



Application of Round Robin in Scheduling in Web-Based Wedding Organizers

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Abstract

Wedding are cherished moments in the lives of couples. However, the complexity of wedding planning often poses challenges in arranging event schedules. To address this issue, this study aims to implement the Round Robin method for scheduling in a web-based Wedding Organizer. The Round Robin method is a scheduling algorithm that evenly allocates time for various necessary activities. In the context of a web-based Wedding Organizer, its implementation can optimize wedding activity scheduling by considering available time slots and avoiding scheduling conflicts among vendors. This research involves the development of a web-based application that employs the Round Robin method to organize the schedules of various vendors involved in weddings. The application offers convenience to couples-to-be and Wedding Organizers in viewing, organizing, and utilizing resources more effectively. With the application of the Round Robin method, it is anticipated that the operational efficiency of Wedding Organizers will improve, schedule conflicts will be mitigated, and the allocation of limited resources can be maximized. This study contributes to the advancement of a web-based Wedding Organizer scheduling.

Keywords: Wedding Organizer, Scheduling, Round Robin

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1.0 INTRODUCTION

The development of information technology and the internet has brought great changes in various fields, including the wedding industry. wedding organizer is a service provider that assists brides and grooms in planning, preparing and executing their weddings. Efficient scheduling by wedding organizers is essential to organize various activities and services related to weddings (Primananda et al., 2020). Overcoming the challenges of complex wedding planning requires an effective approach to managing and optimizing the allocation of limited resources. One method that can be applied is the round robin method, a scheduling algorithm commonly used in computer systems.

The round-robin method divides your time evenly among the various activities or tasks that need to be performed. In the context of a wedding organization, using a round robin approach to approve a schedule of services for different providers such as decoration, photography, etc., taking into account the time available and setting priorities (Primananda et al., 2020).

2.0 LITERATURE REVIEW

Definition of Information System

According to (Mluyati, 2019) [5] Information Systems are a combination of people, hardware, software, communication networks, data resources, and policies and procedures that store, collect (retrieve), process, and distribute information to support decision making and control in an organization. According to (Audrilia & Budiman, 2020) [1] Information system is a system made by humans that is made by humans.

Information system is a human-made system consisting of components that bring together daily transaction management needs that support managerial organizational operations and strategic activities to be able to provide certain external parties with the necessary reports.

Scheduling

According to research written by Muhammad Imran et al., (2021) [7] scheduling in the context of Job Shop Scheduling (JSS) is defined as the process of organizing a production sequence for a set of jobs that must be processed through a series of machines by taking into account the dependence between jobs and certain constraints. The main objective is to optimize the use of resources and minimize the total completion time.

According to research written by Hafizah Husain et al., (2021) [3] scheduling in the context of Flexible Manufacturing Systems (FMS) is defined as the process of organizing the production sequence for a set of tasks or jobs in a flexible manufacturing system. The goal is to maximize resource use, increase productivity, and minimize production time.

According to research written by Nenad Mladenovic, et al., (2020) [6] scheduling in the context of Industry 4.0 is defined as the process of arranging an efficient sequence and allocation of resources to meet customer demand, maximize production efficiency, and minimize production costs by utilizing advanced technologies such as the Internet of Things (IoT), big data, and artificial intelligence.

Round Robin

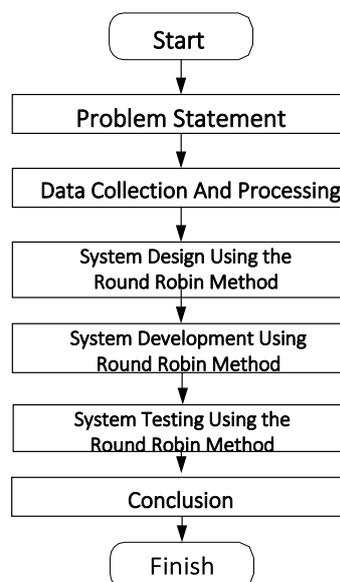
The round-robin algorithm is designed for time-sharing systems. This algorithm is similar to FCFS scheduling, but with additional preemption capabilities for interprocess switches (Kumar et al., 2014) [4]. It queues each process and assigns it at specific time intervals up to a quantum time slice (Nayak et al., 2012) [2].

