ANALYSIS AND DEVELOPMENT OF ACCOUNTING INFORMATION SYSTEM IN CV TRIDAYAMAS, INDONESIA

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Abstract

The need for information has an important role in business activities. The advantages of Information Obtained for business activities are the basic of decision making for information users. Good information is information that can be Provided in a timely, useful, and reliable. The existence of information system, information can be faster, accurate, and in accordance the facts. In this study, analyze and develop accounting information systems in CV Tridayamas with the waterfall's method of system development life cycle's model. Tridayamas is an Indonesian company engaged in the sale of building tools and building projects that work together with the mahkotapropercon. Tridayamas has a business system for managing all sales and purchases transactions include product inventory, but is operated manually. The purpose of this study is to analyze accounting information systems and internal controls that run in the business and the make an application system that suitable of business needs. The tools used to analyze and design accounting information system are, unified modeling language, DFD, and ERD. Result of analyze will be implemented a web base into programming. The key result of this study is that the accounting information system application to provide reports and information business include, cash flow, inventory and general ledger.

Keywords: Applications, Accounting, Business, DFD, ERD, Information, SDLC, cycle development, accounting information systems, UML, Waterfall

INTRODUCTION

The need for information have an important role in business activities. The benefits of information acquired in business activities as the basis of decision making for users of the information. Good information is information that can be provided in due course, useful, and reliable. The information system is divided into two types, namely the system which is based on functional and system used to support the availability of such information. An example of a system based on functional information is the management information system, accounting information systems, manufacturing information systems, marketing information systems and human resources information system. Examples of supporting information system is a system transaction processing, management information systems, office automation systems, decision support systems, and executive information systems.

Making the perfect system is to combine all the functions of the existing system, but for a system that's very important in any business one of them is the accounting information system. Accounting information system is a system that serves to collect and store data about the activities of daily transactions made by the company, converting data into useful information for the management and planning and provide adequate controls to safeguard the assets of the company. Basically the system manufacture in companies or small and medium enterprises are not only used for daily transaction recording process, but can be used to see the development of the company that was attached in the form of reports. One is a decision support system that is implemented in the form of a desktop application program or website. Accounting reporting system used to provide special purpose financial statements and information needed for decision making, such as budgets, performance and cash flows. Another thing that becomes an important point is the accounting information system implementation as a decision support tool for business owners or high-ranking company in making a strategic, long-term planning or seek solutions to problems found on the company. Accounting reporting system used to provide special purpose financial statements and information needed for decision making, such as budgets, performance and cash flows. Another thing that becomes an important point is the accounting information system implementation as a decision support tool for business owners or high-ranking company in making a strategic, long-term planning or seek solutions to problems found on the company.

Tridayamas is a small company in Indonesia, located in bogor, west java. Tridayamas engaged in the field of inventory building and project development. Tridayamas company has business systems to manage the flow of business processes, but not computerized, all transaction records and recording of goods as well as construction projects are still manually, document and proof of transactions are still written manually. Tridayamas not equipped with a

system that is sufficient to handle all recording sales transactions and business processes as well as the information on the business report, Therefore the company or entity that is growing really do need a system that quickly and accurately so that the work process becomes more efficient.

Based on the description above, the author wishes to do research entitled Analysis and Accounting Information Systems Development at CV Tridayamas.

LITERATURE REVIEW

According to Diana definition of accounting information system is system that aims to collect and process the data and report information relating to financial transactions ". Process transactions in question can be recorded activity in the cash disbursements journal (MH Adzim, 2011). The accounting information system is also defined by Bodnar, "accounting information systems (AIS) is a computer-based system that is designed to transform the accounting data into information". Based on the understanding of the experts above, it can be concluded that the accounting information systems (AIS) is a system designed to conduct data processing and reporting of information either with a manual or computerized on finance-related activities (MH Adzim, 2011). According to Diana (2011: 5), benefit or purpose of accounting information systems is to secure the property / wealth of the company, produces a variety of information for decision-making, producing information to external parties, generating information for the assessment of the performance of employees or divisions, provide historical data for audit purposes (inspection), generate information for the preparation of and evaluation of the company's budget, generate the information required in the planning and control. Based on the description above information system objectives can be concluded that the system in addition to useful information as a producer of information quickly, accurately and produce information for the assessment of employee performance or division, providing historical data for audit purposes (inspection), generates information for budget preparation and evaluation of the company, produces the information required in the planning and control, accurately andaccurate also useful in maintaining the company's assets for the information system, all the procedures that run the company can be supervised (MH Adzim, 2011). Implementation of accounting information system has benefits for a company or entity that uses the system, the benefits of accounting information systems which are, provide or present information that is accurate and timely information so that the company can carry out the main activities in the value chain effectively and efficiently, improve quality and reduce the cost of production of products or services produced, improve the efficiency of business performance, both on the financial and other parts, improve decision making, enhance knowledge sharing (Fitri, 2017).

