DEVELOPMENT OF CASHIER INFORMATION SYSTEM

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Abstract

Information system technology has entered into all fields to facilitate human work. This research aims to build an information system that can help the cashier in calculating and making an invoice, as well as helping the cashier to make a detailed and actual sales report. The research method used in this study is observation, interview, and documentation study. Development methods include analysis, design, and implementation. For system modelling, we used the object orientation design method. In this study, we used the PHP programming language using the Codeigniter framework to create programs and use MySQL as a database. The results of this study show that the existence of an information system can support the performance of the cashier, especially in making transaction notes and sales transaction reports. Each sales transaction can be automatic counting without manual counting. Thus, the information system in this study is good for use by the cashier.

Keywords: Cashier, Information system, Technology.
1. Introduction

There are many benchmarks for customer satisfaction. One of the highlights is the cashier's performance. The cashier is not only required to be able to serve quickly but also must be right [1]. Consumer satisfaction when buying something is very dependent on the time of the queue and the time to make transactions at the cashier. As a consequence of strong competition in retail trade, aspects of the payment cost, sales organization and queue length greatly impact the business profitability and business success of a company [2]. Therefore, we need a system model that can reduce customer queues and save payment transaction time [3].

The implementation of Information Technology (IT) in an organization or company has a goal to increase the effectiveness of the process, time efficiency, and competitive advantage of a company [4]. Based on the previous research, the cashier information system is useful for smooth sales transactions. The cashier information system can assist in the calculation of transactions carried out so it can minimize the errors occur [5]. Apart from being related to the calculations, in a payment process, an invoice is required as proof, and details of the transaction made. In addition, this is the output of the system related to the payment. Making invoices in a system is no longer manually so it can reduce the level of human error [6].

In addition to the invoices, sales reports are also needed. 87% of the respondents said that they needed a computerized system to record cashier transactions and make financial reports. Financial reporting management is also needed for the smooth operation of the company to improve employee performance [7]. Improving employee performance is also in line with customer satisfaction. It is known that one way to motivate employees is to make their work as efficient as possible and provide ongoing feedback [8].

In the previous studies, the automatic cashier system provides a product display that controlled with technology so it can help the cashier in their works [9]. It explained that the existence of a system could improve cashier performance and customer satisfaction. In some developed countries, we can find automatic cash registers without operators. The machine is suitable for use according to the needs and budget of the company. There are many small and medium enterprises in the field of culinary that are starting to develop, but they have a limited budget in Bandung. In addition to that, the purpose of this study is to build a web-based cashier information system for small and medium businesses in the culinary sector in Bandung that can help cashiers in transaction calculations, making notes for the sale reports.

2. Method

The method of the data collection in this study was obtained by observation, interviews and documentation studies. Observation is an activity of observing phenomena in the environment for a certain period. So the researchers can describe the information that cannot be obtained by other methods. The things observed by the researchers are related to the behaviour or environmental events in which the researchers’ take place [10, 11]. Structured interviews provide sufficient flexibility to obtain the data from different respondents but have the same coverage of data groups. Study documentation to validate information was collected from interviews.
and observations. The document provides guidance to researchers when conducting interviews [10].

System modelling used in this study is object-oriented programming (OOP). Object-oriented programming is a method with an approach that focuses on ways that objects can interact with. The interaction with the objects from the question is sharing information and communication [12].

3. Results and Discussion

In general, the web-based cashier information system can store the data relating to sales. This system can be accessed at any time. In the cashier information system, there is a process for making invoices and sales reports. To find out what functions are in the system and who has the right to use these functions, we use case diagrams as models. Figure 1 illustrates a use case diagram of a cashier information system that has several use cases to manage the data categories, manage menu data, manage data operators, manage invoices and manages sales reports.

![Figure 1. Case diagram.](image)

Figure 1 explained the login system that can be accessed by a cashier and connected to some info such as manage category data and manage invoices on the cashier information system. In this figure, it can be concluded that the existence of a program can facilitate their work. The description of the actor's definition of the system is defined as Cashier: Cashiers are people who have the right to access the applications to manage category, menu, operator, invoice, and sales report data. The description of the Use Case in the cashier information system is in Table 1.
Table 1. Use case.

