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FYPMS User Acceptance Testing: Ensuring User Satisfaction and System Success

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ABSTRACT

This paper discusses the importance of User Acceptance Testing (UAT) in the context of the Final Year Project Management System (FYPMS), which is a web-based system designed for final-year students in the Faculty of Computing and Multimedia (FCOM) Universiti Poly-Tech Malaysia (UPTM). The FYPMS aims to streamline the management of final-year projects in higher education, making it crucial to ensure its functionality and usability meet user expectations. This paper identifies and addresses potential usability and functionality issues in the FYPMS. This investigation recognises UAT as a pivotal phase in the software development process, integral to optimising the system's performance and ultimately enhancing user satisfaction and system success. The study utilised a quantitative questionnaire to gather feedback on system features, with responses indicating high user satisfaction, particularly in login, project submission, and system performance. The research findings provide valuable insights into user acceptance of FYPMS and lay the groundwork for future system enhancements.

Keywords:

Final year project management system; user acceptance testing; higher education

1. Introduction

The final year project holds excellent significance in higher education as it culminates their years of learning and preparation [1-3]. Students can demonstrate their knowledge, creativity, and innovative ideas in their respective fields of study by working on final year projects. In the Faculty of Computing and Multimedia (FCOM) Universiti Poly-Tech Malaysia (UPTM), all students must complete final year project as one of the requirements for graduation, but managing these final year projects efficiently can often be a daunting task for both students and academic institutions [4].

For students, it involves balancing time, dealing with project complexity, securing resources, and defining project scope. In contrast, academic institutions struggle with resource allocation, coordination, quality control, and communication issues. To guarantee that all students have the skills and resources they need to achieve in their academic endeavors, efficient project management

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of final year projects is crucial. Hence, a web-based system can assist in streamlining project management procedures and enhancing project results for students and academic institutions.

To meet this imperative, the Final Year Project Management System (FYPMS) is a web-based platform designed to manage and track the progress of final year projects or dissertations for FCOM, UPTM. FYPMS serves three primary user groups: coordinator, students, and lecturers (academic supervisors and examiners). Each group plays a vital role in the final year project process, and the system caters to their specific needs.

FYPMS aims to improve the overall management of final-year projects. It streamlines project-related activities by providing a centralized platform for proposal submission, allocation, and progress-tracking tasks. Ultimately, FYPMS's core objective is to assist in completing final-year projects. This success benefits both students, who gain valuable experience and knowledge, and the institution, which maintains high academic standards and a positive reputation.

The access to the FYPMS platform is expanded to a wide range of locations and devices, thereby enriching its overall accessibility. This accessibility is vital for students, coordinators, and lecturers who may require the ability to collaborate from a distance. Additionally, it simplifies the project management process by offering functions such as the submission of proposals, allocation of projects, and tools for communication [5].

Other than that, FYPMS facilitates the submission of project proposals. Students can submit their project titles through the platform, streamlining the proposal review process. Coordinators can use the system to allocate projects to students and match them with suitable academic supervisors or examiners based on their areas of expertise. It also acts as a communication tool that enables collaboration and the exchange of feedback among students, coordinators and lecturers.

It shows that FYPMS is a critical digital infrastructure, offering a comprehensive suite of tools and features to assist students and faculty in overseeing the final-year project lifecycle. However, like any software system, its success relies significantly on user satisfaction and its ability to fulfil the intended objectives [6].

Hence, this paper investigates the fundamental concept of User Acceptance Testing (UAT) within the framework of the FYPMS. UAT is a vital phase in software development that acts as the final obstacle before system deployment [7]. It represents a critical stage where user input is utilised to refine the functionality and usability of the system. In the realm of the FYPMS, this procedure assumes even greater significance as it directly impacts the academic journeys of final-year students.

The primary objective of this paper is to explore the role of UAT in optimizing the FYPMS, ensuring that it aligns with user expectations, enhances usability, and facilitates the successful management of final-year projects. Through a comprehensive examination of user perceptions and experiences utilizing a quantitative methodology, this investigation aims to elucidate the areas of triumph within the system, thus creating a pathway for subsequent improvements and modifications. In doing so, this paper seeks to elevate the FYPMS to a higher plane of efficiency and user satisfaction, ultimately contributing to the overall success of final-year students within the FCOM at UPTM.

