty in comparing the prices. As per stated earlier, Malaysia offers a wide range of supermarket selections with each store offering different retail prices for the same product. As per the feedback analysis, we focused on the problem statement and set a clear objective for our project.

There are a few challenges what user encounter
- Finding the same product at a lower price. User difficulty to search for the same product at lower prices, which influences their purchase decision.
- Managing financial for those with a single income source especially parents like Mr Azlan. He is facing difficulties in managing his finances due to limited income, which affects his financial decisions.
- Lack of information about which store sells the product, mostly misinformation on which store offers the best price for a specific product.

To address the mentioned issues encountered, our main solution is to develop a user friendly application that contains information about the price of supermarket goods with the different prices labelled.

3. **IDEATE**

In the ideate phase, we focused on generating creative ideas synchronized with the challenger identified user needs. Through brainstorming sessions, we explored and conducted research on existing solutions, and outlining features such as a user-friendly interface, real time price update and comparison tools to ensure practicality and convenience.

Process Key Steps :

- ● Brainstorming and Research
- - Explore existing solutions in the market and try to understand how its works and the benefits in the market.
- ● Feature Definition
- - Feature real time price update, price comparison tools and simple. User Friendly user interface feature.
- ● Feasibility study
- - Define the technical feasibility and user impact of each idea to ensure the solutions provided are practical and effective.
- ● Selection
- - The idea comparison price checker 'Beans & Bargains" app concept is the best option with user priorities, offering clear and actionable benefits.

The chosen solution 'Beans & Bargains", will provide a real time price comparison across multiple supermarkets or stores in Malaysia, with function notification for discount and deals, and feature user friendly user interface for ease of use. This application is selected because it directly addressed user challenges such as needing a simple app, efficient to compare price with real time price update and find the best deals.
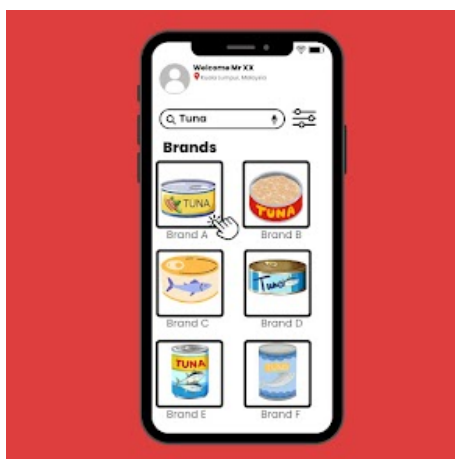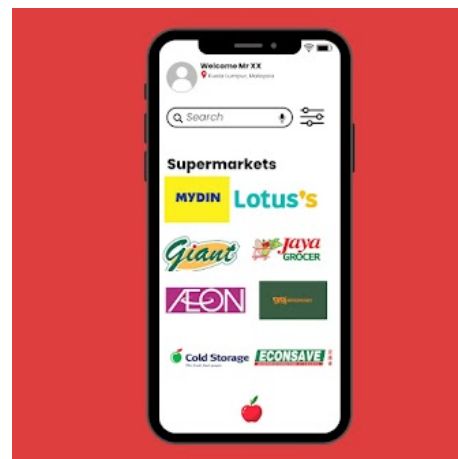
6. PROTOTYPE

