Universiti Teknologi MARA

SmartQ: Developing Real-time Multi-organization Queuing Management System using Predictive Modelling

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STUDENT'S DECLARATION

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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ABSTRACT

SmartQ is a queue management system. It is used to control queues which add ability to manage and streamline queues in order to reduce waiting periods and improve service efficiency. Generally, waiting line in the organization like bank, hospitals, and government office become more problematic due to increase in the number of customers. As for customers, if they need to go to two different places, they have to take two different queue tickets separately at those places which may cause them to queue twice. Inefficient queuing management system will reduce the customer's satisfaction. The first objective of this project is to develop a real-time web and mobile application for multi-organization queuing management system. The website was develop using HTML and CSS as front-end language, PHP as back-end language and MYSQL as database query. The second objective is to evaluate the functionality of web and mobile application using functionality testing. In this project, we also evaluate the web server speed performance using GTmetrix Tools. Predictive modeling used as a calculation method to estimated and predict waiting time and time delay in this system. The functionality testing result shows that SmartQ fully functional as expected. This project has proven that the data transfer and web load for clients to server was stable and it only increase 0.2 second from 1 user load to 5 user load at same time. The recommendations can be implements to enhance the current system is the system can use dedicated server hosting that has privilege to fully access. In the future, we also can implement machine learning to improve the predictive modelling based on current environment at the organizations.

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