SALES INFORMATION SYSTEM ARCHITECTURE
BASED OBJECT ORIENTED METODOLOGY
CASE STUDY: ALI ELECTRIC

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ABSTRACT
The development of technology and information developed and rapidly on this, much needed speed and accuracy in getting information, so as to facilitate in decision-making. The required information should be useful for those who need, so whenever the information required can be served quickly. Ali Electric is one of the trade business engaged in the sale of electronics. Currently Ali Electric desperately need the existence of information systems are accurate and reliable, sufficient enough to help sales system. Due to the processing of data that are not yet well structured so that it has a lot of drawbacks such as common errors such as errors in calculating and recording, terhambatnya process of making sales reports, and the number of documents that are lost due to less structured storage medium. Based on these problems then Ali Electric requires a good sales information system to support the processing of the data so that it can present data and information effectively and efficiently. The author uses an object-oriented methodology to analyze the proposed system design make & language programming using Microsoft Visual Basic.Net 2008, and using MySQL database. The existence of this proposed system, expected data processing on Ali Electric can be stored neatly and well structured.

Keywords: information systems, Cash sale on Ali Electric, Object Oriented Methodology

1. Introduction

In the age increasingly tight business competition among competitors in business every year, large or small companies who want to develop claimed to take a careful and precise decisions. Then the support in information technology in use to help a development in the quality of service, efficiency, and effectiveness of work. Example of usage in the field of computers as one means of supporting system of information that impact his paint to produce positive results in the output of a system. In the implementation of the system and information technology also facilitate and develop an operational activity of the company. At the end we have to master the ways for improvement of the quality of a company building a system in the way of useful information. And the existence of an information system that would support the speed and accuracy to obtain the information needed at the company.

a. common errors in making the sales notes, record keeping and calculation thus causing inaccurate sales transaction reports.

b. the number of documents that are missing due to a less-structured storage.

c. Difficulties in generating sales reports that quickly caused the creation of the report still collect the notes sale.

As for the purpose of the writing of this research are:
1. Analyze the sales system that is running.
2. Models of the proposed system.
3. Implement the proposed system.

As for the purpose of the writing of this research are:
1. sales administration process Helps on Ali Electric.
2. help to provide solutions to the problems of the computerized system makes.
3. help companies to be more practical in the sales process as well as the creation of a report.

So writing this research does not deviate from the subject matter of the problem then the author must specify the limitations of the research issues regarding Cash sales system. It is useful to avoid the onset of misunderstanding towards discussion. The scope of the discussion of the issues that will be the author explain are as follows:
   a. order process
   b. the payment process
   c. the process of Returns
   d. Process Report

2. The CORNERSTONE of the THEORY
   1. Basic concepts of information systems
      The design of the database describes that the system simply can be defined as a group of elements that are interrelated or interacting to form a single unity. The general concept of the system is a group of interconnected components, working together to achieve common goals by receiving input and generate output in a regular transformation process [1].
   2. Basic concepts of Systems Analysis
      System analysis can be defined as a process to understand the existing system, by analyzing the position and description of tasks (business users), business processes (business process), conditions or rules (business rule), the problem and find the solution (business problems and business solution) and the company's plans (business plan) [2].
   3. The basic concepts of object-oriented (Object-Oriented)
      A widely used method to visualize and document the design of a software system. This is because the UML visual modeling languages provide allowing the development of a system to make the blueprint in the form of raw, easy to understand and are equipped with an effective mechanism.

   1. Fishbone Diagram
      Fishbone diagram or diagram, fish bone, also called ishikawa diagrams that have been made in Japan. Fishbone diagram consists of main horizontal line where the line of the main diagonal line branched small. This makes the display of the graph as a skeleton fish. Fish bone is the cause of a result in the situation where it is necessary to solve the problem of production or other dilemma.
   2. Use Case Diagram
      Use case describes an interaction between one or more actors with information systems to be created. Use case can be used to map the function of anything that exists in the information system and anyone who has the right to use the functions of it.
   3. Sequence diagram
      Use Case or use case diagram is modeling for behavior (behavior) information system to be created. Use case describes an interaction between one or more actors within information systems to be created.
      Sequence Diagrams illustrate the behavior of the object pad use case with describing a life time of the object and the message that is sent and received between objects. Therefore to draw sequence diagrams then it should be known to the objects involved in a use case with the methods that belong to the class on instantiation becomes the object of it.
      a. Class Diagram
         Is the relationship between a class and an explanation of the details of each class in the model design of a system, it also exposes the rules and responsibilities of the entities that determine the behavior of the system. Class diagrams also show the attributes and operations of classes and a constraint related object is connected.
b. A Diagram of the Relationships of entities (Entity Relationship Diagrams)
Entity Relational Modeling (ER) is an approach top-bottom in the design of the database begins with the entities and the relationships between these entities and the relationships between the entities described in a model.

c. Logical Record Structure is a part of the relationship.
A relation is a table that contains information about an entity. Every table must have at least one key, where the key is part of a group of attributes that provide a unique value in a table.

d. Specifications Database
Data base specification describes data that are related to each of your saved linnyadiperangkat a computer and is used by the software to manipulate

2.4. Definition Sales
the sale is: "Income derived from the sale of the company's products, is served after deducting sales returns and sales pieces."