The definition of the design according to Al-Bahra in his book entitled Analysis and Design of Information Systems are as follows: "design, a design phase has the objective to design a new system that can solve the problems facing the company obtained from alternative recovery system best "[Vivi Sumant, 2014]. The design of the system on the cv Tridayamas using a system based website covering, analysis system, analysis of requirements (functional and non fungsioanl), system design, implementation (making of accounting programs by using the coding language php, html, css and javascript), testing, and evaluation. Accounting information system design process is described by object-oriented programming techniques, namely unfied or abbreviated language modeling with UML.UML is a visual language that became the standard for specifying, describe, construct, and documentation of the software system. Uml have other components, such as use case diagrams, class diagrams, context diagrams, data flow diagrams, component diagrams, deployment diagrams, navigation charts, ERD and data dictionary (Sri Puspita, 2015).

RESEARCH METHODOLOGY

The subject of research conducted cv Tridayamas place in Indonesia, located at Bogor city, west java, district gunungputri, kelurahanbojong Kulur. While the research object is the accounting information system that runs on Tridayamascv. The method used in conducting research in analyzing and developing the accounting information systems at Tridayamas cv by using descriptive qualitative research and development category. Data collection techniques used to make a conclusion on the issue that there is a direct observation to the research, conducting interviews with interviewees, and documentation related to the business issues.

System development method used is the waterfall method of system development life cycle models. System development life cycle (SDLC) is a classic methodology used to develop, maintain and use information systems. Development of the waterfall method has several stages, namely: system analysis, requirement analysis, system design, implementation, testing, maintenance or evaluation. Description of the steps above are as follows:

1. Systems analysis, data collection and determination of the needs of all elements of the system.
2. Requirements analysis, an analysis of problems and define software requirements, functions and interfacing performance. Analysis of system requirements are divided into two, namely the analysis of functional and non-functional analysis.
3. Design, system design is used to describe the business process or procedure is running. Design of the system is described using unified modeling language, which is a context

diagram, data flow diagrams, use case diagrams, deployment diagrams, entity relationship diagrams and data dictionary.

4. Implementation or coding, coding to implement the results of the design into code or program language understood by computer using a particular programming language.

5. Testing (testing), activities to do the testing program that has been created by means of testing manual. If its correct then the program may be used.

6. Evaluation or Maintenance (treatment), handles the software that has been completed in order to run smoothly and to avoid disturbances that can cause damage.

RESULTS AND DISCUSSION

Analysis system is a phase that is conducted to analyze the system that runs along the existing internal control in a company. The procedure as well as the advantages and disadvantages of the system that runs on Tridayamas effort. Business procedures running on cvTridayamas are as follows:

1. Store bought product that needed to supplier
2. Supplier provides receipt transaction to the store
3. User record the transactions manually
4. Supplier send products according to orders from the store
5. User record the amount of product inventory that has been sent
6. Furthermore, the store sells the product to the customer.
7. Seller gives the product to the customer along with receipt of transactions
8. Seller manually record the transaction in the form of handwriting and paper.
9. Seller record the inventory after the sales process to the customer
10. Seller make a report transactions and product inventory manually

Analysis of advantages and disadvantages of the system running and the system to be developed are as follows.

Table 1: Strength and Weaknesses Internal Control System in CV Tridayamas

Type Analysis	Strengths and Weaknesses The old system	The new system
Business procedures	Procedures in operation at Tridayamas cv is pretty good, the transaction process is easy and does not require a long time. So the level of effectiveness in product sales to customers was satisfy.	The procedure to be used for the new system will apply the procedure of the old system, the old system switchover to the new system will be visible in terms of automation of recording transactions using computer technology.