Round Robin (RR) algorithm basically does not involve complex mathematical calculations. It is rather a scheduling algorithm that operates on the principle of rounds or cycles. However, there are several things to consider in the implementation and use of the Round Robin algorithm, such as:

1. Cycle Time (Time Quantum): This is a pre-defined parameter that determines how long a process can execute a task before it is moved to the next process in the queue. The cycle time can be set by the system or the user, and does not involve any special mathematical calculations.
2. Process Scheduling: At each cycle or round, each process is given execution time according to the cycle time. If the process completes within that cycle time, it is moved to the next queue. Otherwise, the process is moved to the next queue and given the same execution time when the next turn arrives.
3. Process Queue: The Round Robin algorithm uses a cycle queue that contains unfinished processes. Each process is processed in turn according to the order in the queue.
4. Waiting Time and Turning Time: Waiting time is the amount of time spent by a process in the queue before getting execution time. Turnaround time is the total time taken by a process from the time it enters the queue until it finishes executing.

Basically, the calculations in the Round Robin algorithm are related to setting the cycle time, setting the process queue, and monitoring the execution time and waiting time of the processes.

3.0 METHODOLOGY



Picture 3.1 Research Method Flow

1. Problem Formulation

The problem raised in this research is how to design a system that can do scheduling at Sun Pekanbaru Wedding Organizer using the Round Robin method.

2. Data Collection and Data Processing

In designing a system to find out the best wedding location, there are various data used, one of which is: master data. Before the master data is processed, normalization will be carried out first using the Round Robin method in order to produce a decision that all parties can later expect.

3. System Design

The design system with the Round Robin method uses quantum 2 as a time limit in each round and the system will be made web-based with the PHP programming language.

4. System Creation

In making the system, several auxiliary applications are used such as: XAMPP, MySQL, Visual Studio Code, Google Chrome.

5. System Testing

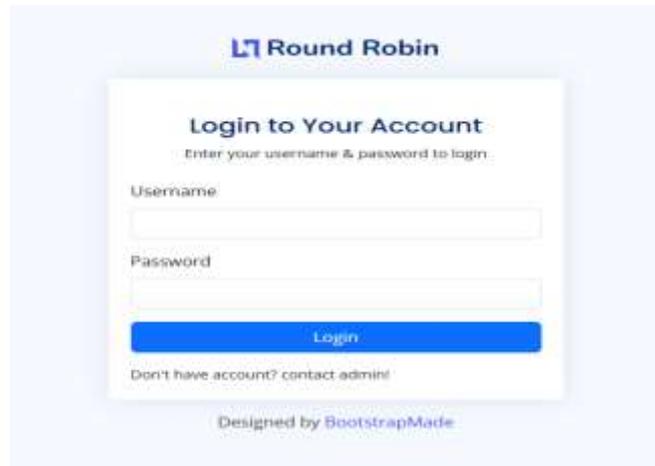
At this stage, testing of the system that has been made is carried out. System testing is done by calculating the accuracy of the system and error rate for calculating both methods and will be implemented on master data.

6. Drawing Conclusions

This step is the last step of the research. Conclusions are based on the results of the analysis of the research. The conclusion obtained is how to build a system for scheduling using the Round Robin method, so that it can be seen the level of accuracy of the system that has been created.

4.0 RESULTS AND DISCUSSION

Application Design



Picture 4.1 Login Page

The user and admin login page as shown in Picture 4.1 above will appear when the user and admin first access the application.



Picture 4.2 Main Page

The main page display as shown in Picture 4.2 above will appear when the user and admin successfully log in to the application.



Picture 4.3 Event Page

The event page display is like Picture 4.3 above, the event data will be added by the user first, each user can only see the user's own data except the admin.



Picture 4.4 Round Robin Page

The round robin page display is like Picture 4.4 above, the system will automatically calculate using the round robin method after the user has finished inputting the event.



Picture 4.5 Client Data Page

Client data page display as shown in Picture 4.5 above, client data can only be accessed by admin client data can only be accessed by admin.



Picture 4.6 Vendor Data Page

The vendor data page display as shown in Picture 4.6 above, can only be accessed by the admin.



Picture 4.7 Config Data Page

The config data page display as shown in Picture 4.7 above, can only be accessed by the admin,config data is quantum determination data on the round robin method.



Picture 4.8 Event Data Output

Print event data display as shown in Picture 4.8 above, admins and users can print event data, but specifically for user users can only print their own data.



Picture 4.9 Event Schedule Output

Print display of round robin data as shown in Picture 4.9 above, only users can print round robin data.

