ABSTRACT

IMPLEMENTATION OF THE FIFO ALGORITHM FOR OPTIMIZING WEB-BASED CLASSROOM RESERVATION SYSTEMS

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Efficient classroom management remains a critical challenge for higher education institutions that still rely on conventional methods. At the Institut Informatika dan Bisnis (IIB) Darmajaya, the high density of academic and student organisational activities often leads to scheduling conflicts and uncertainties regarding classroom usage due to limitations in manual record-keeping. This study aims to design and develop a web-based classroom reservation information system by implementing the First In First Out (FIFO) algorithm to ensure fairness in the queuing process. The system was developed using the Rapid Application Development (RAD) approach, employing the Laravel framework and MySQL database, and validated through Black Box Testing. The research results indicated that the system is capable of managing scheduling in real time, eliminating conflicts in the use of facilities, and providing certainty of service based on the order of requests. The application of the FIFO algorithm proves effective in creating a transparent and administratively orderly reservation mechanism. For future development, it is recommended to expand the system's scope to include public facilities such as the Rectorate Hall and to integrate equipment inventory loan features to enhance campus asset management.

Keywords: First In First Out, Classroom Reservation, Rapid Application Development