Information	Information presented on the business processes that run less specific and detailed, and the completeness of the data stored is not completely so that the information obtained is limited.	Development of the new system will be made to accommodate all types of data so that the information presented is better, complete, real-time and relevant.
Internal control	Internal control system has not been effective due to a long running system is still manual, Previously there was a system that can accommodate all activities and inventory transaction records so that the data stored is not allocated to the place that is safe and easily accessible back. Controlling the supply of products still to be recorded manually, change the data after the transaction has not been automated so that the data can not be changed in realtime. Data revenue from business processes have not been shown to significantly, so that the sales target can not be achieved to the maximum. Data is stored and written manually and thus require a long time and is less efficient.	Development of the new system will accommodate all business processes activity, data entry, data update, and delete data. Earnings reports and daily transaction can be seen clearly and concisely on the dashboard system. Data storage using a database to make the data will be stored securely and automatically making it easy to be accessed again. Data, information and reporting is flexible and real-time, can be vary according to the number of transactions that take place. The new system can transform business processes to become more effective and efficient.
Accounting information system	Accounting information systems cv Tridayamas still using the cash flow sederahana use manual and excel, yet their otmatisasi data directly for reporting accounting transactions, such as cash flow, balance sheets, journals and reports revenue.	The new system is designed to automatically present the accounting statements and concise, so that the user can see directly the financial situation within a certain time.

Requirement Analysis

a needs analysis to determine what components are needed to run a business venture in CV Tridayamas. Based on the results of interviews have been conducted the necessary requirements are as follows:

    a. Functional requirements, system built to support business processes, the system must be able to manage data sales, purchasing, product inventory and provide a report.

        a) Functional product inventory

            o Users able to enter data products

            o Users able to change the product data that has been entered in detail

- o Users able to add data products
- o Users able to delete data product
- o Users able to view detailed product data
- b) Functional purchases
  - o Users able to enter a purchase transaction data
  - o Users able to change the purchase transaction data in detail
  - o Users able to delete purchases
  - o Users able to view data in detail purchases
- c) Functional sales transactions
  - o Users able to enter sales transaction data
  - o Users able to change the sales transaction data in detail
  - o Users able to remove the sales transaction
  - o Users able to view detailed sales transaction data
- d) Functional customer data
  - o Users able to enter customer data
  - o Users able to change customer data in detail
  - o Users able to delete customer data
  - o Users able to view customer data in detail
- e) Functional supplier data
  - o Users able to enter data supplier
  - o Users able to change supplier data in detail
  - o Users able to delete the data supplier
  - o Users able to view detailed supplier data
- f) Functional purchasing reports
  - o Users able to obtain detailed purchasing reports
  - o Users able to obtain purchasing reports in real time
- g) Functional sales report
  - o Users able to obtain detailed sales reports
  - o Users able to obtain real-time sales reports
- h) Functional cash flow statement
  - o Users able to view a detailed cash flow statement
  - o Users able to obtain the cash flow statement in real time
  - o Users able to print out the cash flow statement
- b. Nonfunctional requirement, nonfunctional requirements is the need that is used to support the development of manufacturing processes and accounting application

system. Nonfunctional requirement is divided into two, namely software as an application that is used to build the system and the hardware used as a medium for the implementation of the software to build the accounting system.

i) Menajalankan software needed in the accounting system are:

o Windows 10, Windwos is the operating system used as a medium in application development.

o Xampp, Xampp is used as a local server to run websites that have been created.

o Google chrome, an internet application or commonly called a browser, Google chrome is used to run or open a web-based application system by typing the URL in question.

o Microsoft office, used to obtain a print out of the results of the transaction report.

j) The hardware required to run this application are:

o computer or laptop with specs i3 or amd A8

o At least 2 GB RAM

o Minimum 100GB hard drive

o Monitor, keyboard, mouse and printer

k) Safety (security) is a system that is used to minimize the keeper from outside interference or inside that can threaten and harm the business process. The required security permissions that the user, wherein the user access rights will be limited according to his needs. Access rights are implemented in the user login, user login with username and password so that only a certain set users can access the system and the data is fully informed. The outer part using an antivirus application in order to avoid things that are not desirable such as data corruption, data loss, and loss of function of the computer.

System design

System design is the process of making models of business processes and procedures that are running on cv Tridayamas and application models proposed system view. System design divided into three parts, first part design to explain and describe the control internal system in Tridayamas, business flow of transaction, business flow will describe using context diagram and unified modeling language. Second, database design to describe the flow of data stored, database design will describe using class diagram, and entity relationship diagram. Third,

design to describe mechanism for running a system between hardware and software, system mechanism will describe using deployment diagram and component diagram.