System Testing

System testing is an important process in software development that aims to ensure that the system built can function according to predetermined needs and specifications. Following the results of system testing can also provide information about errors and defects found during the testing process, as well as recommendations for improving and improving the quality of the system.

Tabel 4.1 System Test Results

No	System Testing	Expected Results	Test Results	Conclusion	Testing Technique
1	Login User	Login Successful	As Expected	"Success"	Whitebox
2	User Adds Events	Successfully Posted Event	As Expected	"Success"	Blackbox
3	User Logout From System	User Successfully Logout From System	As Expected	"Success"	Whitebox
4	Login Admin	Login Successful	As Expected	"Success"	Whitebox
5	Admin Adds Events	Successfully Posted Event	As Expected	"Success"	Blackbox
6	Admin adds Client	Successfully Posted Client	As Expected	"Success"	Blackbox
7	Admin adds User	User Posted Successfully	As Expected	"Success"	Blackbox
8	Admin adds Vendor	Vendor Successfully Posted	As Expected	"Success"	Blackbox

5.0 CONCLUSION

Conclusion

Based on the problem formulation and research objectives described in Chapter I, as well as the results of the analysis and implementation of the Round Robin method in scheduling at a web-based Wedding Organizer, the following conclusions are obtained:

1. The Round Robin method can be effectively applied in scheduling at a web-based Wedding Organizer. With the application of this method, the service schedules of various vendors at weddings can be arranged in a more structured and organized manner.
2. The application of the Round Robin method in scheduling at a web-based Wedding Organizer brings benefits in increasing the efficiency of setting the schedule of wedding activities. This is achieved by avoiding schedule conflicts between vendors, minimizing scheduling errors, and optimizing the use of limited resources.

Suggestion

As the end of this thesis research, the researcher would like to give some suggestions in the hope that it can be useful for the class of lecturers and students, where the suggestions that can be conveyed are as follows:

Integrate a notification system for Wedding Organizers and bridal couples. This notification feature can notify automatically about the schedule that has been arranged, schedule changes, or confirmation needs from both parties. That way, engagement and coordination between the Wedding Organizer and the bride and groom will be more efficient.

This section contains conclusions and suggestions. Conclusion is a brief, clear, and precise statement of what is obtained contains advantages and disadvantages, can be proven, and directly related to the purpose of research. Suggestion is a follow-up study that is still needed to refine the results of research in order to be efficient.

References

- Audrilia, M., & Budiman, A. (2020). Perancangan Sistem Informasi Manajemen Bengkel Berbasis Web (Studi Kasus: Bengkel Anugrah). *Jurnal Madani: Ilmu Pengetahuan, Teknologi, Dan Humaniora*, 3(1), 1–12. <https://doi.org/10.33753/madani.v3i1.78>.
- D. Nayak, S. K. Malla, and D. Debadarshini, Improved Round Robin Scheduling using Dynamic Time Quantum, *International Journal of Computer Applications*, Vol. 38, No. 5, 2012.
- Hafizah Husain, dkk., 2021, A Review on Scheduling Problems in Flexible Manufacturing Systems. <https://www.mdpi.com/2076-3417/11/11/5200>.
- Kumar, M.R., Rajenbra, B., Sreenatha, M. & Niranjana, C.K. 2014. An Improved Approach to Minimize Context Switching In Round Robin Scheduling Algorithm Using Optimize Technique. *International Journal of Research Engineering and Technology*. 3(4): 804-808.
- Mluyati, S. S. (2019). Rancang Bangun Sistem Informasi Penyewaan Wedding Organizer Berbasis Web Dengan Php Dan Mysql Pada Kiki Rias. *Jurnal Teknik*, 7(2), 29–35. <https://doi.org/10.31000/jt.v7i2.1355>.
- Nenad Mladenovic, dkk., 2020, Scheduling in the Age of Industry 4.0: Challenges, Methods and Opportunities. <https://www.sciencedirect.com/science/article/pii/S2210537920300149>.
- Muhammad Imran, dkk., 2021, A Comprehensive Review of Job Shop Scheduling Problems: Classification, Solution Approaches, and Open Challenges. <https://www.mdpi.com/2076-3417/11/4/1594>.
- Primananda, R., et al. (2020). Potensi Bisnis Properti di Indonesia. *Jurnal Manajemen Pemasaran*, 5(2), 75-84.