Universiti Teknologi MARA

ULIB: LIBRARY MANAGEMENT SYSTEM WITH DATA ANALYTICS

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ABSTRACT

University libraries play a critical role in supporting students' academic growth by offering access to a wide range of academic materials. The adoption of Library Management Systems (LMS) also revolutionises the way they operate, from relying on index cards and handwritten logs to using a platform that support various functionalities including cataloguing, storing and managing resources. Despite these advancements, university libraries still face challenges such as declining usage of printed books as students struggle to navigate large collections and remain unaware of the valuable materials. Librarians also lack analytical insights to align book collections with students' needs. Therefore, this project aims to develop an LMS that employs descriptive data analytics to enhance access to library resources and promote student engagement with printed materials. The methodology implemented in this project is Feature-Driven Development (FDD), an iterative and feature-focused approach while technologies used are PHP for the backend and HTML, CSS, and JavaScript for the frontend. Chart.js is used for data visualization while MySQL is for database management. Key features include book recommendations, analytics dashboards, and reservation module. All testing showed positive results, confirming the system is working and user-friendly. The future suggestion includes mobile app development, support for digital materials, and integration of predictive and prescriptive analytics. In conclusion, the system helps promotes the usage of printed books among students.

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CHAPTER 1

INTRODUCTION

This chapter discusses the background and the justification for the study. It also describes the problem statement, research questions and objectives, scope, project significance and the expected outcomes of the study.

1.1 Background of Study

University library is widely recognized as the 'brain' of organization that plays a major role in developing and maintaining growth of knowledge (Tong & Nawi, 2022). It serves as a vital function for students by providing a variety of materials such as books, newspapers, magazines, and other academic related materials (Hassim et al., 2022). As stated by Singh et al. (2024), the rapid advancement of technology has led to the development of Library Management System (LMS), revolutionizing the way library operates. LMS have transformed library from relying on manual system with index cards and handwritten logs to using a platform that automates various functionalities including cataloguing, storing and managing resources. This transformation enables library to operate efficiently while reducing manual works for librarians.

However, despite the widespread use of LMS, university libraries still face the challenges of declining rate in the use of printed book resources (Hassim et al., 2022). The physical book collections in libraries are continuously increasing in numbers but remain unutilized (Hassim et al., 2022). Students also have a problem when navigating the huge collection in libraries as they have limited knowledge and awareness of available materials (Azman et al., 2018).