Context Diagram

The business process starts with a transaction from the user (admin) are buying or stocking a product from a supplier, then the supplier provides the required product to the user and user record in a database on transaction data, supplier data and products that have been granted. The next transaction is a customer buying a product to the user, the user record customer data, transaction data and data products purchased, then the customer receives the product and purchase orders. The transaction data in the automatic right of entry into the journal and cash flow, so that the user (admin) can view reports in real-time transactions. Context diagram could see in figure 1 below
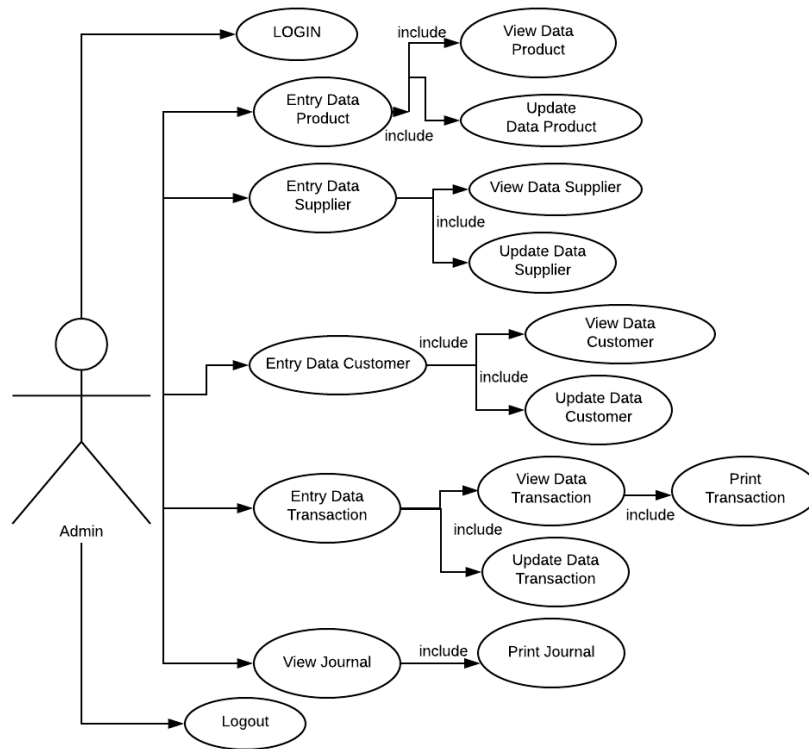
Figure 1 Context Diagram
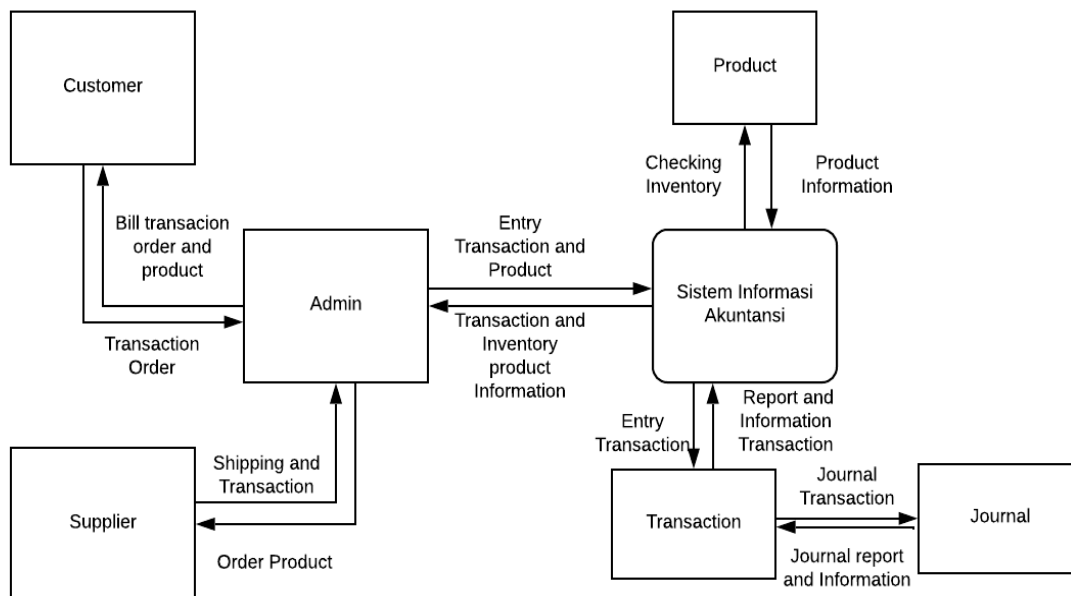
Usecase Diagram

Usecase diagrams are used to illustrate the process of what can be done by the user, usecase diagram system allows developers to provide an overview of the process of what can be done by the user.

