Applied Information Technology And Computer Science Vol. 5 No. 1 (2024) 1085-1102

AITCS

Homepage: http://publisher.uthm.edu.my/periodicals/index.php/aitcs
e-ISSN :2773-5141

Development of MyFunds for Students in UTHM

Muhammad Aiman Syafiq[1], Nurezayana Zainal[1*]

[1]Fakulti Sains Komputer dan Teknologi Maklumat,
Universiti Tun Hussein Onn Malaysia, Parit Raja, Batu Pahat, 86400, MALAYSIA

DOI: https://doi.org/10.30880/aitcs.2024.05.01.061
Received 24 June 2023; Accepted 18 June 2024; Available online 30 August 2024

Abstract: MyFunds UTHM is a dedicated fundraising system designed exclusively for students and staff at Universiti Tun Hussein Onn Malaysia (UTHM). Traditionally, fundraising activities at the university have relied on social media campaigns. To enhance the process, MyFunds UTHM introduces an integrated application and web-based platform, developed using an object-oriented approach and following the System Development Life Cycle (SDLC) methodology. The primary objective of MyFunds UTHM is to establish a secure and transparent environment by safeguarding donor information, including the precise date and time of donations, while also facilitating effortless categorization of contributions according to campaign types. The system is developed in both application and web-based system, effectively supporting crowdfunding and campaigns organized by various clubs and organizations within the university.

Keywords: Fundraising, donation, SDLC

1. Introduction

Fundraising activities at Universiti Tun Hussein Onn Malaysia play a vital role in supporting various initiatives and projects, ensuring financial sustainability and growth within the academic community[1]. Currently, the university relies on social media platforms to promote fundraising campaigns among faculty and organization-specific groups. However, this method has limitations in reaching a wider audience and may result in reduced awareness and participation. Additionally, the online fundraising landscape faces challenges related to scam campaigns, where fraudulent actors create deceptive campaigns to exploit donors and obtain sensitive information.

To address these issues and enhance the efficiency of fundraising efforts, this project focuses on developing an online fundraising system using application-based and website-based platforms. The primary stakeholder involved in this project is Majlis Perwakilan Pelajar (MPP), the student representative body at Universiti Tun Hussein Onn Malaysia. The MPP will serve as the system's end-users, ensuring its usability and effectiveness.

The main objective of this study is to create a comprehensive online fundraising system that utilizes both mobile applications and web-based platforms, employing object-oriented approaches. This system aims to broaden the reach of fundraising campaigns and mitigate the risks associated with scam

*Corresponding author: nurezayana@uthm.edu.my

campaigns. By expanding outreach and implementing robust security measures, the university seeks to foster greater donor trust and participation in the fundraising process.

The scope of the system encompasses the primary users, including students and staff at Universiti Tun Hussein Onn, as well as the campaign organizers. The web-based platform will primarily serve administrative functions. The system will contain various modules, including Login, Register, Register campaign, Dashboard, Make Payment, Manage Campaign Detail, Generate Report, Approve Campaign. These modules will offer features and functionalities to enhance user experience and streamline the fundraising process.

By developing an online fundraising system, Universiti Tun Hussein Onn aims to overcome the limitations of existing methods, expand its reach, and ensure a secure and efficient fundraising process for its diverse stakeholders.

2. Related Work

2.1 Study of Existing Related System

After conducting a thorough systems analysis and reviewing multiple systems that are related to the development project, several systems have been selected for further review and evaluation. These systems were chosen based on their relevance and potential to provide valuable insights and information that can be used to improve the design and functionality of the new fundraising system. Table 1 shows feature comparison from all existing system and MyFunds UTHM.

Table 1: System comparison

Features/System	Kitafund	Misi Rakyat	GoFundMe	MyFunds UTHM
Login module	√	√	√	√
Register module	√	√	√	√
User profile	√	√	√	√
Register campaign module	√	X	√	√
Dashboard	√	X	√	√
Campaign story module	√	√	√	√
Payment module	√	√	√	√
Admin module	√	√	X	√
Search module	√	X	√	√

Among the related systems, namely Kitafund, Misi Rakyat, and GoFundMe, each offers distinct features and functionalities in the realm of fundraising. Kitafund is a well-known platform that enables individuals, organizations, and communities to create campaigns and raise funds for various causes. It provides features such as campaign creation, donation tracking, and social sharing options. However, it may lack specific features tailored to the unique needs of Universiti Tun Hussein Onn, such as seamless integration with internal university systems and targeted campaigns for specific projects or initiatives[2].

Misi Rakyat, on the other hand, is a local crowdfunding platform with a focus on community-based projects and initiatives. It emphasizes social impact and community engagement, allowing individuals and organizations to gather funds for diverse community development projects[3]. While it may closely align with the university's goal of community involvement, it may lack certain features necessary for managing larger scale fundraising campaigns and engaging with a broader audience beyond the immediate community.

GoFundMe, a widely recognized crowdfunding platform, empowers individuals and organizations to raise funds for personal, medical, or charitable causes. It offers a user-friendly interface, extensive social sharing capabilities, and a vast network of potential donors. However, as a general-purpose platform, it may not provide the specialized features required by the university for its specific fundraising efforts, such as campaign management tools tailored to the university's programs and initiatives.

In contrast, MyFunds UTHM encompasses all the necessary modules required for an efficient and comprehensive fundraising system. It incorporates the login, register, user profile, register campaign, dashboard, campaign story, payment, admin, and search modules. This comprehensive approach ensures that all aspects of the fundraising process are covered, allowing for seamless user experiences and effective management of campaigns[4].

3. Methodology/Framework

A methodology is a set of concepts or guidelines outlining how to proceed in obtaining and verifying knowledge about a particular topic. It combines customization of a plan, the adoption of specific strategies, and the interpretation of data, all according to a predefined set of rules, to achieve the successful and efficient completion of research studies[5]. Methodology provides a structured and systematic approach to solve a problem or complete a project. The chosen methodology is the Systems Development Life Cycle (SDLC). This is a well-established and widely used methodology that provides a structured, systematic approach to the development of a new system. Figure 1 shows the phase of System development Life Cycle.

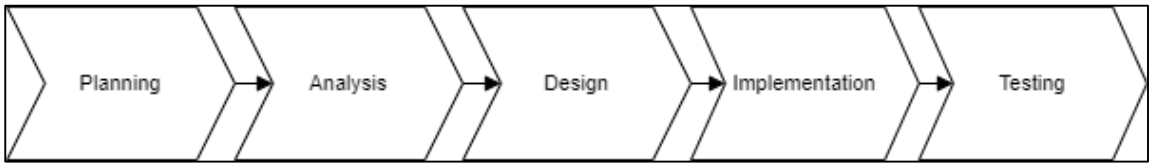


Figure 1: Phase in SDLC

The SDLC consists of several phases, each with its purpose and activities. The first phase is the planning phase, where the requirements for the new system are identified and analysed. This involves gathering information from stakeholders and creating a project plan that outlines the system's objectives, scope, and deliverables. Stakeholders play a vital role in this phase by providing valuable input and feedback to ensure that the final product meets their needs and expectations.