2. Literature Review

This section delves into the critical aspects surrounding final-year projects (FYPs) in higher education and the evolving landscape of project management within academic institutions. It discusses the significance of FYPs for students and the broader academic community, the emergence of electronic FYPMS, and the vital role of UAT in optimizing these systems. The literature review establishes a context for understanding the multifaceted nature of FYPs and the transformative impact of technology in their management.

2.1 Final Year Project (FYP): Bridging Theory and Practice

For students seeking higher education, particularly in the disciplines of information technology (IT) and computer science (CS), the final year project (FYP) at the FCOM, UPTM is a crucial part of their academic journey. This section comprehensively explores the multifaceted significance of the FYP, focusing on its pivotal role in augmenting students' practical skills, technical knowledge, and project management proficiencies.

2.1.1 Significance of the FYP

The FYP stands as a culmination of students' years of theoretical learning and serves as a platform where they can translate this knowledge into practical applications [8-10]. It gives students a unique opportunity to showcase their creativity, critical thinking, problem-solving abilities, and innovative capabilities in their chosen fields of study. In addition to being a necessary academic requirement, the FYP helps students prepare for the difficulties they will face in their professional careers by acting as a crucial link between theoretical knowledge and application in the actual world.

2.1.2 Practical learning through comprehensive projects

One of the primary objectives of the FYP is to provide students with hands-on experience in executing comprehensive software development projects [11, 12]. This experiential learning strategy allows students to combine numerous abilities and subject-specific knowledge into a well-rounded project. It sharpens their project management acumen as they grapple with tasks such as defining project scopes, managing timelines, securing resources, and delivering a functional solution within predefined constraints.

2.1.3 FYP and academic excellence

Furthermore, the FYP harmonises with the faculty's commitment to fostering academic excellence and producing graduates who possess impeccable readiness to meet the demands of the industry. Students engaging in FYPs gain practical skills and develop critical thinking, problem-solving, and teamwork skills [13]. This hands-on experience and rigorous academic training positions students as proficient professionals capable of applying their knowledge effectively in real-world scenarios. The FYP also functions as a quality assurance mechanism, guaranteeing that graduates possess the competencies for successful careers.

2.1.4 Conclusion

In conclusion, the FYP plays a crucial and essential position in the academic program at UPTM, especially when it comes to FCOM. It plays a crucial role in developing practical skills, improving project management expertise, and fostering academic achievement. This section has clarified the FYP's varied relevance and emphasized how important it is in preparing students for the difficulties they would face in their future professional endeavors.

2.2 Final Year Project Management System (FYPMS): Transforming Project Supervision

Traditionally, the administration and oversight of FYP in higher education establishments have predominantly relied on manual procedures, such as logbooks and in-person interactions. However, the need for more efficient and streamlined project management has driven the development of electronic Final Year Project Management Systems (FYPMS) [14, 15]. This subsection presents a literature review of FYPMS, highlighting their pivotal role in revolutionising project supervision, enhancing communication, and elevating overall operational efficiency in academic institutions.

2.2.1 The emergence of electronic FYP management

Drik and Belozertsev [16] proposed centralizing FYP management electronically, aiming to mitigate the challenges posed by manual systems. Their research advocated an electronic system providing a centralized database for monitoring student FYP progress. This approach reduced paperwork and improved visibility and coordination among stakeholders. The introduction of electronic FYP management systems marked a significant departure from traditional methods, offering a more efficient and transparent way to supervise and track student progress [17].

2.2.2 Digital solutions for enhanced supervision

Ibrahim *et al.*, [18] presented an innovative system that replaced conventional paper logbooks with an effective digital solution for monitoring student progress in FYPs. This transition facilitated better communication between students and supervisors and provided a systematic approach to progress tracking. Similarly, Minocha [19] harnessed online platforms like Moodle to create a centralized system for coordinating student submissions and evaluations. Their research underscored the success of this approach in enhancing FYP management by fostering greater collaboration and efficiency.