2.5 Visual Basic.NET 2008
Visual Basic is a programming language that was developed from the basic programming language. The most popular programming language that was developed from the year 1963. Microsoft Visual Studio.NET 2008 is a powerful tool-tech application programs from Microsoft Windows and also supports language SQL (Structure Query Language) which is a query language that is very reliable.

2.6 MYSQL
MySQL is one of the database servers that are very well known and widely used to build web applications that use the database as the source and the processing of the data.

2.7 Study Literature
In the year 2013 Adelia and Yustecia Andika Efdom conducted a study entitled "design and development of information system of online sales at stores ink" Nominal/Journal Volume 8 number 1/year 2013. Problems faced by Store Ink, among others, does not yet have a system to promote itself and the Ink Store sells some items sold by Stores Ink to a particular community among the public who love to surf in the internet world.

In the year 2011 Rara Sri Rejeki, Artagi Agus Utomo, Joon and Stefiana Sri Susanti did research bejudul "design and Deployment Systems Sales on" Smith "Distro-based E-Commerce". ISSN: 0854-9524. Problems in dealing with the Distro Smith is the mechanism of sales system that is used in many of smith's now still use the conventional system, i.e., the buyer must come directly to the Distro Smith so it can be time-consuming consumers who are far away from these distributions. Because of the tight competition with a large number of distributions exists in the city of semarang, the company should be able to respond to such things in order to reach efiktititas as well as the efficiency of the company, expanding the area of marketing as well as improve customer loyalty.

3. RESEARCH METHODS

3.1. Identification
a. reduce the variety of questions about specific titles, i.e. information needs. It is intended to obtain the whole picture about an issue. With ask, then it can gain temporary answers about the problems associated with information needs. Thus the question can open insight to problems of concern to researched.
b. Displaying an indication of the onset of the research issues that can be associated with information needs. It is intended to help find the symptoms, variable and indicators will be discussed from a problem.
c. help discover important issues from a variety of problems that exist as a focus problem in the research that will be done.
3.2. Interview
Interview or interview is a technique of collecting data by means of the interview directly with the staff of the legal department or the parties concerned on the Part of the law, to know the problems encountered.

3.3. Observation
Observasi is one of the techniques of data collection which not only measure the attitudes of the respondents but can also be used to record the various phenomena that occur.

3.4. Library
This method is done to collect the data by finding and reading books by such scientific journals or final assignment in the library, and data relating to the travel office to obtain information related to the theories and concepts related to research issues.

3.5. Documents analysis
After conducting interviews and observations, then the existence of research by means of collecting data based on documents related to research topic. This method is done to obtain data that has not been obtained through observation and interview.

4. RESULT AND DISCUSSION
4.1. Brief review organization
The organization is a container as well as the process of cooperation sejumlah manusia formal relationship bound in series to achieve a tujuan yang have been determined. The structure of organisasi would seem more obvious and tegas apabila Pour in an organizational structure chart because akan memberikan very easy understanding of line authorities of dantanggung responsibility to the organization concerned.

4.2. Business process running
a. Booking process
Customers come into the store, customers ordering goods to be purchased, and then check out their sales of goods that will be booked customers. If the items in the message does not exist then sales will confirm to customer, if there is then a direct sales recorded the orders on the notes. When customers buy in large quantities then sales will offer wholesale pricing to the customer. If you don't buy a lot, then the customer will be given the standard price.
b. Payment Process
Sales will count the number of customer orders. After that Part of the sale confirms the payment amount to the customer. After receiving the confirmation, the customer shall make payment in cash. Then sales will make the notes white and give it to the customer.

c. Return Process
If there is an electronic tool that is damaged, the customer returns be made one time only customers who will do the returns on damaged goods require brings and thenote and gave it to the Sales Section. If the item does not exist then the customers will have to wait for a week to get it. After the Sales Section to receive the damaged item and the notes from the customers, and then to check on Sales of goods in a message by the customer concerned. If there are items to Sales will directly deliver the replacement goods are in accordance
with the customer's sebelunnya message, then the customers will receive the new goods.

Figure 3: Activity diagram Process Returns

d. Report Process
Sales will make the previous report each month by looking at the notes. After completion to the sales Part going to submit a report to the store owner.