Following the planning phase is the analysis phase, which involves evaluating the strengths and weaknesses of the project to determine its overall feasibility and potential for success. This phase focuses on understanding the existing system, identifying any shortcomings, and determining the requirements for the new system. Through thorough analysis, the project team gains insights into the business processes and user needs, enabling them to make informed decisions throughout development.

The design phase is where the detailed specifications of the system are created. This includes creating diagrams, such as Unified Modelling Language (UML), to represent the system's functionality and design. It also involves designing the database structure, data entities, and their relationships. Additionally, the interface design, which includes the visual elements and user interaction aspects, is addressed in this phase. The purpose of the design phase is to transform the requirements into detailed specifications that cover every aspect of the system.

Once the design phase is complete, the implementation phase begins. This is where the actual development and coding of the system take place. Visual Studio Code, Flutter, and Android Studio are used as development platforms during this phase. The development team translates the design specifications into functioning software components, ensuring the system meets the defined requirements and design principles.

The final phase of the SDLC is testing. This phase is crucial for identifying and resolving any system issues or defects before making it available to the public. Functionality testing and acceptance testing are performed to validate the system's functionality, usability, and performance. Functionality testing ensures that each system component performs as intended, while acceptance testing involves external users who provide feedback on the system's usability and suitability for their needs. These testing phases help ensure that the final product is high quality, meets the needs of stakeholders and users, and is user-friendly and easy to use.

3.1 Functional Requirements

The functional requirements represent the system's intended behaviour. This behaviour might be described as services, tasks, or functions that the system must do[6]. These requirements specify what the system is meant to do and how it should function. Table 2 outlines all the functional requirements that have been identified for the system. These requirements include a detailed description of the functions and behaviors that the system must be able to perform to meet the needs of its users.

Table 2: Functional Requirements

Modules	Function
Login	The system must allow users to enter their username and password, verify the entered credentials against the user account database, and allow users to create a new account if they do not already have one.
Register	The system must allow users to enter their personal information such as their name, email address, and phone number. Allow users to create a unique username and password for their account.
Register Campaign	The system module must allow users to enter campaign details such as name, description, upload images, set a fundraising goal, specify the duration, select a category or cause, and ensure that all required fields are completed before registering the campaign.
Search Campaign	The search module must allow users to search for campaigns by keywords, such as the name or description of the campaign.
Payment	The payment module must allow users to enter and validate their payment information, and securely process the payment using multiple options.
Dashboard	The system should be able to display all listed campaigns and provide a campaign dashboard module that displays key metrics such as total funds raised, number of donations, target goal, and campaign duration for the specific campaign.
Approve Campaign	The system must allow administrators to evaluate the campaign based on the provided information and decide to approve or reject it.
Generate report	The system must allow admin to generate reports on specific campaigns, specify the date range, filter the report by various criteria, such as campaign category, fundraising goal, or location, and print the report if needed.

3.2 Non-Functional Requirements

Non-functional requirements describe how a system should act or operate rather than what it should accomplish. The quality of a system, such as a usability, reliability, performance, security, and maintainability, are described by non-functional requirements[7]. Hence, the non-functional requirements are listed in Table 3.

Table 3: Non-Functional Requirements

Requirements	Description
Usability	The system must be easy to use, intuitive, and efficient, and it must be easily understood and managed by users.
Performance	The system must be able to handle a high volume of traffic and transactions. This includes requirements for response time, throughput, and resource utilization.

Table 3: (cont)

Security	The system must protect user data and resources from unauthorized access or tampering. This includes requirements for authentication, authorization, encryption, and other security measures.
Maintainability	The system must be easy to maintain and update over time. This includes requirements for documentation, testing, and the ability to roll back changes if necessary.
Scalability	The system must be able to handle increased workload and user numbers without degrading performance. This includes requirements for capacity planning, load balancing, and the ability to add resources as needed.
Availability	The system must be operated available 99.9% of the time for all users.
Integrity	The system must ensure the user trust every piece of information inside the system, that the donations are being used for the intended purposes, and that the information provided about campaigns and causes is accurate and up to date.

3.3 User Requirement Analysis

User requirements are the needs and expectations of system or application users. They are the qualities and features that a system or application must have to fulfil its users' requirements and accomplish its objectives[8]. Table 4 shows the user requirement for the proposed system, MyFunds UTHM.

Table 4: User Requirement Analysis

No	Requirements
1	All users shall be able to securely log in to the system using their unique email address and password, to enter the system.
2	Users shall be able to update their account password to maintain account security and privacy.
3	Users shall be able to browse and search for campaigns that have been approved in the system.
4	Users shall be able to choose from multiple payment methods to give contributions to campaigns.
5	Users shall be able to track and manage their donations, allowing them to monitor their contributions and view the progress of campaigns they have supported.
6	Users shall be able to access their donation history and receipts.
8	Users shall be able to save campaigns to their wish list.
10	Users shall be able to create new campaigns and efficiently manage the details and settings of their campaigns.
11	Organizers shall be able to edit campaign details.
12	Administrators shall be able to verify registered campaign by organizers.
13	Administrators shall be able to generate comprehensive reports of campaigns.
14	Administrators shall be able to manage campaigns listed in the system.

The User Requirement Analysis Table outlines various user requirements for the MyFunds UTHM system. These requirements cover user authentication, campaign browsing and search functionality, donation management, campaign creation and management, and the roles and responsibilities of different user types within the system. By addressing these requirements, the system aims to provide a secure, user-friendly, and comprehensive platform for fundraising activities within Universiti Tun Hussein Onn Malaysia (UTHM).

3.4 Use Case Diagram

A use case diagram is a type of UML diagram used to model the interactions between a system and the actors that interact with it. It is used to represent the requirements of a system and the actors that have

a relationship with it[9]. The actor for this use case diagram is the Users (student and lecturer), Organizer, and Admin. Major element of the use case diagram for MyFunds UTHM is shown in Figure 2.