2.2.3 Navigating complexities and evolution

However, it is important to acknowledge the challenges associated with integrating electronic FYP management systems. Nagy and Burch [20] and Zukas and Malcolm [21] emphasized the complexity of harmonizing various departmental approaches and understanding informal work practices within academic institutions. These factors can pose significant hurdles in system development and implementation. Nonetheless, the evolution of FYPMS has been marked by a concerted effort to address these challenges, with a particular emphasis on usability, efficiency, and user satisfaction [22].

2.2.4 Conclusion

In summary, the literature underscores a palpable shift toward the adoption of electronic FYPMS. This transition is driven by the imperatives of improved supervision, enhanced communication, and operational efficiency within academic institutions. While challenges exist in the integration of these systems, their benefits in terms of transparency and streamlined project management are evident. These systems represent a transformative leap, benefiting both students and academic institutions by facilitating more effective and collaborative project supervision.

2.3 User Acceptance Testing (UAT): Evaluating FYPMS Performance

User acceptance testing (UAT), commonly called application testing, represents the concluding stage within the software development or change request lifecycle preceding its deployment. UAT is the ultimate phase within the development process wherein the software's performance is assessed within real-life situations to ascertain its alignment with the intended objectives [23]. UAT assumes paramount importance in the context of FYPMS and the management of FYPs in higher education. This subsection delves into the concept of UAT and its significance in ensuring that FYPMS aligns with user expectations, enhances usability, and ultimately facilitates the successful management of FYPs.

2.3.1 Importance of UAT in FYPMS development

Before the emergence of electronic FYPMS, the evaluation of project management systems relied on manual assessments and limited user feedback [18]. UAT transforms this process by systematically gathering user input to refine system functionality and usability. It represents the final checkpoint before system deployment, ensuring that FYPMS meets and exceeds user requirements.

2.3.2 Enhancing user satisfaction through UAT

UAT is a mechanism to gauge user satisfaction and system success [24]. Involving end-users in the testing process provides a platform for feedback on system features, accessibility, and performance. This iterative approach allows for identifying and rectifying potential usability and functionality issues, contributing to enhanced user satisfaction and overall system success.

2.3.3 Integrating UAT with FYPMS

In the context of FYPMS, the integration of UAT fosters a symbiotic relationship between software development and end-users. It ensures the system is user-centric and aligns with the unique requirements of managing FYPs in an academic setting [18]. By comprehensively investigating user perceptions and experiences through a quantitative methodology, UAT aims to shed light on areas of success within the system while paving the way for future enhancements and refinements.

3. User Acceptance Testing for FYPMS

Currently, FYPMS is used by final year students, coordinators and lecturers of FCOM in UPTM. However, it is important to note that the system is still in the testing phase, which corresponds directly to the UAT phase in the software development lifecycle. UAT is a vital process in software development where end-users or customers test the software or system to ensure it meets their requirements and expectations. UAT helps identify issues that may arise during real-world usage but were not apparent in earlier testing stages [24].

To comprehensively assess the system's readiness and user satisfaction, a quantitative research approach was conducted, assessing user satisfaction with the system's functionality. UAT was performed with 50 respondents, including students and lecturers of FCOM at UPTM.

A quantitative research approach for this study was chosen because quantitative methods are relevant to see how user response or user satisfaction about the system's functionality. The purpose of the acceptance test is to decide if the proposed application meets all users' requirements that

have been determined and produce the expected output. The user needs to decide if the system fulfils its acceptance criteria and to allow them to decide whether to accept the system or not.

In summary, the UAT represents a critical step in ensuring that the system is well-received by its intended users. This iterative process of user engagement and refinement is integral to delivering a system that streamlines project management, enhances communication, and ultimately contributes to the successful completion of final year projects for students and the efficient supervision and coordination for coordinators and lecturers.

4. Results

In this section, the results of the UAT phase were conducted with 50 respondents, including students, lecturers, and coordinator from the FCOM UPTM are presented. The UAT aimed to assess user satisfaction and the functionality of the FYPMS.

4.1 Student and Lecturer Feedback

Table 1 summarises the UAT results for students and lecturers. Respondents provided feedback on various aspects of the system's functionality and usability, rating their experiences as "Poor," "Fair," "Good," or "Very Good."

For students, the results were overwhelmingly positive. They reported a 90% satisfaction rate for successfully logging into the system and an even higher satisfaction rate of 98% for functions like registering project titles, viewing suggested titles, submitting projects, and accessing the project gallery. These results indicate that students found the system user-friendly and efficient.