Youtube Link : https://youtu.be/r8FSxq8PffA
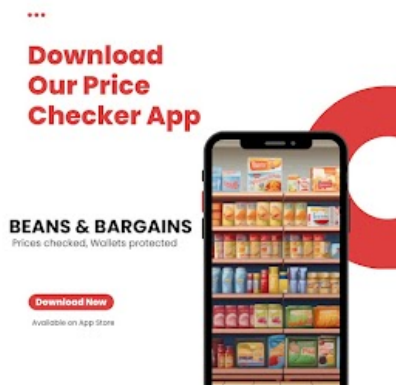
App Installation 'Beans & Bargains'
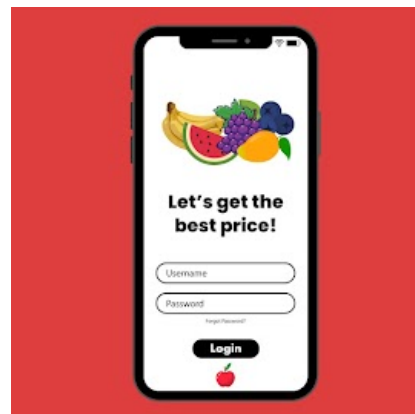
**Create Account & Log In**

Product Selection


Supermarket Availability

Product & Price Display

7. TEST

In this stage of the project we begin to show users our prototype and ask for feedback on those prototypes. We built one prototype due to time constraints but feedback from users was collected and analyzed from the surveys. 20 responses based on our prototype were recorded with positive feedback as the higher margin and gave us feedback on how to improve the UI system.
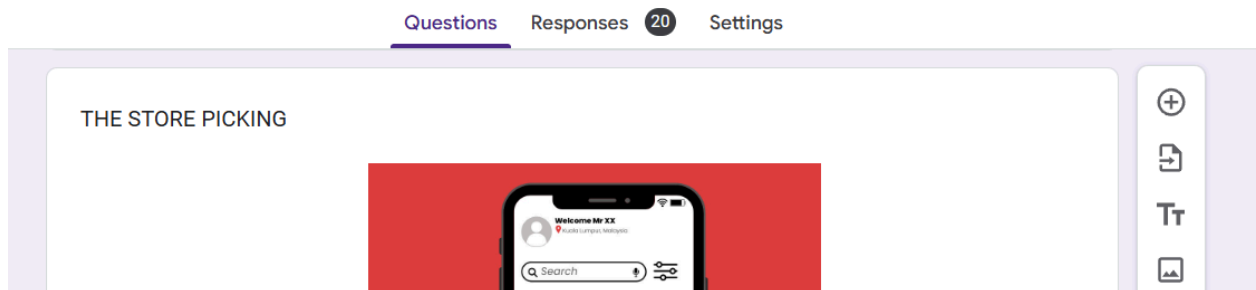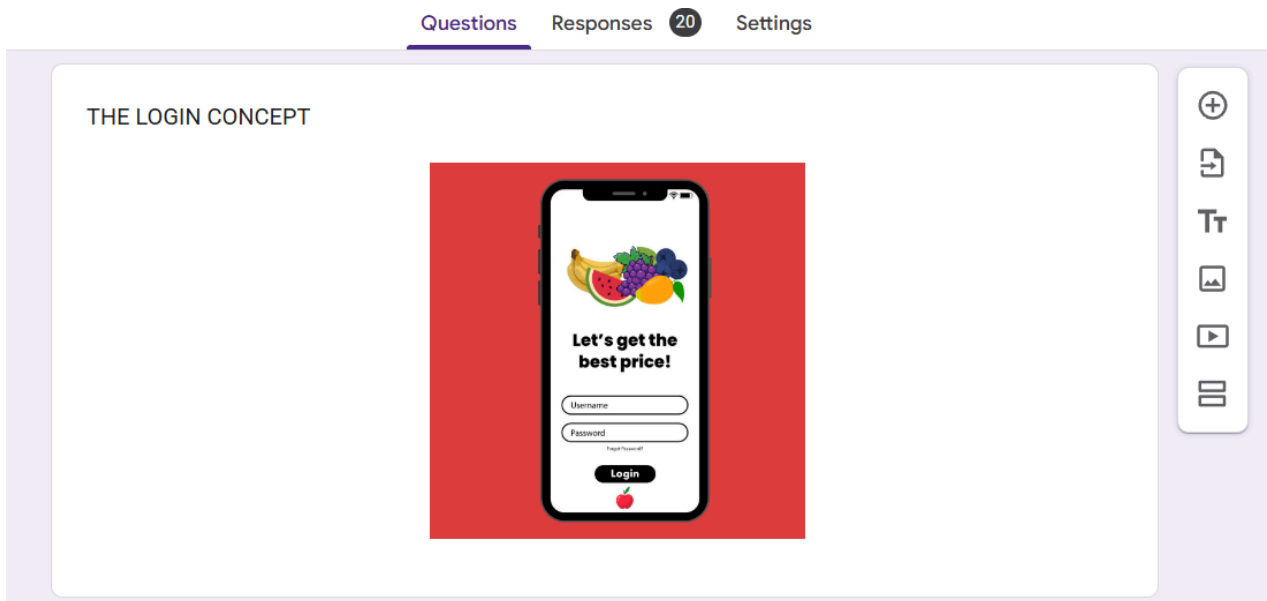
THE BRAND PICKING
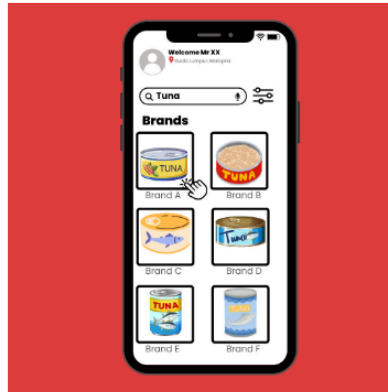
OUR UI DESIGN
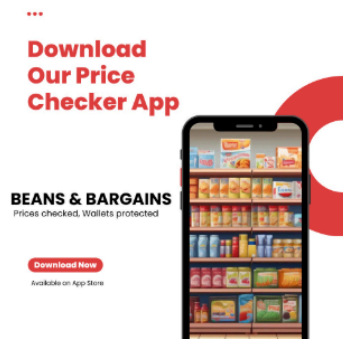
NAME