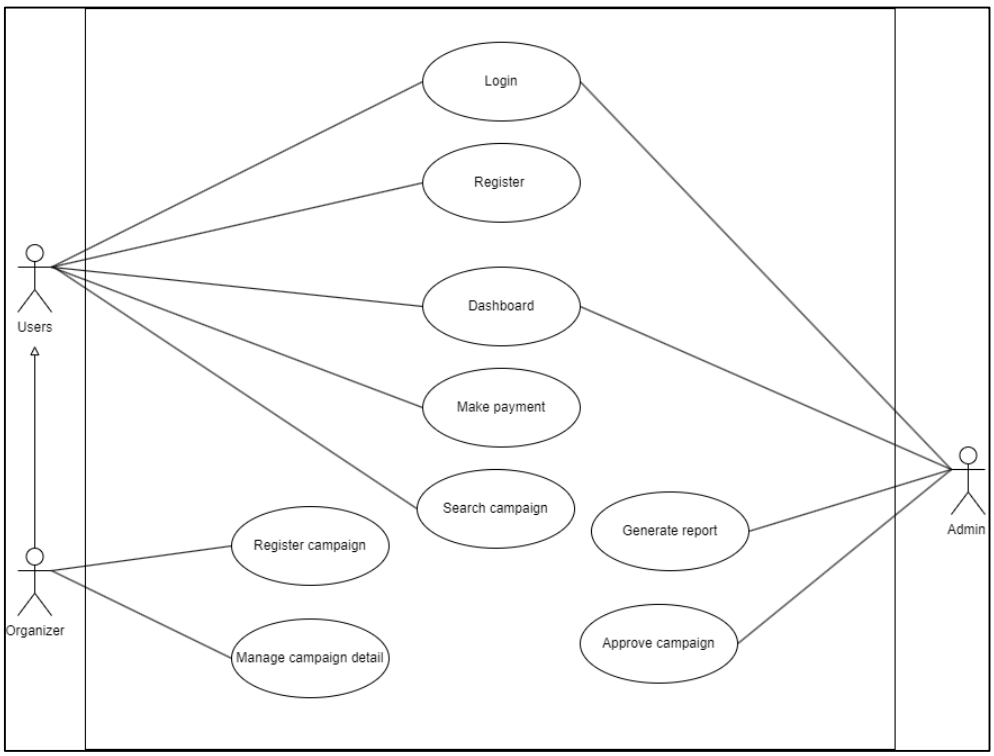


Figure 2: Use Case Diagram

From Figure 2, both Users and Administrators can log in to the system using their credentials. The Login use case allows them to access their respective dashboards and perform actions specific to their roles. Users can register for a new account in the system through the Register use case.

Upon logging in, Users and Administrators are presented with their dashboards, which provide them with relevant functionalities and information. The Dashboard use case represents the actions and data available to each role. Users can contribute to campaigns by making payments through various methods. The Make Payment use case allows Users to select a campaign, choose a payment method, and complete the transaction.

Organizers, who are associated with Users, can register new campaigns through the Register Campaign use case. This enables them to provide campaign details and register their campaigns in the system. Organizers, being associated with Users, can also manage the details of their registered campaigns through the Manage Campaign Details use case. They can edit and update campaign information, such as the description, goal, and target audience.

Administrators have additional capabilities, such as generating reports for campaigns through the Generate Report use case. This allows them to gather campaign-related data and create comprehensive reports for analysis and decision-making purposes. Administrators also have the authority to approve campaigns in the system. The Approve Campaign use case enables them to review campaigns submitted by Organizers, ensuring they meet the required criteria and guidelines.

Both Users and Administrators can search for campaigns based on specific criteria. The Search Campaign use case allows them to enter keywords, filter by campaign category, or specify other search parameters to find campaigns that match their interests or requirements.

The association between Organizer and User actors signifies that an Organizer is a specialized type of User, inheriting the abilities and functionalities of a regular User within the system.

3.5 Class Diagram

UML (Unified Modelling Language) is a standardized general-purpose modelling language in the field of software engineering. UML diagrams are a way to visually represent the structure and design of system, such as class diagrams, and sequence diagrams [10]. Figure 3 shows the class diagram for MyFunds UTHM

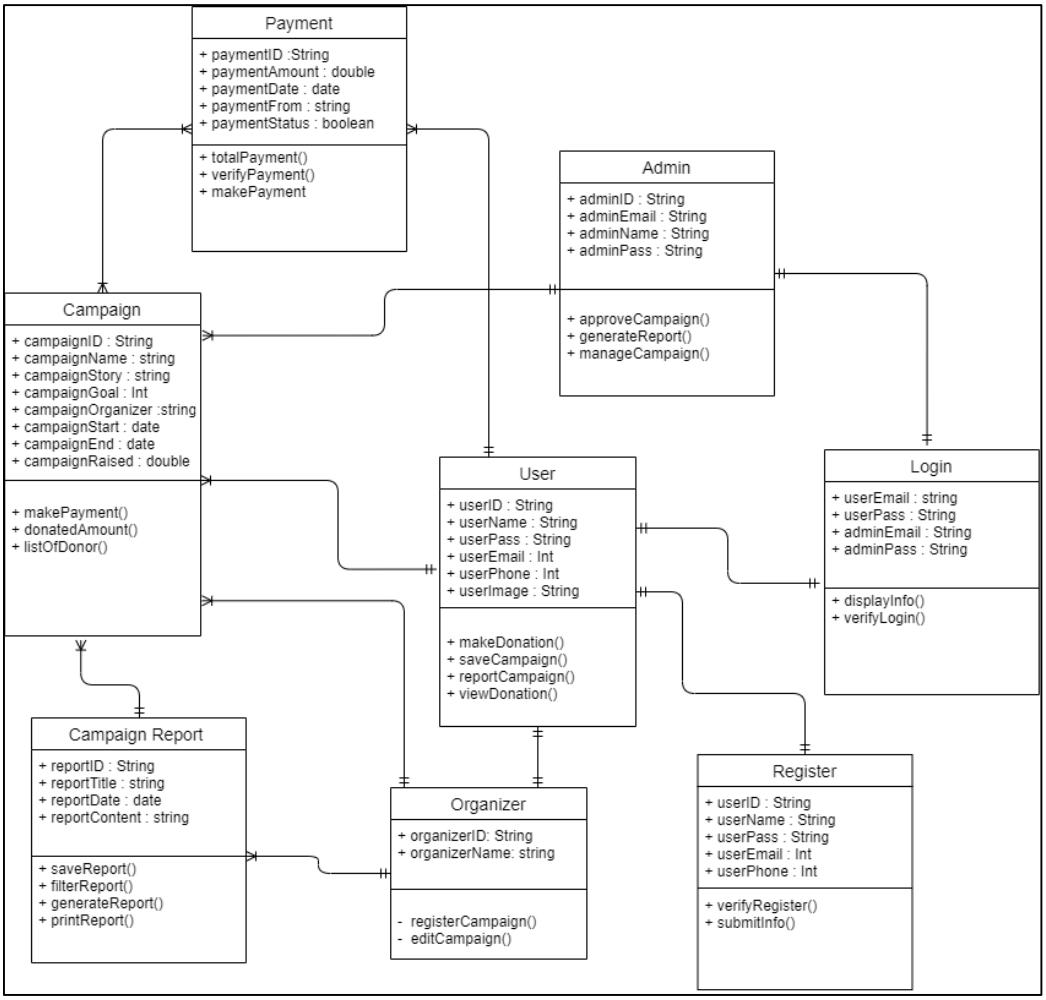


Figure 3: Class Diagram

The class diagram in Figure 3 depicts the structure and relationships of the classes in the MyFunds UTHM system. It visually represents the different entities, their attributes, and their associations within the system.

