

Technology and Information System

Design Thinking Project



Theme: Digital Solutions for the Sports Community

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3. Design thinking phases
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Introduction

With the constant evolution of digital technology nowadays, mobile applications have become an indispensable tool in supporting different communities, which include the sports community. While many existing sports applications focus on performance tracking, training plans, or physical health. Financial management remains neglected as an important aspect in an athlete's journey. It can be amateur athletes or semi-professionals, they often face financial challenges related to training fees and equipment purchases. This is a critical issue, especially for student athletes.

To solve this problem, our group came up with **PayFit**, a digital application designed to help athletes manage their finances and keep track of their budget more effectively. Our app is mainly to help athletes make smarter spending decisions, reduce their financial stress, and focus more on improving their sports performance.

Problems encountered during the design thinking process

1. **Lack of ideas regarding applications that the athletes of UTM need currently**, we need to create an application that is truly needed and beneficial for utm athletes.
2. **Lack of inspiration regarding what makes our application stand out**, we need to make our application unique, so that our users choose us instead of other applications.
3. **Insufficient data on athlete financial behaviour**, to design effective digital solutions, we need data on how athletes actually spend, save, and plan their finances. Without this, our app remains generic and irrelevant to the target audience.

Solutions

1. **Through observation and group discussion**, we found that many athletes struggle to keep track of their sports-related spending and often overspend on training equipment due to limited price comparisons or a lack of knowledge on more affordable options. This problem is especially critical for student athletes and individuals who rely on limited allowances or sponsorships. Recognizing this gap, we saw an opportunity to create an application that combines both financial management and sports-specific needs.
2. **We browsed through multiple online application stores** and found that most existing mobile applications used by athletes focus on performance tracking, fitness monitoring, or general financial management. However, these existing apps do not offer insight into cost patterns among athletes, nor do they provide recommendations that help reduce unnecessary spending or suggest budget-friendly sports equipment. Hence, we implemented specific features that will help athletes keep track of their expenses, recommend valuable equipment deals, and more.
3. **We conducted online surveys using Google Form**. Our survey mainly targets UTM student athletes to understand their spending habits and budgeting challenges. We aimed to understand the real financial difficulties they face in managing training expenses, equipment purchases, and other sports-related costs. The data collected helped identify common pain points and gaps in existing digital applications. Thus, provides us with users' thoughts and difficulties faced for our design thinking process.

Empathy phase

During the empathy phase, we have conducted a Google Form survey to understand user needs, challenges and behaviours related to purchasing training equipment and managing their training expenses. The Google Form was designed to gather insights about the user's age group, spending habits, budgeting practices, perceptions of equipment quality and difficulties in evaluating the value of sports equipment. The following are our data collected from 19 respondents along with the descriptions on prompts used in the survey:

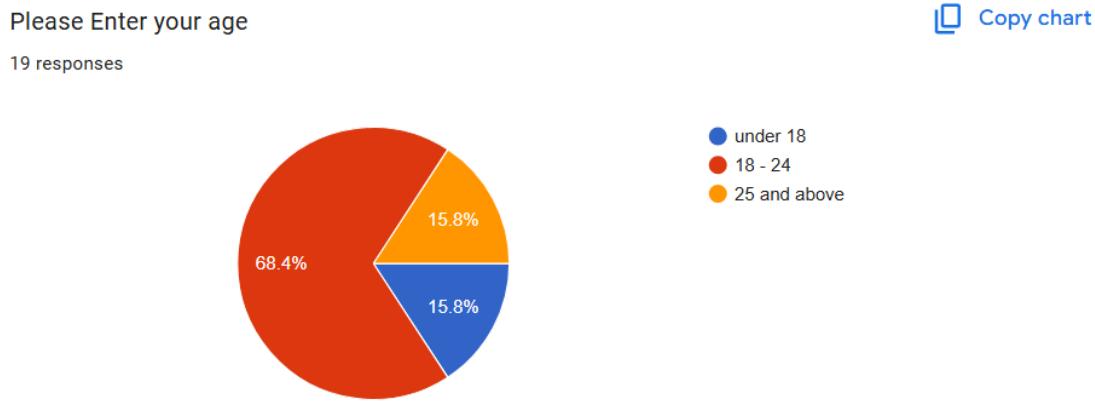


FIGURE 1: Age Demographic Distribution among Survey Participants

Users were first prompted to enter their ages by selecting from the three classified age groups, ranging from younger students athletes to more mature-aged athletes. The result shows a great number of respondents (68.9%) fall into the 18-24 bracket. The remaining participants were then split evenly between those who are under 18 (15.8%) and those 25 and above (15.8%). This suggests a need for cost-effective but durable equipment, as the majority of respondents consists of students or early-career professionals with limited disposable income.

1. How much do you typically spend on buying equipment? (please provide answer in RM) [Copy chart](#)

19 responses

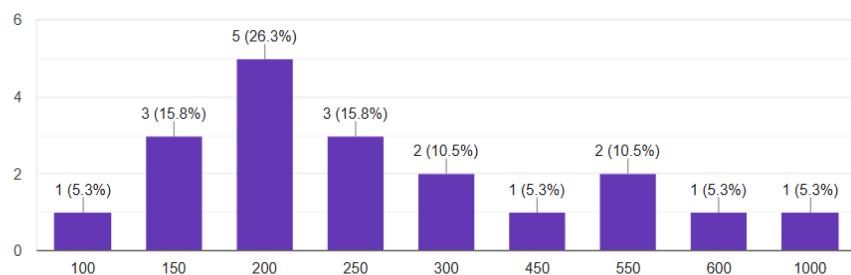


Figure 2: Distribution of Typical Spending on Training Equipment (in RM) among respondents

Secondly, users were asked how much they usually spend on training equipment. The distribution of this chart shows that the amount spent by survey participants on equipment ranges from RM100 to RM1000, with the most common spending amount being RM200 (26.3%). Other than that, over half of respondents (57.9%) spend between RM150 and RM250. While most spend under RM300, there is a small number of high-spenders reaching up to RM1000.

2. How would you rate the quality of the equipment you purchased? [Copy chart](#)

19 responses

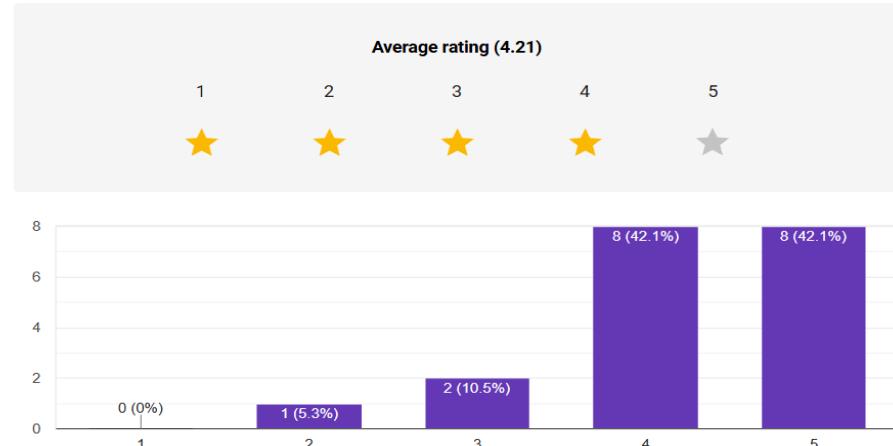


Figure 3: User Satisfaction Rating regarding the Quality of Purchased Training Equipment

Thirdly, users were asked to rate their satisfaction on the quality of purchased training equipment. While the results from the rating vary, 84.2% respondents rated their equipment as a 4 or 5 out of 5. Despite the high number of satisfied participants, 1 participant rated a 2 out of 5 and 2 participants rated a 3 out of 5. The mixed ratings show that users have inconsistent experiences with product quality and many are unsure whether the items they buy are durable or worth the price paid.