Lecturers also had a positive experience with the system, with 100% of them successfully logging in and performing key functions such as viewing supervision allocation, managing suggested titles, and receiving student submissions. However, the only area that showed room for improvement was the marking function, with 80% satisfaction.

The system's overall performance received an impressive 85% "Very Good" satisfaction rating from both students and lecturers, affirming that the system successfully fulfils its main purpose.

Table 1
Testing result for student and lecturer

No	Question	Percentage (%)			
		Poor	Fair	Good	Very Good
1	Student can login successfully.	0	0	10	90
2	Student can register FYP title.	0	0	5	95
3	Student can view the suggested project title.	0	0	3	97
4	Student can view the gallery.	0	0	2	98
5	Student can submit project.	0	0	2	98
6	Lecturer can login successfully.	0	0	0	100
7	Lecturer can view supervision allocation.	0	0	0	100
8	Lecturer can add, update, delete the suggested title.	0	0	0	100
9	Lecturer can upload the mark successfully.	0	5	15	80
10	Lecturer can view the gallery.	0	0	0	100
11	Your overall satisfaction for this system.	0	0	15	85

4.2 Coordinator Feedback

Table 2 presents the UAT results for coordinators. While most functions achieved a 90% satisfaction rate, coordinators expressed some reservations about the user interface, resulting in a lower "Very Good" rating. This feedback highlights the importance of considering user interface improvements as a potential future enhancement.

Coordinators are pivotal in ensuring user satisfaction by understanding user needs, collecting feedback, and advocating for system improvements. Their feedback is essential for ongoing enhancements to the system, contributing to its overall success and acceptance among users.

There are 8 questions for the coordinator. From Table 2, it can be seen that most of the functions achieved 90% satisfaction. The coordinator cannot give a full 100% very good response due to the user interface. This feature can be considered a future enhancement. The coordinator's focus on user satisfaction involves understanding user needs, advocating for users, collecting feedback, ensuring system quality, and facilitating ongoing improvements. By prioritising user satisfaction, the coordinator can contribute to the overall success of the system and its acceptance among users.

Table 2
Testing result for coordinator

No	Question	Percentage (%)			
		Poor	Fair	Good	Very Good
1	Coordinator can login successfully.	0	0	0	100
2	Coordinator can check students' status.	0	0	10	90
3	Coordinator can verify project title.	0	0	10	90
4	Coordinator can assign/verify supervisor allocation.	0	0	10	90
5	Coordinator can verify students' submission.	0	0	10	90
6	Coordinator can download report for students' mark by programme.	0	0	10	90
7	Coordinator can update/edit gallery.	0	0	10	90
8	Your overall satisfaction for this system.	0	0	10	90

4.3 Discussion

The UAT results underscore the success of the FYPMS in meeting user expectations and fulfilling its intended purpose. Students, lecturers, and coordinators generally found the system user-friendly and efficient, with high satisfaction rates for most functions.

The positive feedback received during UAT is a promising sign that the system is well-received by its intended users. However, it is essential to consider areas for improvement, such as the user interface, as highlighted by the FYP coordinator. Future enhancements should focus on addressing these concerns to enhance user satisfaction and system usability further.

Overall, the UAT phase has provided valuable insights into the system's performance and user satisfaction, laying the foundation for a successful deployment and continued refinement of the FYPMS.

5. Conclusions

In conclusion, this paper underscores the critical role of the FYPMS in streamlining the management of FYPs within the FCOM at UPTM. It addresses the challenges faced by both students and academic institutions in efficiently managing FYPs. It highlights how FYPMS serves as a web-based solution to enhance project management, communication, and coordination. The paper

further delves into the significance of User Acceptance Testing (UAT) in optimising FYPMS, ensuring alignment with user expectations, and enhancing overall usability. Through quantitative research, the UAT results affirm high user satisfaction among students, lecturers, and coordinators, with constructive feedback pointing towards potential areas of improvement, particularly in interface design. These findings contribute to the continuous enhancement and success of FYPMS, ultimately benefiting the academic journey of final-year students and reinforcing the commitment to academic excellence within FCOM at UPTM.

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