3.6 Database Schema

A database schema is a design or plan for a database. It describes the data structure and the interactions between distinct data pieces. It is used to guide the design and organisation of the database and guarantee that it is organised logically and effectively.

i. **User**(userID, userName, userPass, userEmail, userPhone)
ii. **Organizer**(organizerID, organizerName)
iii. **Admin**(adminID, adminName, adminPass)

iv. **Campaign**(campaignID, campaignName, campaignStory, campaignGoal, campaignOrganizer, campaignStart, campaignEnd, campaignRaised)
v. **Campaign Report**(reportID, reportTitle, reportDate, reportContent)
vi. **Payment**(paymentID, paymentAmount, paymentDate, paymentFrom, paymentStatus)
vii. **Login**(userName, userPass, adminName, adminPass)
viii. **Register**(userID, userName, userPass, userEmail, userPhone)

3.8 Interface Design

Interface design involves creating the visual and interactive aspects of a user interface (UI) for a software application or digital product. It include the arrangement, organization, and appearance of the interface, as well as the way in which users interact with it.

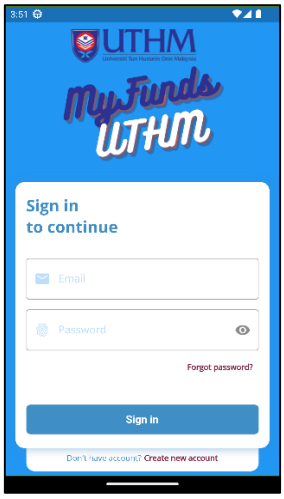
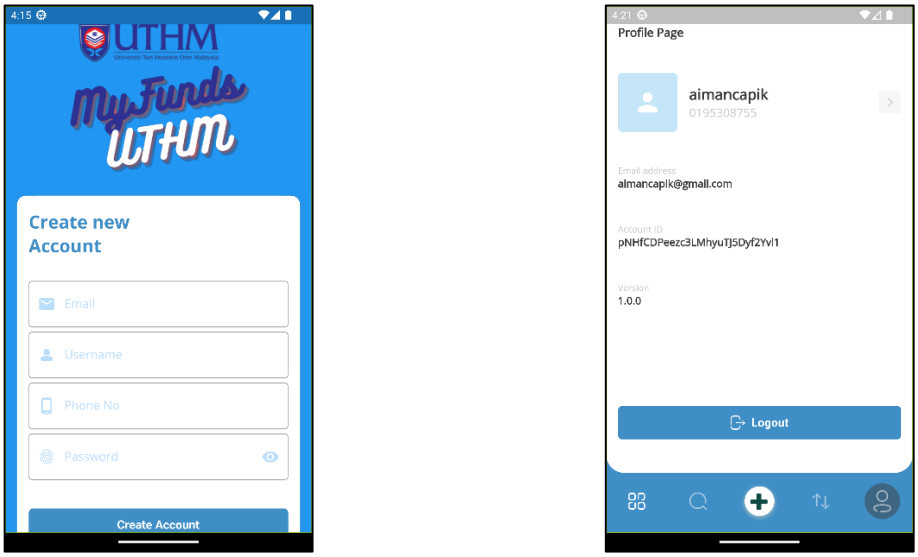


Figure 4 : Login Interface for User

The login interface figure 4 shows the user interface design for securely logging into the MyFunds UTHM system. Users can enter their email address and password to access their accounts, ensuring a secure and user-friendly login experience.



(a) **(b)**

Figure 5: Register User(a) and User Profile(b)

Figure 5 shows the user registration and user profile interface in the MyFunds UTHM system. It provides a visual representation of the interface elements and fields where new users can enter their required information, such as username, email address, phone number, and password, to create a new account within the system. User profiles presents the interface elements and fields where users can view and update their profile information, including their name, contact details, and other relevant personal information.

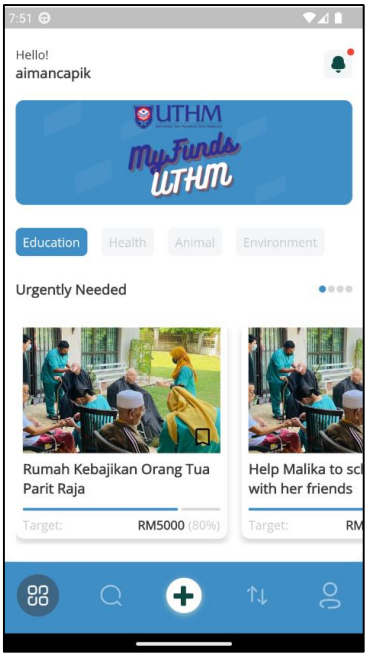
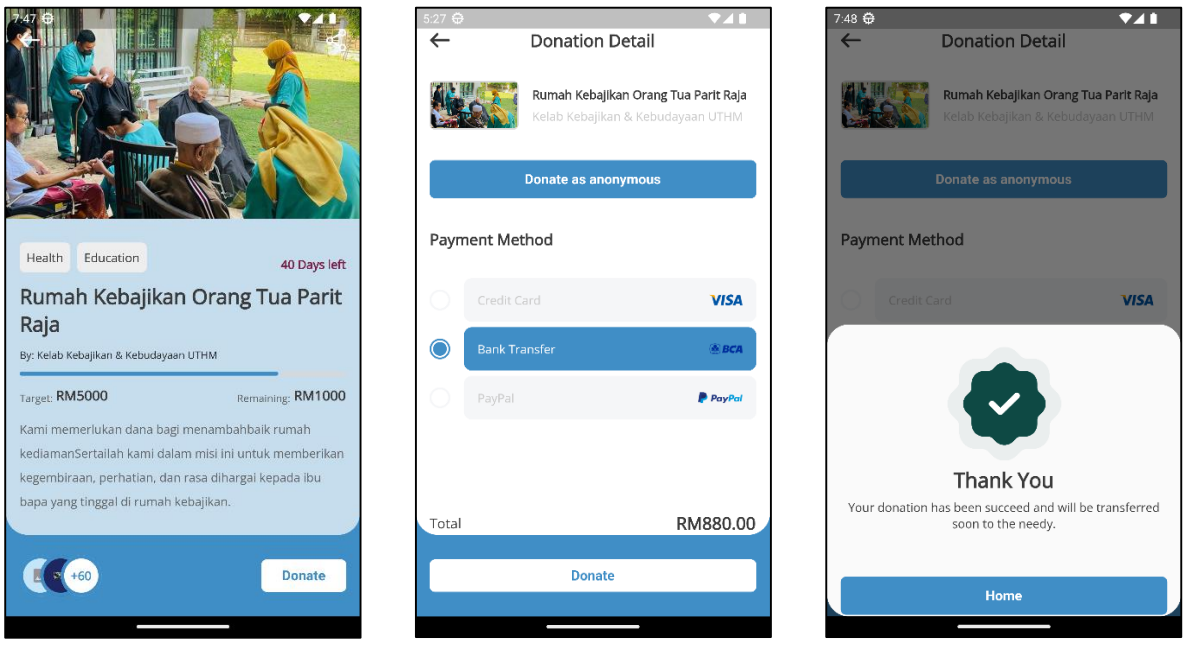