<table>
<thead>
<tr>
<th>No.</th>
<th>Use case</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Login</td>
<td>Authentication process before the cashier can access the system</td>
</tr>
<tr>
<td>2.</td>
<td>Manage Category</td>
<td>The process of managing category data includes adding data, editing data, and deleting data.</td>
</tr>
<tr>
<td>3.</td>
<td>Product</td>
<td>The process of managing product data includes adding data, editing data, and deleting data.</td>
</tr>
<tr>
<td>4.</td>
<td>Manage Operator Data</td>
<td>The process of managing operator data includes adding data, editing data, and deleting data.</td>
</tr>
<tr>
<td>5.</td>
<td>Manage Invoice</td>
<td>The process that can do the calculation and printing of transaction notes</td>
</tr>
<tr>
<td>6.</td>
<td>Manage Report</td>
<td>The process of calculating and printing of transaction notes</td>
</tr>
</tbody>
</table>

Table 1 explains the information system case that exists in the cashier system such as a process of the calculation and printing the transaction notes (Manage Invoice). Interface design used to provide an overview of the system to be built. The design of the cashier information system interface is shown as follows (Fig. 2):

(a) Login Page. Figure 2 explains the system login of the design from the cashier information system. The initial display presented displayed username and password column that must be filled correctly to enter the system. The login page serves to provide access authorization so everyone cannot enter the system easily. However, if the username or password entered is incorrect, an error message will appear. Figure 3 displays a dashboard page containing Monthly Income Chart and Best Selling Products.

Fig. 2. Login page.
(b) Dashboard Page. Figure 3 explains the dashboard menu. This menu is presented menus that can simplify the performance of cashiers in carrying out their tasks such as, financial statements, best-selling, operator data, and product data. Fig. 4. Data of Monthly Income Chart Input and Best Selling Products derived from sales data inputted through the Invoice menu.

(c) Product Category Page. Figure 4 displays the Product Category Page, which has 3 menu options, namely: add, edit and delete category data. Tables on product category pages use MySQL as a database are related to the product data table. Therefore, the storage engine used is InnoDB represents the relations and integrity of the table. In addition, delete and update actions for setting foreign key constraints are using cascade constraints. When the product category data already removed, it also removed in the Product Data Page. Figure 5 displays the Product Data Page namely add, change and delete product data option.
(d) Product Data Page. As explained earlier, the product data table is related to the product category table. Therefore, to add the product data, you have to make sure the product category data already exists because you cannot manually add product category data directly to the Product Data Page. Figure 6 is the Product Data Page functions, which is to manage product data. Thus, when creating an invoice, the user does not need to enter the product name and price manually because it is already stored in the database.

Fig. 5. Product data page.

(e) Operator Data Page. Figure 6 displays the Operator Data Page, namely add, change, and delete operator data option. Data Page Operators have the function to manage data operators for those who can access the system. Data managed includes a username and password. If the user wants to change the data, they can choose the edit page and automatically the data stored directly in the database (Fig. 7).

Fig. 6. Operator data page.
(f) Invoice Page. Figure 7 shows an Invoice Page that can help the cashier in making an invoice. Figure 8 is a Report Page which contains a report on the sales transaction.

![Invoice Page](image1)

**Fig. 7. Invoice page.**

(g) Report Page. Sales transaction reports can be filtered according to the desired date. There is a workable, practical knowledge when using a combination of theory and practice, cashier work, and theoretical research. Cashier management system design, and even combined with the Codeigniter framework to create programs and use MySQL as a database can create an effective system for the sales transaction. The information system in the cashier system provides ease for shoppers by handling purchase transactions faster and provides a detailed invoice [13, 14]. In addition to the owner of the store, the system may create the detail information on the sales report as well as economically and easily maintained [14].

![Report Page](image2)

**Fig. 8. Report page.**
4. Conclusion

From each process that has been done, it can be concluded that the system increases the effectiveness and efficiency of the cashier's performance in calculating and making invoices. So the customer queue can be resolved quickly. In addition, the system helps the cashier to make sales reports. Companies also can easily monitor finances because of sales reports.

References


