Flash Feast: Lightning-Fast and Efficient Canteen Ordering System

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Abstract
Long queues in educational institution canteens significantly reduce the time available for students and faculty to enjoy their meals, leading to dissatisfaction and lower productivity. Flash Feast proposes a web and mobile-based system to streamline canteen ordering and operations. By integrating advanced technologies, the system aims to reduce wait times, minimize human errors, and enhance user satisfaction.
Keywords: *Long queues, Flash Feast, web and mobile-based system*

I. INTRODUCTION

Flash Feast explores the use of a system to cut long lines and help students and faculty members easily access food during break times. Canteens and food service establishments within educational institutions play a vital role in satisfying the hunger needs of students, faculty, and staff in academic institutions. The canteen not only functions as a place to eat but also has a social function. It offers students a meeting place where they can exchange ideas, socialize, and eat together in an informal atmosphere [1]. Long lines are a huge problem in schools or universities, where short lunch periods conflict with the needs of a lot of hungry students. "By the time you get lunch, there is normally less than 10 minutes," a junior student stated. There are only around 30 minutes that the students get for lunch. Since the lines take so long according to this student, they have to rush their lunch because of how much time they will lose sitting in lines for food [2]. Students with less than 20 minutes to eat school lunches consume significantly less of their entrées, milk, and vegetables than those who aren't as rushed [3]. This creates a situation where many students simply don't eat lunch altogether because it would take too long to get a meal. Traditional canteen ordering often involves long lines, manual order taking, and potential errors. A survey has stated that 70% of consumers will wait 5 minutes or less before they abandon a purchase and go elsewhere [4]. These inefficiencies can lead to frustration and dissatisfaction among students and faculty.

To address this issue, the researchers propose the development of Flash Feast, an integrated solution using web technology and mobile technology to automate and optimize various aspects of canteen management. Web technology refers to how computers communicate with each other using markup languages and multimedia packages, while mobile technology refers to the technology that goes where the user goes. It consists of portable two-way communications devices, computing devices, and the networking technology that connects them [5][6]. This system aims to reduce human errors and provide a seamless experience for customers and canteen staff. The developed system offers a quality solution to students in the form of Canteen Management software, which can be used in many large-scale or small-scale canteens. This system also prominently relieves the burden on the canteen's end, as the entire method of taking orders is computerized. Once an order is placed on the student's mobile phone, it is entered into the database and then retrieved, in pretty much real-time, by a desktop or mobile application on the canteen's end. Within this application, all items in the order are displayed, along with their price tags and details, in a summarizing and easy-to-read manner.

II. METHODOLOGY

The developed system will use a mixed method which enables the researchers to evaluate the effectiveness of Flash Feast services in improving the satisfaction of students, faculty, and school canteen operations. Mixed methods elements of quantitative research and qualitative research to answer the research question [7]. The researchers used a questionnaire to collect data. A questionnaire is a research tool featuring a series of questions used to collect useful information from respondents[8]. The researchers weighed the

advantages of questionnaire usage and discovered that it had high reliability and it gave a more realistic view. The target population was the university canteen staff and university students in San Agustin. A total of 20 students will participate in this study, including 10 users of the Flash Feast system and 10 users of the traditional canteen system, selected from the CLASE department. Those canteen staff who participated in the study will also be part of the sample size.

Research Instruments

The developed system will use a descriptive research design, which focuses on gathering, analyzing, and presenting detailed information regarding the effectiveness of the Flash Feast system compared to traditional canteen services. A descriptive research design can use a wide variety of research methods to investigate one or more variables. Unlike in experimental research, the researcher does not control or manipulate any of the variables but only observes and measures them [9]. The key objective is to describe the current situation and explore how the Flash Feast system can improve operations and customer experience.

This developed system will employ a cross-sectional descriptive research design. A cross-sectional study is a type of research design in which you collect data from many different individuals at a single point in time. In cross-sectional research, you observe variables without influencing them [10]. By comparing the experiences of both student and canteen staff who use the Flash Feast system versus the traditional system, the researchers will assess the advantages and disadvantages of both methods.