Figure 4: Activity diagram Creation Report

4.3. System analysis proposal
a. Identification of needs
Identification of needs is a summary of the results of the analysis of the breakdown of the system needs to come. Based on the results of the analysis of a system that is running can be seen that the system still less able to meet your needs and still needs some improvement. As for the form data to be made among other things: customers, Entry Entry Entry of goods, sales, entry order, print notes, print request returns, print reports, prints return stock items, print reports retail sales, wholesale sales reportsprint, print the report, the best-selling print goods recapitulation report request returns, print the report already returns

b. Fish bone
figure 5: Fishbone Diagram

c. Use case diagram

1) Use case diagram master

![Use case diagram master](image1)

Figure 6: Use case diagram master

2) Use Case diagram transaction

![Use case diagram transaction](image2)

Figure 7: Use case diagram transaction

3) Use Case diagram reports

![Use case diagram reports](image3)

Figure 8: Use case diagram reports
d. Use case description
   a. Use case diagram master
      
      1) Use Case: Entry of items
         Actor: Sales
         Description:
         • Sales Data Entry Form opens.
         • Sales data do pengimputan stuff.
         • Sales do data storage of the goods.
         • If an error occurred pengimputan data, sales can be mekakukan cancellation.
         • Sales data can change stuff.
         • Parts sales can delete data items

      2) Use Case: Entry Sales
         Actor: Sales
         Description:
         • Sales opened a Sales Entry Form.
         • Sales do pengimputan Sales data.
         • Sales do data storage Sales.
         • If an error occurred pengimputan data, sales can be doing cancellation.
         • Sales data can change Part of the sale.
         • Parts sales can delete data Sales.

      3) Use Case: Entry-level Customers
         Actor: Sales
         Description:
         • Sales Data Entry Form opens.
         • Sales do pengimputan customer data.
         • Sales do data storage customers.
         • If an error occurred pengimputan data, sales can be mekakukan cancellation.
         • Sales can turn sales data.
         • Parts sales can delete data items

4.4. Data Model
   a. Entity Relationship Diagram

![ERD Diagram](image-url)

Figure 9: ERD
b. Logical Record Structured

![Logical Record Structured Diagram]

Figure 10: LRS

c. Database Specification

File Name: Item  
Media: Hard Disk  
Content: Data Items  
Organization: Sequential Index  
Primary Key: KdBar  
Record length: 92 bytes  
Number of records: 600 Record  
Structure:

<table>
<thead>
<tr>
<th>No.</th>
<th>Field Name</th>
<th>Type</th>
<th>Width</th>
<th>Decimal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cd_item</td>
<td>Varchar</td>
<td>6</td>
<td>-</td>
<td>contains 6 digit item code that is filled with characters and numbers {BRG999}</td>
</tr>
<tr>
<td></td>
<td>Field</td>
<td>Type</td>
<td>Length</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-------------</td>
<td>--------</td>
<td>--------</td>
<td>----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Nm_item</td>
<td>Varchar</td>
<td>30</td>
<td>contains the name of the customer who is filled with the character {A-Z}</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Type Item</td>
<td>varchar</td>
<td>15</td>
<td>contains about the kind of stuff that is filled with the character {A-Z}</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Unit item</td>
<td>Varchar</td>
<td>10</td>
<td>contains the address of the customer who is filled with the character {A-Z}</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>price</td>
<td>Double</td>
<td>6</td>
<td>contains about Double the price of goods {9.999.999}</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Wholesale unit</td>
<td>varchar</td>
<td>15</td>
<td>contains the address of the customer who is filled with the character {A-Z}</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Wholesale price</td>
<td>double</td>
<td>7</td>
<td>contains about price {9.999.999}</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>stock</td>
<td>integer</td>
<td>3</td>
<td>contains 3 digits stock items {999}</td>
<td></td>
</tr>
</tbody>
</table>

Item code consists of 6 digits:

```
<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>R</td>
<td>G</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>
```

Description:
- a: the first 3 characters indicate the initials customers "BRG"
- b: the next 3 digits indicate the ordinal number of the items

1. The draft of the screen
   a. The display structured
Figure 11: the display structured

b. The screen draft

Figure 12: the design of the display data items

Figure 13: screen print design notes
c. Sequence diagram

Figure 14: the draft report screen print stock items

Figure 15: sequence diagrams data items
5.1. CONCLUSION
On the basis of the deliberations of the Cash sales information System on Ali Electric, then authors can draw conclusions, namely the following:

a. cash sales information system on Ali Electric has provided the search feature to locate the data that has ever saved on form submission data base customers, entry of goods, entry form, and order form print the notes for ease in making sales reports.

b. the availability of automatic calculation features in the form of the message to add up the entire total payment, as well as the availability of features in the print form note that can add up the total payments for customers who want to pay cash ordp.

c. With the system that made these documents often disappear can arranged with presentable dibuatkanny a database.

5.2 SUGGESTION
For further development then the author gives advice which is very helpful and can help owners dan pegawai on Ali Electric. As for suggestions from the author of, among other things:

a. the need for training on how to use and does a good treatment to employees who would use these cash sales information system in order to run optimally.

b. periodic system maintenance needs to be done in order to achieve the characteristics of the system that is fast, accurate, timely, reliable, and relevant.

c. Do backup regularly to avoid loss of data in the event of damage to the system.

d. system development need to be considered from now to follow the development of the information processing.

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