CHAPTER 7

IMPROVING USER ACCEPTANCE TESTING IN RESEARCH SYSTEMS

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7.1 INTRODUCTION

User Acceptance Testing (UAT) is a test conducted for end users to accept or reject the system when all the development works have been completed (Alsoub et al., 2018). It is conducted by end users—typically staff or company employees who interact directly with the system to verify that all implemented functions operate as intended (Vanesha et al., 2024). The testing process focuses on acceptance of the outcome of the system (Loss et al.,2019). Testing the end-product does not indicate that the product functions properly under all possible conditions but can only show that it does not function improperly under specified conditions. Hence, the purpose of UAT is to examine and execute the developed system to detect the faults as early as possible during the system development process to ensure the requirements are met within the expected delivery, schedule time and budget.

This UAT practise is necessary to identify any error as an intense preparation prior the launch of the system to end users (Suman & Sahibuddin, 2019). As development teams nowadays apply Agile methods, the requirements which are changed during the project may or may not be communicated effectively to the developers and main

users thus, affect the system outcome. Therefore, this study sought to gather user feedback on challenges experienced by developers' team and main users during acceptance testing sessions and discover the solutions to overcome these challenges. All these experiences from both developers' team and main users become the main outcome for this research in finding suggestions of solutions from common challenges found during UAT based on their experience.

7.2 SOFTWARE TESTING AND USER ACCEPTANCE

Software testing methods are procedures used to test the system efficiently by the developers' team and main users. Main UAT will involve the main user and all comments or problems will be fixed by the developer before the release. However, before the main UAT, the developer team also performed an acceptance test known as Alpha test to improve the quality of code and system respectively before showing it to the main user during the main UAT which is called Beta test.

7.2.1 Alpha Testing

Alpha Testing is a type of acceptance testing performed by the developers under a controlled environment (Goel & Gupta, 2014). All developer teams will consistently be involved in the development phase and consistently test the effectiveness of the system before main UAT is held. Only the developer team is involved in this testing to improve the quality of the system. Error, system crashes and plenty of bugs are expected in Alpha Testing.

7.2.2 Beta Testing

User Acceptance Testing (UAT) is also familiar with Beta Testing which is available to test by the owner of the system and main users, developers then solve the problem before the release. The developer only involves just to be prepared with any problem happening with the system and assist main users during Beta Testing. This process helps identify and

remove defects. Beta Testing is also known as pre-release testing (Goel & Gupta, 2014). Fewer system crashes, some bugs and requests for new requirements are expected in this Beta Testing.

7.3 INVESTIGATING THE RESEARCH MANAGEMENT SYSTEM IMPLEMENTATION

This study focuses on the implementation of a Research Management System (RMS) in one of the research universities in Malaysia. The RMS is a web-based system that has internal users from various level management and department and external users. Therefore, there is complexity in the process of application and approval which include various users and approval levels.

The survey is divided into three sections which are general information, challenges of UAT and suggestions of improvement. Developer team which involves in Alpha Testing experience received Survey 1 which focuses on questions regarding their experience in Alpha Testing. Meanwhile, Survey 2 involved by main users only focuses on experience during Beta Testing since they are only involved in main UAT.

Overall, 10 responses received for Survey 1. All targeted respondents are from developer teams such as programmers and system analysts which are involved in the development phase of the system. Meanwhile, seven responses received from Survey 2 and all targeted respondents are main users of the system in the respective research university which consist of research manager, assistant research manager, and appointment clerk.

7.4 ANALYSING USER FEEDBACK FROM ALPHA AND BETA TESTING

This section summarises the responses of both Survey 1 and Survey 2. Discussions of the results are stated in this section to justify the detail of responses. All results are divided into challenges and suggestions of improvement.