A well-organized methodology plays a significant role in completing the project. The waterfall model is useful in situations where the project requirements are well-defined and the project goals are clear. This research starts with a planning phase where the researchers identify the problem, define project objectives, and identify the stakeholders then followed by gathering and analyzing the user needs. The third phase is the design phase where the researchers would architect the system structure and the user interface. Next is the development phase, building the system according to the design, implementing front-end and back-end components, and developing APIs. The fifth phase is the testing phase where the prototype is being tested among students and canteen staff in order to identify and fix defects to ensure the system's functionality and reliability. Finally, the maintenance phase is a critical step to ensure smooth operation and future-proof the system.
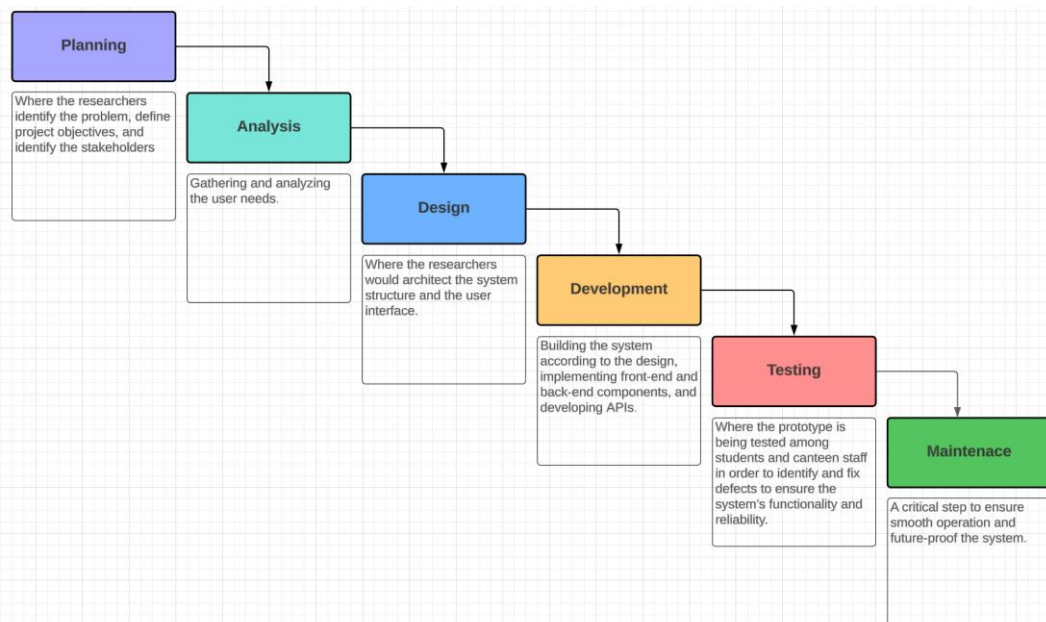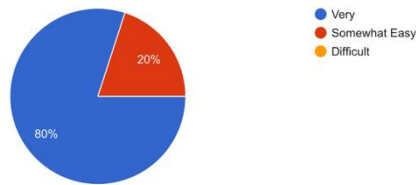

III. RESULT AND DISCUSSION

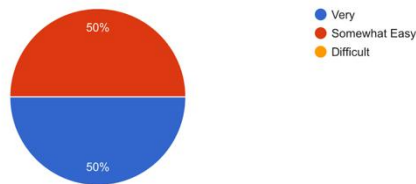**3.1.1 Ordering Process:**
Ease of Ordering
The graph illustrates that 80% of the participants who used the Flash Feast system rated the ordering process as **very easy** or **somewhat easy**.

How easy is it to understand the menu and pricing?
10 responses

● Very
● Somewhat Easy
● Difficult

20%

80%

On the other hand, only 50% of the traditional canteen users found the ordering process **very easy**, with the remaining 50% rating it **somewhat easy**.

How easy is it to understand the menu and pricing?
10 responses

● Very
● Somewhat Easy
● Difficult

50%

50%

### 3.1.2 Ordering Process:
Time Taken to Place an Order
The Flash Feast users of 70% reported that they could place an order within **1-3 minutes**, with the remaining 30% taking minutes due to a connectivity issue or delays in the app's response time.

How long does it typically take for you to place an order using the system you use?
10 responses

● Less than a minute
● 1-3 minutes
● More than 3 minutes

30%

70%
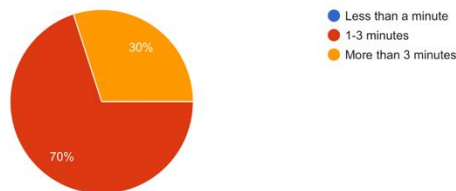
In contrast, 70% of traditional canteen users reported that placing an order typically took **more than 3 minutes** due to the time spent waiting in line for manual ordering especially, during peak hours. Only 30% of traditional users were able to place an order within **1-3 minutes**.