Figure 6: Dashboard for User

Figure 6 shows the dashboard that serves as a centralized hub for users in the MyFunds UTHM system. It provides users with an overview of their fundraising activities, campaign progress, donation history, and access to various features and sections within the system.



(a) **(b)** **(c)**

Figure 7: Campaign Detail(a) and Payment Interface(b and c)

Figure 7 shows the campaign detail and payment interface for users in the MyFunds UTHM system. It allows users to view comprehensive campaign details and make secure payments or contributions to campaigns seamlessly.

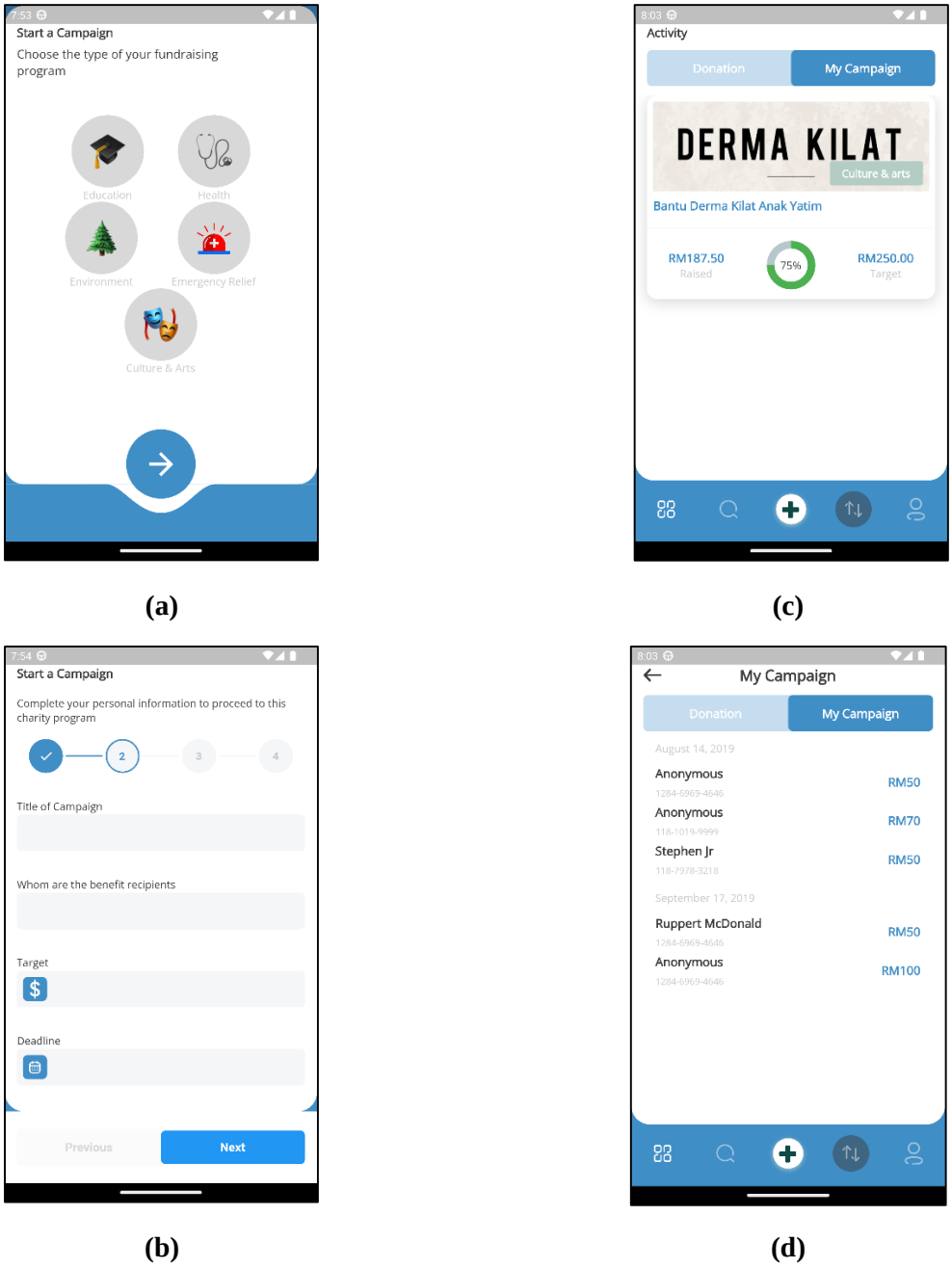


Figure 8: Register Campaign(a and b) and Manage Campaign Interface(c and d)

Figure 8 shows the register campaign interface allows users to create new campaigns, while the manage campaign interface enables users to efficiently oversee and update their existing campaigns in the MyFunds UTHM system. These interfaces provide a user-friendly and intuitive experience for users to create, track, and manage their fundraising initiatives effectively.

