UNIVERSITI TEKNOLOGI MARA

HOSTEL ROOM SELECTION SYSTEM WITH ANALYTICAL HIERARCHY PROCESS (AHP) SUPPORT TOOL FOR KOLEJ KERAWANG

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ABSTRACT

Efficient hostel room management is crucial for universities to ensure fairness, transparency, and optimal resource utilization. The Hostel Room Selection System with Analytical Hierarchy Process (AHP) Support Tool developed for Kolej Kerawang UiTM Kuala Terengganu, addresses challenges in hostel room management, including limited decision support, non-active students able to create accounts and inefficiency in data management. Previously, students faced difficulties in selecting suitable rooms based on their preferences, while the system allow active students to register an account. To overcome these challenges, Hostel Room Selection System integrates the Analytic Hierarchy Process (AHP) to assist students in making informed decisions by evaluating preferences such as Room Level, Wing, and Wi-Fi Speed. The system ensures secure access by allowing only pre-verified students with an admin-assigned 'Active'' status to log in and book rooms. Administrators are equipped with tools to upload students and rooms data via Excel, manage rooms and students' information, also, room availability, manage room selection period, handle student complaints, and activate or deactivate semesters seamlessly. Student on other hand able to use room recommendation tool, select a room within the room selection period, use similarity index to find the best roommates matches and issue complaints. Following adapted waterfall model, the project was executed through Planning, Analysis, Design, Implementation, Testing, and Documentation phases. Testing and evaluation involved three (3) evaluation from (3) experts and thirty (30) users to assess the system's usability, performance, security, and satisfaction. Results revealed that satisfaction achieved the highest mean score of 4.33, with the ease of room selection process and the accuracy of AHP decision-support tool receiving a mean score of 4.4, highlighting user convenience and system reliability. Overall, the evaluation confirmed the system's efficiency, security compliance, and user satisfaction, ensuring a seamless hostel room selection experience.

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