Long answer text

AGE

○ BELOW 18

○ 18-20

○ 21-30

○ 30-50

○ >51

DO YOU LIKE MY PRODUCT ?

○ YES

○ NO

WHAT YOU LIKE ABOUT THE IDEA?

○ AFFECTIVENESS

○ EASIER UI USER CAPABILITIES

○ WIDE RANGE OF STORE

○ Other…

○ NO

WHAT YOU LIKE ABOUT THE IDEA?

○ AFFECTIVENESS

○ EASIER UI USER CAPABILITIES

○ WIDE RANGE OF STORE

○ Other…

WHAT WOULD YOU LIKE US TO IMPROVE

Long answer text

I. Our google form to users

NAME

20 responses

KARTIK A/L RENGANATHEN

FAHMIE

Aqilah

MO SHARHAN

Joshua

AFIDAN HIDAYAT

Nafhan

HIJ

Jaya

DO YOU LIKE MY PRODUCT ?

20 responses

Copy chart
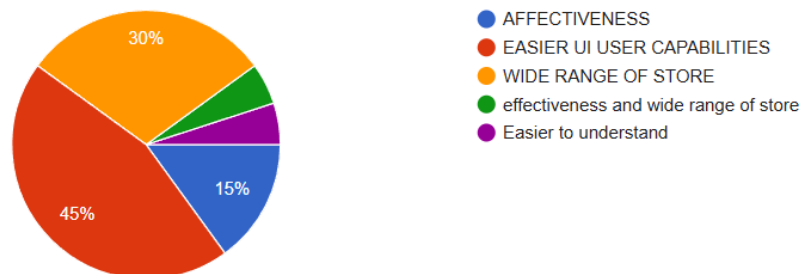
- ● YES
- ● NO

25%

75%
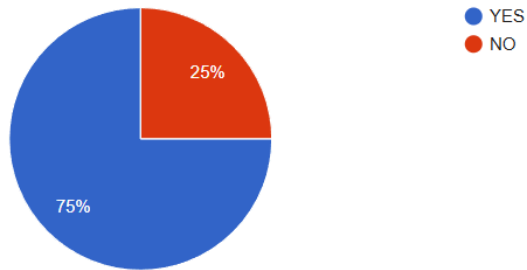
Copy chart

WHAT YOU LIKE ABOUT THE IDEA?