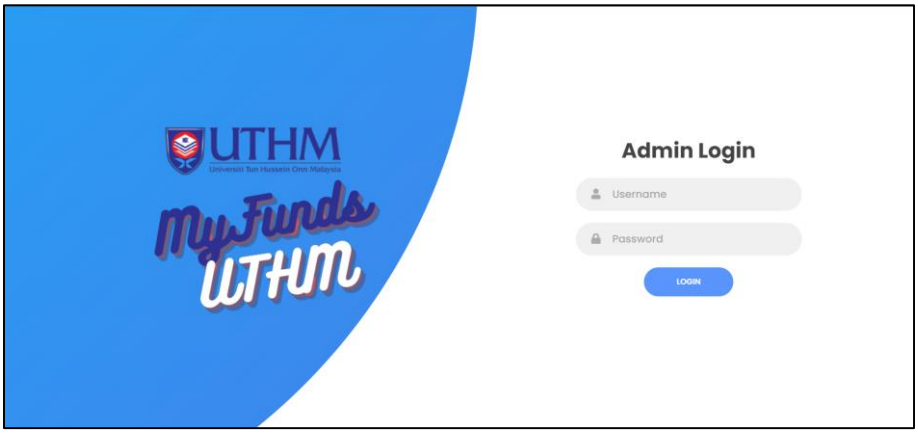
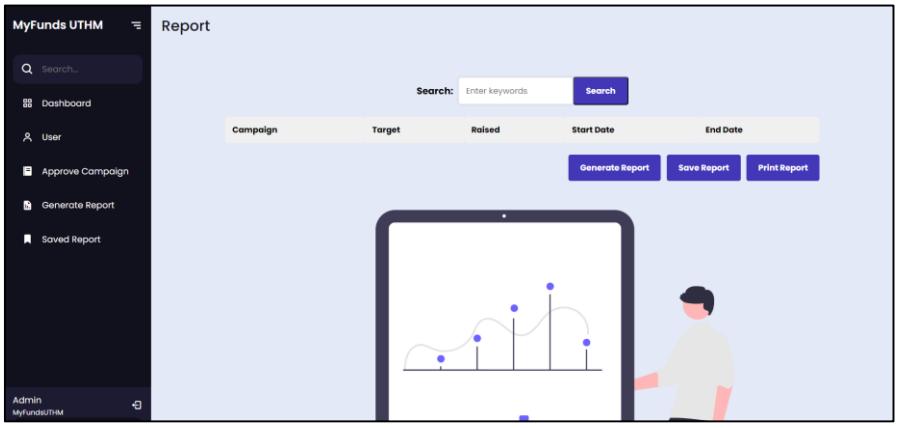
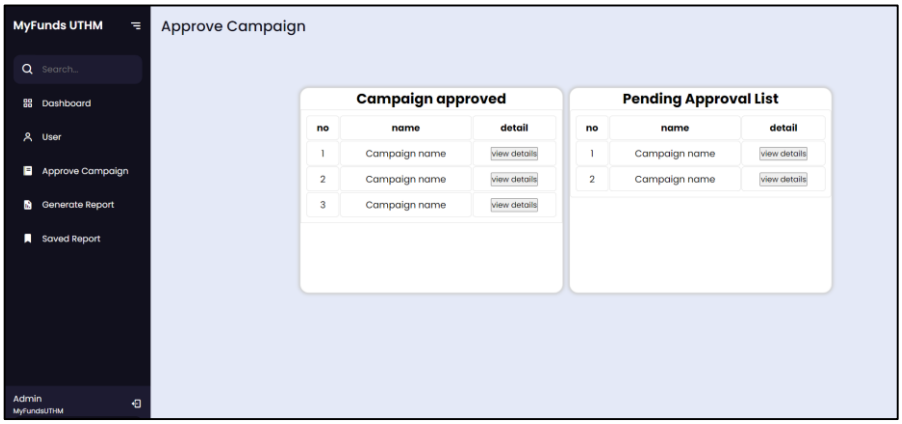


Figure 9: Login Interface for Admin

Figure 9 shows the admin login interface designed specifically for administrative users to securely log into the MyFunds UTHM system and access the administrative features and functionalities of the system.



(a)



(b)

Figure 10: Generate Report(a) and Campaign approval Interface(b)

Figure 10 shows the generate report interface that allows administrators to generate comprehensive reports in the MyFunds UTHM system. Meanwhile the campaign approval interface enables administrators to review and approve campaigns in the system, providing access to campaign details and allowing informed decisions based on predefined criteria or guidelines.

4. Results and Discussion

4.1 Testing

Two types of testing are carried out which are functionality testing and user acceptance testing. In functionality testing, the test cases are derived based on the functional requirement determined. Table 5 shows the test cases plan that have been tested in MyFunds UTHM.

Table 5: Test Cases plan

Test Case ID	Test Case Description	Test Result (Pass / Fail)
TC01	Login	
TC01_01	The user enters valid credentials and the system redirects the user to the dashboard.	Pass
TC01_02	The user enters invalid credentials and the system displays an error message.	Pass
TC01_03	The user clicks on the "Forgot Password" link and receives a password reset email.	Pass
TC01_4	The user enters a valid username but an incorrect password and receives an error message indicating an authentication failure.	Pass
TC01_5	The user leaves the username field blank and enters a valid password, and the system displays a validation error message requesting the username.	Pass
TC02	Register	
TC02_01	The user enters valid information and successfully registers as a new user.	Pass
TC02_02	The user enters existing email during registration and receives an error message.	Pass
TC02_03	The user clicks on the activation link sent to their email and their account gets activated.	Pass
TC03	Register Campaign	
TC03_01	The user creates a new campaign with valid details and the system saves it to the database.	Pass
TC03_02	The user tries to create a campaign without filling in required fields and receives validation errors.	Pass
TC03_03	The user uploads an image for the campaign and the system successfully saves it.	Pass
TC03_04	The user tries to create a campaign with an invalid target amount	Pass
TC04	Manage Campaign Details	
TC04_01	The user updates an existing campaign's details under their organizer profile.	Pass
TC04_02	The user tries to delete a campaign with existing donations, and the system displays an error message indicating it cannot be deleted.	Pass
TC04_03	The user deletes a campaign associated with their organizer profile, and the system prompts for confirmation before permanently removing it.	Pass
TC04_04	The user updates the campaign details with a long description, including special characters and formatting, and the system successfully saves and displays the description correctly.	Pass
TC05	Search Campaign	
TC05_01	The user enters a keyword in the search bar and the system displays a list of relevant campaigns matching the keyword.	Pass
TC05_02	The user filters the search results based on specific criteria.	Fail
TC05_03	The user select campaign that shows on the search list.	Pass
TC05_04	The user performs an empty search and the system displays all available campaigns in the search results.	Pass
TC06	Payment	

Table 5: (cont)

TC06_01	The user selects a payment method, enters valid payment details, and the system successfully processes the payment.	**Pass**
TC06_02	The user tries to make a payment without selecting a payment method and receives an error message.	Pass
TC06_03	The user cancels the payment process and the system redirects them to the campaign page.	Pass
TC06_04	The user selects a payment method and proceeds to the payment gateway but encounters a network error during the process.	Fail
TC07	Dashboard	
TC07_01	The user views the dashboard and all the relevant statistics and information are displayed correctly.	Pass
TC07_02	The user sees the total amount raised for active campaigns on the dashboard, and the value matches the actual total.	Pass
TC07_03	The user sees a summary of top-performing campaigns based on the total donation amount, and the list is accurately ranked.	Pass
TC07_04	The user clicks on a specific campaign displayed on the dashboard and is redirected to the campaign details page.	Pass
TC08	Approve Campaign	
TC08_01	The admin reviews a registered campaign and approves it.	Pass
TC08_02	The admin rejects a registered campaign.	Pass
TC08_03	The admin approves a registered campaign, and the campaign status changes to "Approved" in the system.	Pass
TC09	Generate Report	
TC09_01	The admin selects a specific report type and generates a report containing the required information.	Pass
TC09_02	The admin tries to generate a report without selecting a report type and receives an error message.	Pass
TC09_03	The admin saves a report template with predefined settings for quick generation in the future, and the template is successfully stored.	Pass

Overall, 34 test cases are tested, Table 6 shows the overall test case result.