Figure 2 Usecase Diagram

Based on the picture above can be explained that the admin has full access to use the application, if successful login, admin can keep the data as a whole, admin has full access to maintanance the system, starting from the input data, processes data, update data and reports from business processes.

Class Diagram

Diagram class is a static model that describes the structure and description of the relationship between class and class. The relation of class diagram below is a generalization class admin has a spatial relationship to the class setting. class user (admin) has a generalization to class customer relations, sales, purchasing and product every time an event occurs, the event is happening every transaction that includes the four to the class. Class purchases have dependency relation to purchasesdtl class, where class dependency is a dependent relationship between classes. Class purchasesdtl has a generalization to a class supplier relationship where each purchase of products which do admin will log data supplier. Class sales have a relationship of dependency for class salesdtl, salesdtl class have a relationship of dependency on the class of the product. Class salesdtl and purchasesdtl has a dependency relation to the

class journal, because every sales and purchase transaction affects of transactions recorded in a journal. The description of class diagram on figure 3 below

Figure 3 Class Diagram
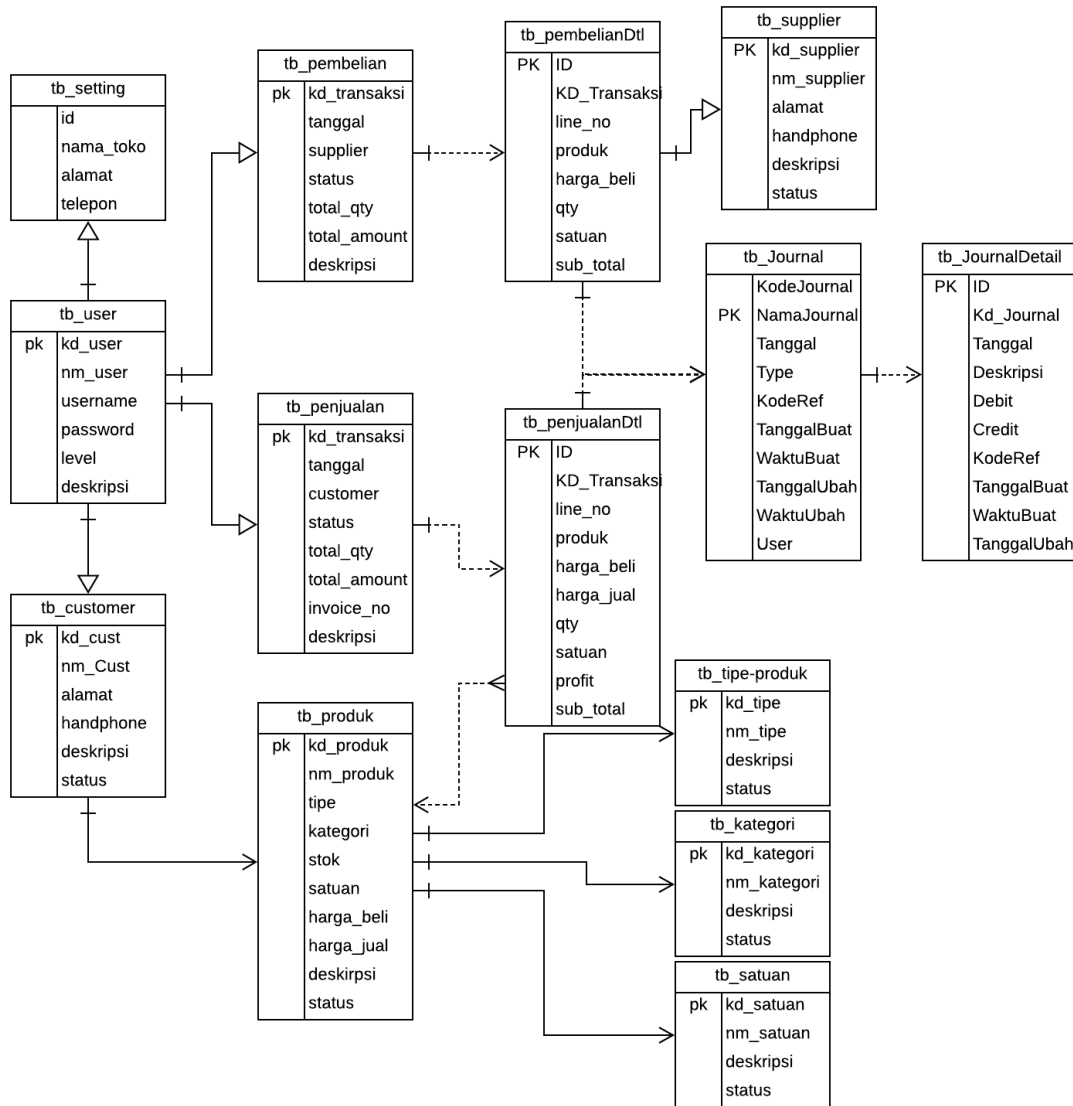
Entity Relationship Diagram

