BAB I. INTRODUCTION

1.1. Background

In the era of rapid technological advancement, maintaining the quality and reliability of web applications like Qirby Admin Web is crucial. Qirby Admin Web is designed to assist administrators in managing properties within the Qirby Application, including adding, editing, deleting properties, and scheduling meetings between prospective buyers and sellers. To ensure that this application functions according to needs and expectations, effective software testing, particularly functional testing, is essential. Functional testing aims to ensure that the functions within the software operate according to the specified requirements and are free from defects or bugs [1]. However, web applications often undergo continuous changes, such as adding or removing features, which necessitate repeated testing. This repetitive testing process requires significant time and resources, making automated testing a more suitable solution.

Automated testing offers various advantages, including speed and resource efficiency. It can be performed faster and more cost-effectively compared to manual testing as it can be executed repeatedly without human intervention [2]. Nevertheless, the accuracy of automated testing has not been fully proven. Currently, there is insufficient evidence that automated testing can always maintain or even improve accuracy compared to manual testing. Therefore, it is important to evaluate how accurate automated testing is compared to manual testing. Several research have explored the time comparison between manual and automated testing in depth [3], [4], [5], [6], [7]. These research indicate that automated testing is generally faster than manual testing. However, the accuracy comparison between the two methods is still underexplored. This creates a need to assess whether automated testing, despite being faster, can maintain or even improve accuracy compared to manual testing, as well as identify any limitations that may exist in automated testing. By selecting accuracy as the measurement variable, this research aims to provide a clear picture of the quality and effectiveness of manual testing compared to automated testing. Accuracy allows for an objective comparison of how well automated testing with Cypress performs relative to manual testing in detecting errors and ensuring application functionality.

This research uses Cypress as an automated testing tool for the Qirby application. Cypress is an end-to-end testing framework based on JavaScript that does not rely on Selenium drivers. This tool is built on NodeJS architecture and uses Mocha as its testing framework. Cypress operates in the same loop as the web application being tested and can capture snapshots during test execution. The tool consists of a set of integrated libraries that can interact directly with the application from the browser, without needing specific drivers to send commands. For example, when clicking a specific button, Cypress sends a click command using DOM events [2]. The Document Object Model (DOM) is a programming interface for HTML and XML documents that allows programs to change the structure, style, and content of documents [8]. This enables a faster testing process and more tailored test development. One of Cypress's advantages over other tools like Selenium is its ability to automatically determine wait times, addressing issues of manual wait time settings [9].

Although Cypress has many advantages compared to other tools, there are still limitations in the literature regarding the accuracy of functional testing using this tool. This adds to the need to evaluate Cypress's impact on testing accuracy compared to manual methods. Therefore, this research aims to fill the gap in the existing literature by comparing the accuracy between manual and automated testing and evaluating the use of Cypress in the context of functional testing. The research is expected to provide insights into Cypress's ability to maintain or enhance the functional testing process and identify any weaknesses of this tool.

1.2. Topics and Limitations

The main topic of this research is the comparison of accuracy between manual and automated testing, with a focus on functional testing using Cypress. This research aims to analyze the accuracy of functional testing on the Qirby Admin web application by comparing the results of manual and automated testing using Cypress. The research also includes evaluating how well Cypress can maintain or improve accuracy compared to manual testing, as well as identifying the limitations of using Cypress.

This research is limited to functional testing of the Qirby Admin web application and only compares the accuracy between manual and automated testing. It does not include other types of testing or non-functional testing, and does not cover Maps feature testing in automated testing.

1.3. Objective of Study

This research aims to analyze and compare the accuracy between manual and automated testing using Cypress in the context of functional testing on the Qirby Admin web application.

1.4. Writing Organization

This paper discusses several related research and explains the concepts of manual testing, automated testing, functional testing, and the use of Cypress in Section 2. Section 3 presents a relevant literature review, particularly discussing the comparison between manual and automated testing in terms of time. This review highlights the lack of literature on the accuracy comparison between these two methods. This section also explains the research process undertaken to achieve the research objectives. Next, Section 4 presents the results and analysis of the conducted research. Finally, Section 5 summarizes the findings and contributions of this research.