Table 6: Overall Result

Test Case ID	Total Test Cases	Total Passed
TC01	5	5
TC02	3	3
TC03	4	4
TC04	4	4
TC05	4	3
TC06	4	3
TC07	4	4
TC08	3	3
TC09	3	3
	34	32

Table 6 presents the results of the system's testing, with a total of 34 test cases. Out of these, 32 test cases have successfully passed, indicating that the system can perform the required functionalities in accordance with the system's functional requirements. However, two test case has failed, highlighting functionality that did not meet the expected outcome or encountered an issue during testing.

4.2 User Acceptance Testing

User Acceptance Testing (UAT) for MyFunds UTHM is an important stage of testing where a group of 27 users validates and approves the software system before its release. UAT is the final step in the testing process following functional, integration, and system testing. In Figure 11to16, the scale ranges from 1 to 5, representing the degree of user satisfaction with the system's features. A rating of 1 indicates strong dissatisfaction, while a 5 signifies strong satisfaction.

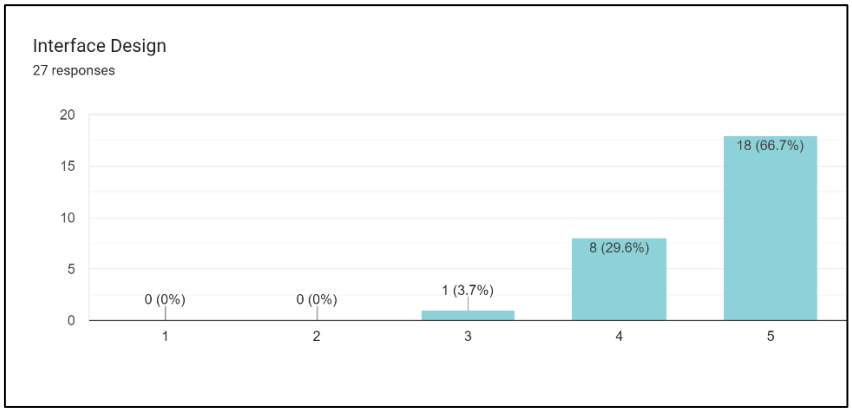


Figure 11 : Result of UAT in term of interface design of the system.

Figure 11 shows the evaluation examines the overall visual aesthetics, arrangement of elements, color schemes, and overall coherence of the user interface.

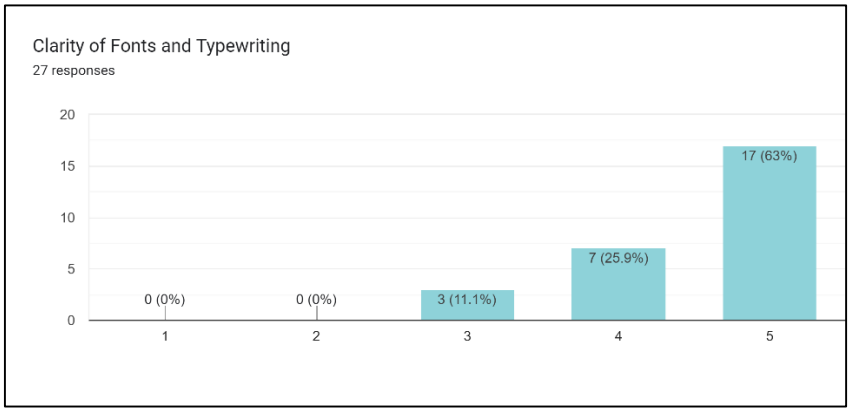


Figure 12 : Result of UAT in term of clarity of fonts and typewriting of the system.

Figure 12 shows the assessment of font clarity and typographic elements within the interface design. It examines how legible and visually appealing the fonts are, as well as the overall quality of the typography used in the application.

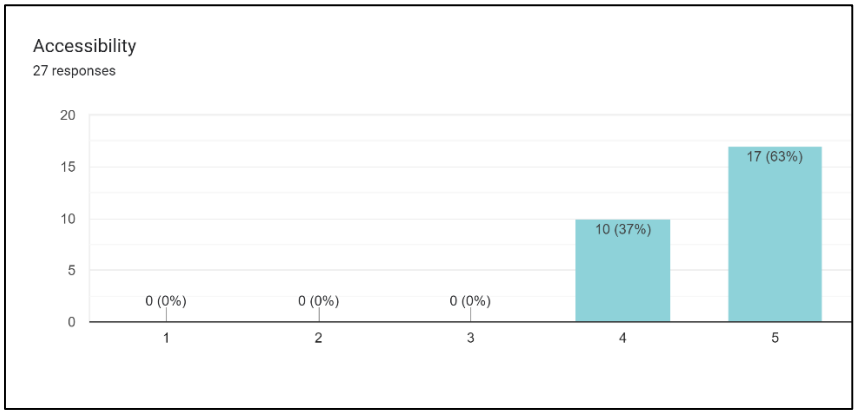


Figure 13 : Result of UAT in term of accessibility of the system.

Figure 13 shows evaluation of the system's accessibility, focusing on its ability to be used by individuals with diverse needs. This assessment examines factors such as compliance with accessibility guidelines, support for assistive technologies, and the availability of features that enhance usability for users with disabilities.

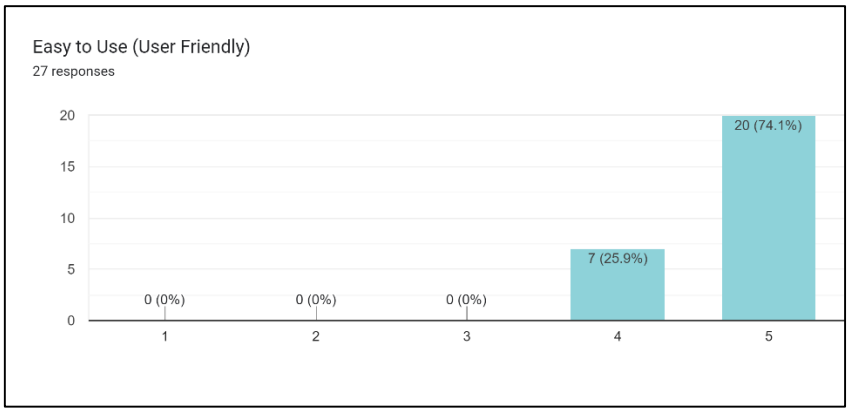


Figure 14 : Result of UAT in term of user friendly of the system.