3. Do you plan your budget before spending on equipment?

 Copy chart

19 responses

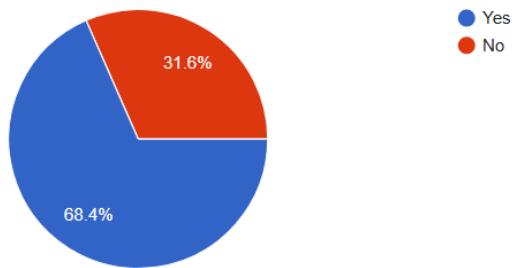


Figure 4: Frequency of Budget Planning Among Survey Respondents

Fourthly, The survey participants were prompted to answer a simple ‘yes or no’ question regarding their budget planning before spending on equipment. The majority of participants (68.4%) do plan their spendings, while a smaller portion (31.6%) reported that they do not plan their budget beforehand. This shows that while most users generally have an idea of how much they want to spend, about one third of the group do not plan which may lead to overspending or buying items impulsively.

4. Do you have trouble deciding on which brands are worth their price tags?

 Copy chart

19 responses

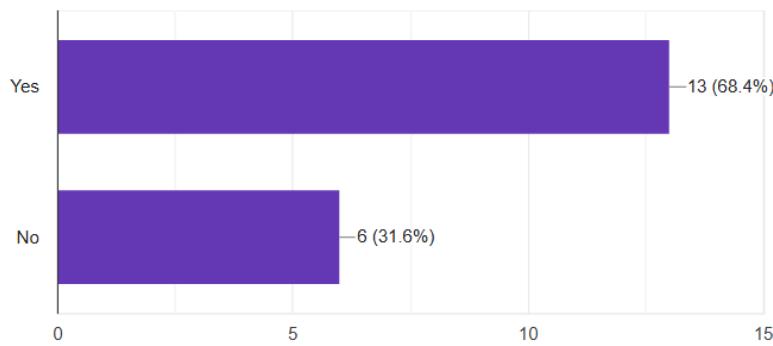


Figure 5: User Difficulty in Evaluating Brand Value to Price

Lastly, another yes or no question was prompted, asking if users have trouble deciding on which brands are worth their prices. A clear majority of our respondents (68.4%) answered a yes, indicating that they struggle to determine which brands are genuinely worth the price tags. This highlights the knowledge in comparing products that could lead to uncertainty when making decisions to purchase any equipment.

Define phase

In this phase, we use the information gathered from the surveys to figure out problem statements. Hence, we focus on the users who struggle to keep their expenses as low as possible while continuing to pursue their personal sport ambition.

Problem statement:

Athletes need to track their expenses that are related to sports and find a budget friendly equipment because most of them fully depend on their limited allowances and have no idea on their personal spending habits.

Point of View Statement:

- User. : An amateur student athlete at UTM.
- Need : To reduce financial stress and make smarter purchasing decisions on training equipment.
- Insight: Today's applications separate fitness tracking from financial tracking, force athletes to use multiple applications that do not even provide budget recommendations, which could be inconvenient for them.

How Might We (HMW) Questions:

To reframe and open up users' problem statements for efficient, we formulated these questions:

- How might we help athletes visualizes where their money is going regarding their training and equipment?
- How might we make the process of recording expenses easier so athletes do not ignore it?
- How might we help athletes find necessary sport equipment that fit their respective budget?

Ideate phase

During the ideate phase, our team brainstormed solutions to the HMW questions. We aimed to differentiate from the existing ones in the current market, like “Money Lover” or “Hours Tracker”.

Brainstorming process:

We explored and discussed several potential solutions. Then, we narrowed down to a concept of combining performance logs with financial management.

Selected features and rationale:

From the brainstorming session, we have selected the following features to include in PayFit:

1. Dual Tracking System:

- Combining “Training Time” and “Training Cost” in one input interface.
- Allowing athletes to see the direct relation between the time they invest and the money they spend.

2. Automated Data Entry:

- Implement a camera feature to snap receipts.
- Using intelligent text scanning improves user convenience and ensures data accuracy.

3. Visual Budget Analytics:

- Use Pie charts for time distribution and Line charts for expense trends.
- Visual aids help users quickly identify if they are overspending on specific categories.