How long does it typically take for you to place an order using the system you use?
10 responses

● Less than a minute
● 1-3 minutes
● More than 3 minutes

70%

30%
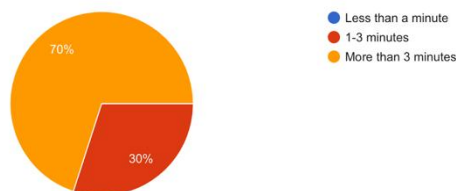
3.2.1 Operational Efficiency:
### System Convenience
90% of Flash Feast users found the system **very convenient**. They particularly appreciated the streamlined process for browsing menus and placing orders directly from their devices.

How convenient do you find the ordering system you use?
10 responses

Very convenient
Somewhat convenient
Not convenient

90%
10%
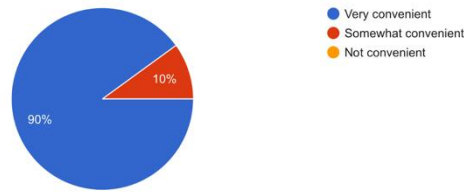
In contrast, only 50% of traditional canteen users described the ordering process to be **very convenient**. Meanwhile, 40% considered it **somewhat convenient**, citing the time-consuming nature of the traditional system as a drawback.

How convenient do you find the ordering system you use?
10 responses

Very convenient
Somewhat convenient
Not convenient

40%
10%
50%
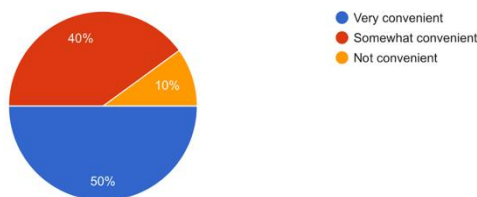
3.2.2 Operational Efficiency:
Order Organization and User-Friendliness
100% of the respondents using Flash Feast felt the ordering process was **very organized**, with the system automatically updating the order and displaying clear details of the items, prices, and quantities. The app interface was also reported as **user-friendly** by 100% of the Flash Feast users.

How organize is the process of placing and receiving your order?
10 responses

Very organized
Somewhat organized
Disorganized

100%

Do you find the system user-friendly (For Flash Feast Only)
10 responses

Yes
No

100%
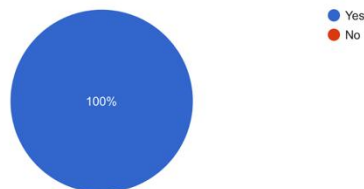
70% of traditional canteen users rated the process as **very organized**, while 30% described it as **somewhat organized**, mainly during busy lunch hours and the reliance on manual input from staff.

How organize is the process of placing and receiving your order?

10 responses

- Very organized
- Somewhat organized
- Disorganized
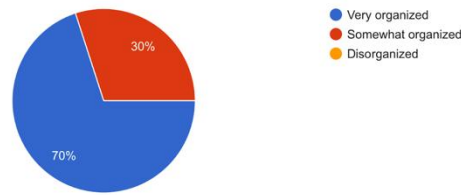
3.3 Overall System Performance:
### Preference Between Systems

When surveyed about their preferred system, 80% of Flash Feast users expressed a strong preference for the online platform, highlighting its convenience and efficiency in saving time.

Which system fo you prefer for ordering food?

10 responses

- Traditional Canteen
- Online Canteen (Flash Feast)
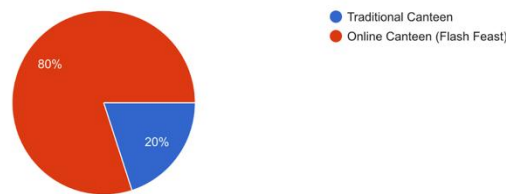
Among traditional canteen users, 40% favored the traditional system. Of these, 30% valued its familiarity, while 10% were hesitant about switching to a mobile-based alternative. Finally, 60% preferred Flash Feast, preferring an online system with the same reasoning as the users of Flash Feast participants.

Which system fo you prefer for ordering food?

10 responses

- Traditional Canteen
- Online Canteen (Flash Feast)
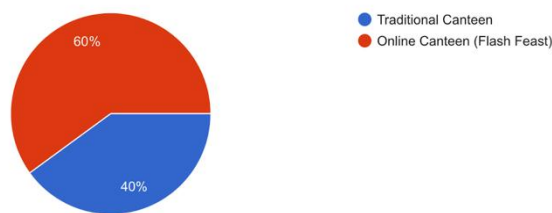
IV. CONCLUSION

In conclusion, the data supports the hypothesis that the Flash Feast online canteen system provides a more efficient, organized, and user-friendly experience compared to the traditional canteen ordering system. The system's ability to reduce wait times, streamline ordering, and improve satisfaction suggests that online canteen systems have the potential to revolutionize food service operations in educational institutions. Moving forward, further research should explore the scalability of such systems and their long-term impact on both student satisfaction and canteen operations.

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