Figure 14 shows the evaluation of the system's ease of use and user-friendliness. This assessment analyzes how intuitive and user-friendly the system's interface and navigation are, ensuring that users can easily interact with the software and accomplish their tasks efficiently.

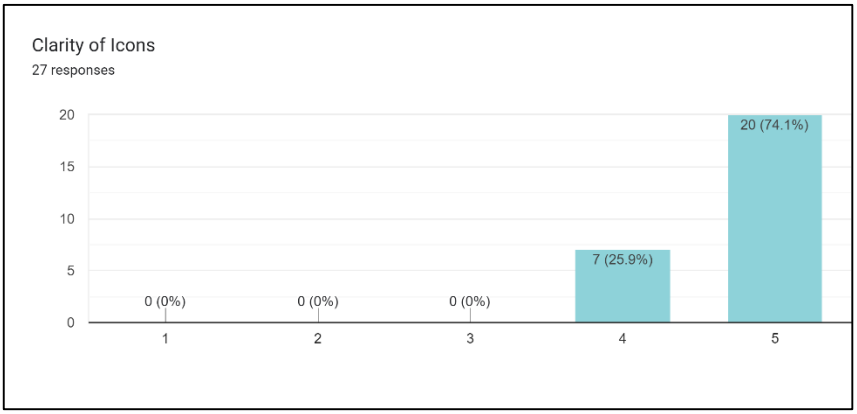


Figure 15 : Result of UAT in term of clarity of icons of the system.

Figure 15 shows the evaluation of icon clarity within the system's interface design. This assessment focuses on the visual representation and comprehensibility of icons used throughout the application, ensuring that they are easily recognizable and convey their intended meaning to users.

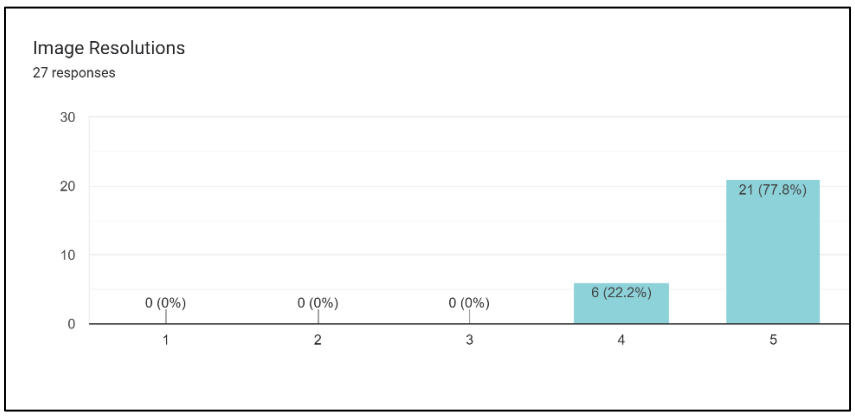


Figure 16 : Result of UAT in term of image resolution of the system.

Figure 16 shows the evaluation of image resolutions within the system's interface design. This assessment examines the quality and clarity of images used in the application, ensuring that they are displayed at an appropriate resolution that maintains their visual integrity and avoids pixelation or blurriness.

Upon completing the testing process, where all 27 users actively participated in the User Acceptance Testing (UAT) phase, their unanimous satisfaction with the software system was achieved. Their valuable feedback and positive evaluation confirmed that the system met their expectations and fulfilled the required criteria. This collective approval marked a significant milestone, indicating that the software system was ready for publication and subsequent use.

5. Conclusion

In conclusion, MyFunds UTHM is a mobile application that provides a comprehensive and convenient platform for all fundraising activities within Universiti Tun Hussein Onn Malaysia (UTHM). Developed using an object-oriented approach, the mobile application offers a secure and user-friendly interface for students and staff to engage in fundraising and support campaigns organized by various clubs and organizations within the university.

The functionality testing and user acceptance testing results have demonstrated that the MyFunds UTHM system successfully met the requirements and fulfilled the expectations of its users. However, it is essential to acknowledge that the system does have certain limitations. These limitations may include areas where further improvements or enhancements can be made to enhance user experience, address any identified issues, or expand the system's capabilities. Recognizing these limitations provides an opportunity for ongoing development and refinement of the MyFunds UTHM system to serve the university community's fundraising needs better.

Acknowledgment

The authors would like to thank the Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia for its support.

References

[1] Shaker, S. R., & Averill, C. (2019). Fundraising in Higher Education: A Practical Guide for Academic Leaders. Stylus Publishing, LLC.

[2] Khan, A. H. (2023). Fund Raising web Application using digital payment methods.

[3] Logue, D., & Grimes, M. (2022). Platforms for the people: Enabling civic crowdfunding through the cultivation of institutional infrastructure. Strategic Management Journal, 43(3), 663-693.

[4] Aidarkhan, A., Salamat, A., & Issin, N. (2023). DEVELOPMENT OF A CROWDFUNDING WEB-PLATFORM TO IMPROVE THE EFFECTIVENESS OF MEDICAL FUNDRAISING FOR A CHARITY FUND.

[5] Sinha, A., & Das, P. (2021). Agile methodology Vs. traditional waterfall SDLC: A case study on quality assurance process in software industry. In 2021 5th International Conference on Electronics, Materials Engineering & Nano-Technology (IEMENTech) (pp. 1-4). IEEE.

[6] Laplante, P. A., & Kassab, M. H. (2022). *Requirements engineering for software and systems*. CRC press.

[7] Chazette, L., & Schneider, K. (2020). Explainability as a non-functional requirement: challenges and recommendations. Requirements Engineering, 25(4), 493-514.

[8] Chazette, L., Brunotte, W., & Speith, T. (2022). Explainable software systems: from requirements analysis to system evaluation. Requirements Engineering, 1-31.

[9] Engineer, D., & None, S. A. (2023). 4.8 Use Case Diagram. CloudSentry: A Novel Amalgamate Framework for Monitoring Multi-Tenant Cloud-Based Applications Deployments, 43.

[10] Mokhtari, R. (2020, December). Validation of UML Class Diagram and OCL pre-and post-conditions using OTS/CafeOBJ proof scores. In 2020 4th International Symposium on Informatics and its Applications (ISIA) (pp. 1-4). IEEE.