4. AI Powered Equipment Recommendation:

- A search tool that searches sports gears based on specific budget caps.
- This feature helps users save money and time by finding deals that match their financial limits in one tap.

Conclusion of Ideation:

We concluded that PayFit is not just a data recording app but also assisting in decision making. These features combination had formed the blueprint for our prototype development.

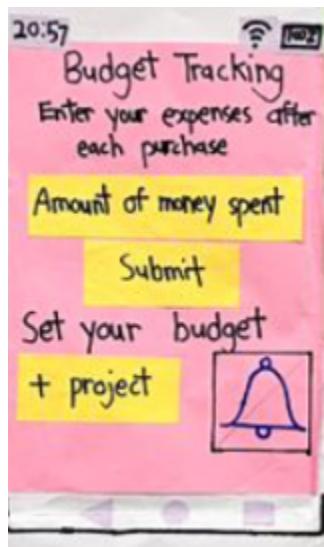
Prototype develop phase

Page 1 :



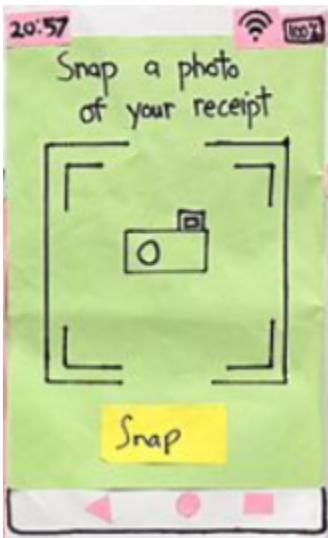
- **Data collection**
- Allows the user to input their training information, including training time and training cost for each session.
- User data is stored within the database for analysis and budget tracking later on.

Page 2 :



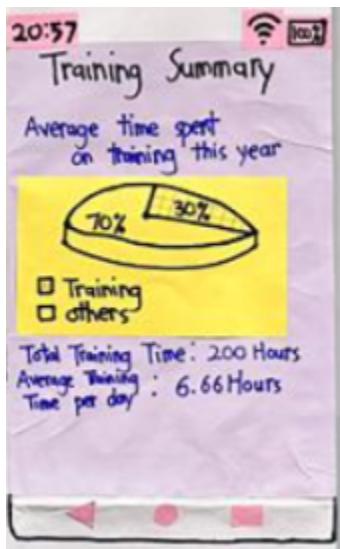
- **Budget tracking**
- Users can set their desired monthly or yearly budget plan by pressing the "+ project" button.
- The feature to notify users when they have exceeded their budget is optional.
- Users are required to enter their expenses after each purchase in order to track their budget.

Page 3 :



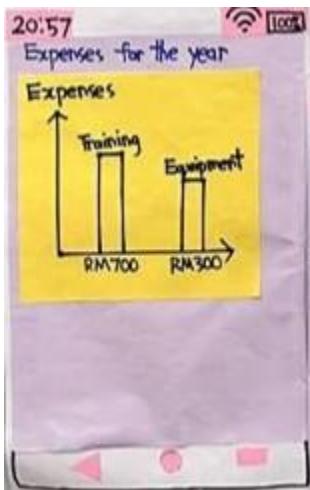
- **Receipt Capture**
- Users can choose to snap a photo of their receipt as a record.
- Information within the receipt (such as expenses and time) will be extracted by an intelligent text scanning system and stored in the database.
- Photos of the receipt will be stored as well.
- This page makes it more convenient for users to input training data.

Page 4 :



- **Training summary**
- This page showcases a pie chart regarding the user's annual average training time.
- Data calculation is done to show the results of actual value of the training time spent by the user.

Page 5 :



- **Expenses Overall**
- In this page, expenses will be displayed according to data entered by the user each time.
- The expenses displayed will be categorized into two types, which are total training expenses and total equipment expenses.
- The expenses are shown through bar charts.

Page 6 :



- **Expenses summary**
- In this part, expenses is summed and display through line charts.
- Line charts will show how expenses rise across different months.
- Besides, total costs and average costs per month will display after calculating.