20 responses

- ● AFFECTIVENESS
- ● EASIER UI USER CAPABILITIES
- ● WIDE RANGE OF STORE
- ● effectiveness and wide range of store
- ● Easier to understand

30%

15%

45%

WHAT WOULD YOU LIKE US TO IMPROVE

16 responses

Make it so that people see what promo got

Make it easier to see

Add halal status, or ingredients for allergy preferences

AI INTERGRATION

Make it pretty

Try to make more affective store to choose from

Make the range of products wider

None

Good application. Maybe give more details on the application so people can understand how to use the
app

II. response of the prototype UI design

8. CONCLUSION

The "Beans & Bargains" design thinking project successfully emphasized the difficulty of providing aid for consumers to make economic & cost-effective purchases when shopping for groceries by installing a prototype application that compares supermarket prices in real time. This initiative introduces a structured design thinking process, involving empathy, defining the problem, ideation, prototyping, and testing. Analysis from user interviews and feedback have shown and identified the key issues faced by potential users and integrated them into a user-friendly solution.

The project enhanced & demonstrated efficient cooperation, accurate problem-solving measures, and the strategic application of design thinking concepts. It not only offered valuable insights into developing impactful measures but also leveraged the team's capabilities in project management, collaboration, accuracy and technical execution. The positive feedback recorded on the prototype displays its convenience and advantage. This experience will undoubtedly benefit the participants in their academic and professional pursuits.

9. REFLECTIONS

Ⅰ. MUHAMMAD ARSHAD BIN MUHAMMAD OMAR

My goal for this course is to be able to understand the concept of technologies and basic computer knowledge. The knowledge provided by the lecturer is helpful in many ways and allows me to be more knowledgeable and attentive toward basic computer knowledge. This project has taught me how to do such things and taught me how to do design thinking according to designing a project.

The planning, decision making and problem solving skills I acquire during this project make me better at understanding the work progress and how to use design thinking in the development process. I also know how to be a good team player and learn group management. With the knowledge provide during this project it allow me to understand the concept of the course

In conclusion, in order to achieve in this industry, the knowledge I have learned could help me in many ways and allow me to be better at my skill in computer knowledge. I hope this could help improve my software development skill and allow me to better understand other parts of this industry.

Ⅱ. MUHAMMAD AZLAN BIN ADZMI

My objective and goal for this course was to gain knowledge in the field of computer and technology. The knowledge taught by the lecture was very useful. It's helping me to understand more about the main concepts of the computer science course. The assigned project also helped me learn about how to apply design thinking to the project development process.

The project helped me to explain each level of design, decision making and problem solving, with a clearer understanding of how the work goes and how design thinking can be incorporated into development. I also learned about how good teamwork helps in solving problems and improved my skills in group management. With the knowledge gained during this project it allowed me to understand the course.

In conclusion, the knowledge and skills I gained are very meaningful and important in my study and career in this field. It will not only enhance my software engineering skills but also expand my knowledge and understanding of other important aspects of the information technology industry.

Ⅲ. SYED RAFID JAMALAULIL BIN SYED RAFIK JAMALAULIL

Essentially, the objective of this subject 'Design Thinking Process' is to challenge oneself's creativity and critical thinking skills. After partaking in this, it not only help honed my thinking skills but it also enabled me to expand my knowledge & creativity. As a consumer myself, I can understand and relate closely to the problems shared by the candidates in question. Understanding of the problems helped me analyze and overcome the solution with a better understanding.

In conclusion, the knowledge and skills I have acquired will aid for my self development moving forward into the future.