Entity relationship diagrams are one model that can be used to design databases with describing relationships in a database or describing a database schema. Relationship between entity has many has category. Relationship one to one, one to many and many to many, each relationship has its own definition, it depends on the activity.

Figure 4 Entity Relationship Diagram
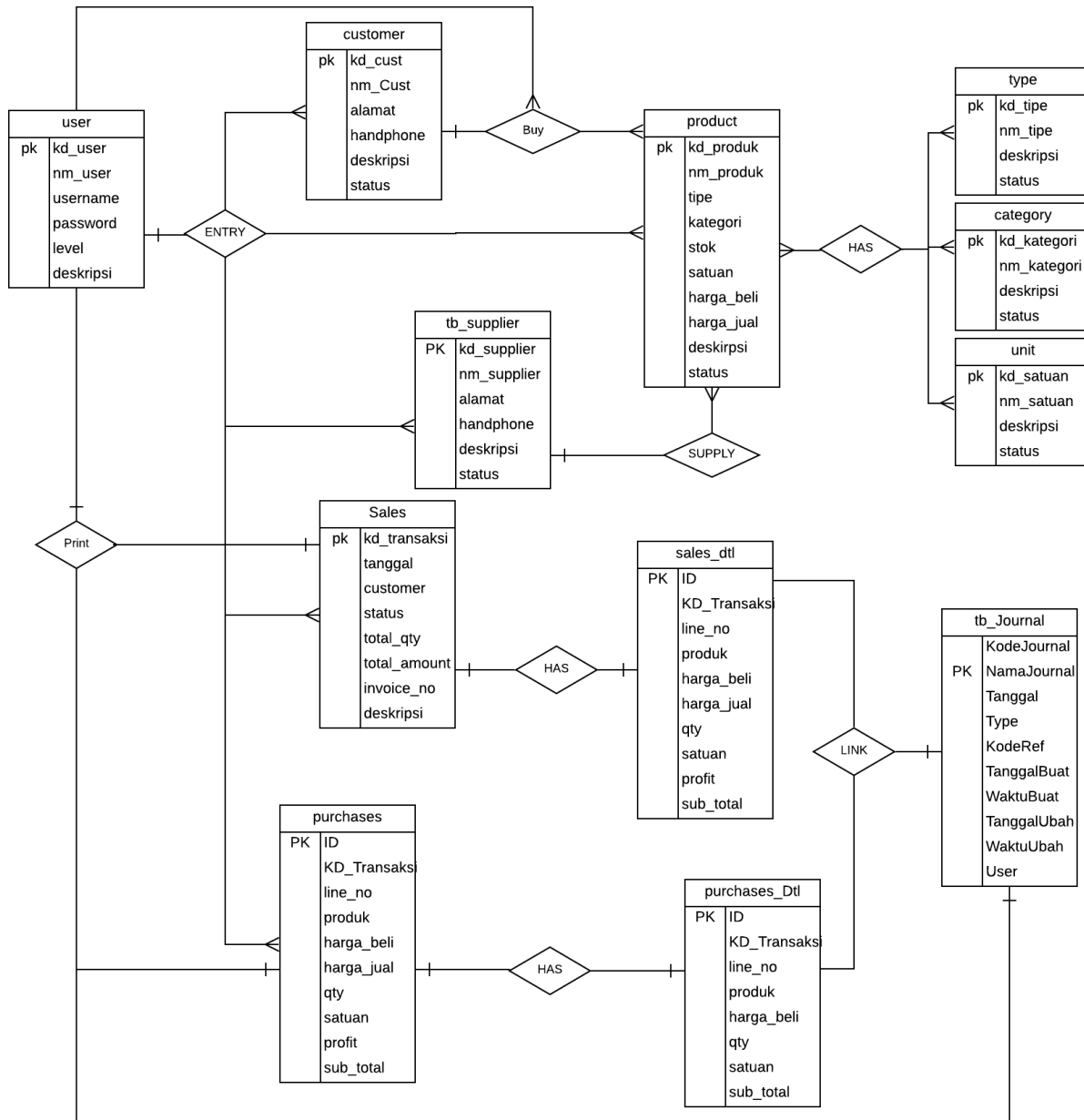
Based on the picture above, entity relationship diagram describe relation each table in database. Actually there are seven entities that interrelated those are, user entity, customer, product, purchases, sales, supplier and journal. Relationship between these entities can be explained, the transaction of business start from Owner as a user order the product to supplier, products obtained from supplier, owner input supplier and product data into database. After that, user sells the product to customer, customer buys the product, user entry data customer and transaction, product has sub entities that is, type product, category product, and unit product, each sub entities product has relation with product itself when product data experiencing