Page 7 :



- **Search page for equipment**
- In this page, user can find equipment that suits them by entering the equipment they want and budget respectively.
- Then, user can get to next page which is the result page by entering search.

Page 8 :



- **Equipment Recommendation Results page**
- In this page, suggestions will be given according to users requirements(including budget and equipment type).
- The results will include the image of the equipment find from its web page and the link for the user to get to the web page(web page is the product page or purchase page).

Comparisons with other online apps

Feature	Hours Tracker		Meow Manager		Money Lover		Our project(Payfit)
Training time tracking	<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>
Professional summaries	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Expenses tracking	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Budget goals setting	<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Over-budget alerts	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>
Receipt extracting tools	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>
Equipment recommendation	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>

Explanation and Comparison

Training tracking apps are common nowadays. Compared to others. Our project Payfit possesses all the features that other apps don't have. First of all, Payfit has professional summaries and expense tracking features that other apps lack since it is the foundation of a budget tracking app. Nextly, Payfit has training time tracking features that only Hours Tracker has, since this app is more likely to be a training tracking app. Other than that, Payfit possesses a budget goals setting system. This feature is only possessed by Meow Manager and Money Lover because these two apps are more keen on budget tracking. Therefore, Payfit can be concluded as a combination of a budget tracking and training tracking app since it can do both of these jobs. Not only that, but Payfit also has extra features. Over-budget alerts are equipped as it acts as an additional feature for the basic budget goal setting feature. Besides, our project has rolled out a new function, which is a receipt extracting tools that others don't possess. It is a feature that we refer to as Google Lens, as this feature can ease the record phase for the user. Lastly, we have the equipment recommendation pages, which no other similar type of apps have as well. The reason we put these pages is to let the user find the equipment directly on our Payfit, since they already know their budget and expenses overall.

Task Distribution

Members	Task
1) Woon Ming Jun	<ul style="list-style-type: none">• Prototype developing• Brainstorm ideas and web search for inspiration of uniqueness of the app• Report formatting• Identifying problems and solutions
2) Han Tian Chou	<ul style="list-style-type: none">• Prototype developing• Comparison table and explanation• Brainstorming the uniqueness of our app and other ideas
3) Nur Arissa binti Azmi	<ul style="list-style-type: none">• Conducted the empathy phase and analyzed• Ensured alignment between empathy findings and project scope• Summarised insights from the empathy phase
4) Emylee Zara binti Ahmad Johari	<ul style="list-style-type: none">• Designed the survey instrument (Google Form)• Formulated the survey questions• Managed the data collection process• Summarised insights from the empathy phase
5) Jed Yong Weng Kin A/L Yong Kuan Hong	<ul style="list-style-type: none">• Define and Ideate using the survey's result• Final decision on the features from others' ideas• Video editing

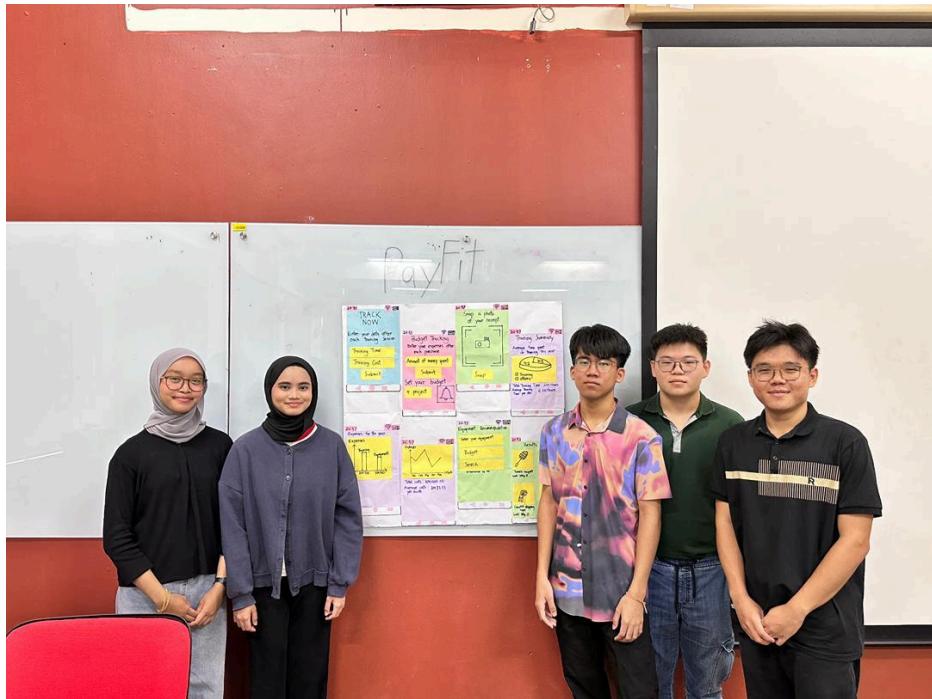
Details and evidence of the design thinking process



