Developing restaurant information system to support decision making

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Abstract. The purpose of this study is to discuss how far the use of information systems and the effectiveness of information systems to assist in decision making in a restaurant, so that the system can be developed according to the needs in decision making. The method used in this research was descriptive method by using several references from several journals and previous studies to describe how information systems were developed for restaurants. This study discusses the display of information systems that can be used by a restaurant in loading transaction data and transaction reports that have been carried out, so that it can help the cashier to calculate the total transactions made by consumers, and assist in making data on income and expenditure, so they can calculate profit and loss at a restaurant. The results of this study indicate that the existence of an information system in a restaurant that contains various income report data, per-item income reports, and income statements, can help restaurant owners in making decisions, because restaurant owners can make decisions based on data which is accurately recorded in an information system.

1. Introduction
According to E S Soegoto business idea can be different depends on the individual itself, skill, experience, character, and environmental influences are the factors, there is inspiration from a business idea like a hobby, observe others, helping others, past idea, others idea, collaboration idea, from the books [1]. Information system is a method used to provide information that can attract the eye to capture the information provided [2]. Perkasa et al. explain that technology has an important effect of replacing traditional business to become an efficient and effective business, Restaurant Information Systems developed to manage activity such as transaction, and generate financial report [3]. Information system is a system that includes portable information devices that are interconnected with various data displayed, so that some consideration is needed in making an information system such as the level of organizational creativity to improve the ability of organizations to maintain their competitive advantage through the appearance of existing information systems and system design information that is able to provide organizational creativity [4]. Research conducted by Wen revealed that information systems have a strong impact on the sustainability of the company, this is evidenced by the information system being able to increase 20.5% in RFW collected through official channels and 207% increase in the number of generators at the Management of Restaurant Food Waste (RFW) under an official contract, and helps prevent other illegal activities, because the information system is able to store data effectively...
and efficiently [5]. As researched by Duerte et al. high flow data from the Point of Sale system is useful information as input for forecasting the business in the economic world [6].

The same thing was also found from the results of Garrett and Connelly's research which found that using a mobile information system in a restaurant company in the ordering system can help consumers place an order without being limited by location, if the restaurant location and consumers are still in the same geographical area, and the server can be configured dynamically to change the geographical area according to the availability of the location of the restaurant and the existing ordering system [7]. Besides being used for restaurants, the effectiveness of information systems is also found in health, such as the use of smartphone-based diet applications. This study found that through an application-based information system on smartphones, it can help consumers to do a diet program, which is influenced by several factors such as expectations for food ordering, expectations of achieving diet programs, social influences, conditions of available facilities, and personal innovations [8]. Griva et al. discovered analyzed customer behavior using data mining technique such as apriority, clustering, etc. could acquire new information to making a decision [9]. The importance of using an information system for a company was also stated by Tao et al.'s research that to increase the convergence between product physical space and virtual space, and reduce products that are isolated or unknown to consumers, physical product data, virtual product data, and data are needed. connected with regard to physical and virtual products to support the design, production, and service of products produced by companies [10].

The aims of this study to discuss development Restaurant Information System, to improve the system, and how effective the system after implemented in the Restaurant. The method of this study used the descriptive method with the references for Article and journal which is related to the object of this research.

2. Method

This research uses descriptive method by discussing how the restaurant information systems can influence decision making, which is supported by several references related to the design of information systems and the benefits of information systems from various sources such as journals and books from previous research.

3. Results and discussion

For support decision making then it is needed the good quality information. To get reliable, up to date, complete, accurate information then it is needed good data storage and good data processing. Restaurant Information Systems is one of the right solutions because it can help the data processing process easier also it contains database as a good data storage. Stored transaction data has a function as input, then this Restaurant Information Systems processing the input, the result of processing the input is income report, income report per item, and income statement report. These report used as one of the components to make a decision. As an example, stored transaction data for one year will not be wasted, but it can be processed to become useful information for the owner to make the right decision. Restaurant Information Systems can help to reduce human errors in counting income, so the cashier does not need counting the data transaction one by one by the calculator, because the process was computerized. So Restaurant Information Systems is considered as solution to make the process business effective and efficient.

In the homepage, it contains three menus: transaction, master, and report. Moreover, there are submenus in each menu. User interface designed as simple as possible so the user can use it comfortably and easier to use, although the user interface is simple but does not decrease its function (Figure 1).
In the transaction page, the user (cashier) by default can choose the dish that customer ordered by dish code because it’s a lot easier than typing the name of the dish. As an alternative, if cashier forgot the dish code, the cashier can choose dish by dish name in the drop-down list. Calculation total price that customer ordered is automatic by the system then cashier receive cash from customer afterwards change appear in the monitor, so the cashier does not need to calculate the change for the customer. After that, the bill printed then data transaction stored in the database automatically (Figure 2).
At the end of the month, the owner can see the income from 1-month transactions in the income report. All the transactions that occur in 1 month displayed less than 5 seconds, and also the owner can print the report or save to pdf document. Income report contains total transaction, item count, and of course total income in 1 month. Income report could become one of the reason decision making (Figure 3).

![Income report](image)

**Figure 3.** Income report.

The different per-item income report with income report is the information in the report. In the per-item income report, there is specified information: the income by dish name (Figure 4). That information can be used by the owner; for example, the owner wants to know what the most sold dish in 1 month or the least sold dish. So the owner can decide by that information to decide stock purchasing.
In income statement contain the information about income and expense in 1 month. So the owner can see the income more than the expense? or vice versa. Is the income increase from the previous month or not. Then the owner owns much information from his business; the owner can make the decision more accurate than before (Figure 5).

4. Conclusion
Restaurant Information System was a processing system in the restaurant which contained daily transaction process and then processing the input into the output in the form of income report, per-item income report, and income statement. The report became analyzed information for strategic decision making or technical decision making.
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