*Discussion for the empathy part and other project related issues



*Process of developing prototype



*Video presenting picture

Reflections

- **Woon Ming Jun**

Through this project, I learned to think from the users' perspective when designing an application prototype that can genuinely benefit UTM athletes. Instead of focusing only on general features needed for athletes, I considered the real problems faced by them, since they are also students at the same time. This project helped me realize that a successful app must be practical, simple to use, and also align with the users' actual needs.

I also learned the importance of collaboration when working with my teammates. By brainstorming together, we were able to generate more ideas and find better solutions than working individually.

Overall, this project helped me grow not only in designing application prototypes but also in understanding real-world user needs and teamwork skills. Designing an app that supports athletes in managing their finances made me more aware of how technology can be used to improve daily life. I am truly thankful for this experience to work on a meaningful project.

- **Han Tian Chou**

By and large, through this project, I have learnt to cope with various problems. Not only to handle the project requirement, but also the method to collaborate with everyone, pursuing the best solution that caters to everyone. I also know solving problems is not just about giving a solution. It must go through a series process and throughout the process, we must keep changing and brainstorming. Therefore, after doing this design thinking process, I get to know what the basis of a project is. Last but not least, I appreciated this experience as I can get in touch with a project that is similar to what I will do in the future.

- **Nur Arissa binti Azmi**

Working on this project has helped me to have a better understanding of how to generate stronger ideas and produce more complete solutions. The define and ideation phases required active discussion and although everyone had different opinions at times, these differences have helped us explore a

wider range of ideas. By listening to others, we were able to narrow down the most practical and meaningful problem to solve.

Overall, this project improved my collaboration skills and showed me the value of working in a team and communicating effectively to create solutions that reflect the contributions of every member.

- **Emylee Zara binti Ahmad Johari**

Participating in the development of PayFit has fundamentally changed my understanding of digital solutions to real world problems. From the different phases of developing this project, I gained many new insights, one of them being the financial stress as a barrier to athletic success among students. I learned that for a solution to be truly effective, it must address the correlation of the user's lifestyle and their specific constraints. Which in this case, the problem being to balance someone's passion for sports with a limited budget. One of the most significant challenges we faced during this project was the ideation phase. Our group members proposed a wide variety of ideas, and narrowing them down into a single, cohesive prototype requires critical thinking. I learned that the "Design Thinking" process is not linear, but rather needs constant refinement. This experience has improved my ability to evaluate ideas not just based on their complexity, but also based on their practicality and impact on users. All in all, the skills I have acquired, specifically empathy mapping will be invaluable to my future career. I now understand that before building a product, one must build a deep understanding of the target user.

- **Jed Yong Weng Kin A/L Yong Kuan Hong**

The process of the development of PayFit is quite a new understanding for me regarding the process of design thinking and managing a project within a small group. My primary focus on this project was to serve as a bridge between understanding our users and building the final prototype. We were initially overwhelmed by the range of problems faced by the athletes but I learned the importance of convergence and filter through the noise and find the root cause, which is the lack of good financial management in our case. The collaboration of ideas from different members has been the most

challenging part for me: I had to make sure my ideas are aligned with everybody else's part and work while working on the features of PayFit, only then I can conclude the final version of PayFit's features for the other members to continue the project with prototype.