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changes. After user entry transaction, transaction data save in purchases and sales entity that will relate to journal entity. Function of journal entity is to provide report accounting of all transactions.

Component Diagram

Component diagrams are used to describe the composition of the application system software created. System application is depicted in the form of a website. System running begins with the login process, after the login process is successful then the system displays a main menu screen or referred veranda, in the main display are some menu items, namely, master data, customer, supplier, product, transaction, journaling and setting , All the components are connected to the database, therefore any connected components is called the generalization relationship, in which the components in the system will be connected to each other from the general to the specific, and each of the components will be connected to the system database directly each of the data processing occurs, this relation called by the association, in which the data stored in the database can be used in any one of the components when displaying information.

Deployment Diagram

Deployment diagrams are used to describe the depiction of the physical layout and software applications. Admin using a computer or laptop to access the application, the laptop is installed with a web server application, and the browser, computer or laptop must be connected to the Internet to connect to the application system, a laptop or in the computer must be connected to a functioning printer to print the data or reports.
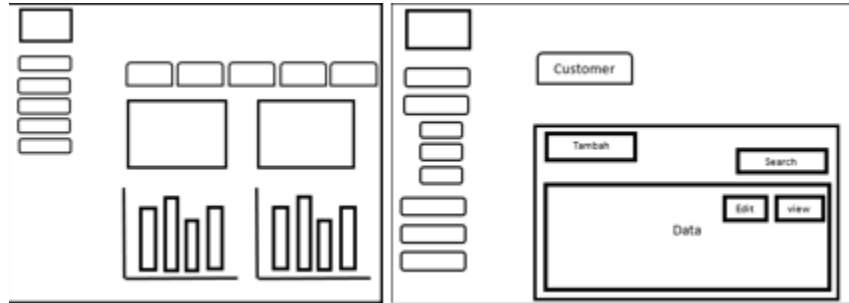
Figure 5 Deployment Diagram
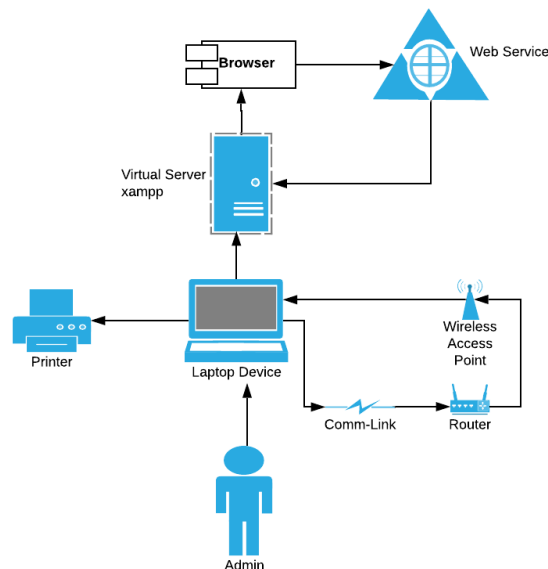
Layout Design System

Design layout system is a step taken to create the design view of accounting information system applications. Display designed layout has two types, the first view is the main menu screen (home page), the second display is a display sub menu of each menu.
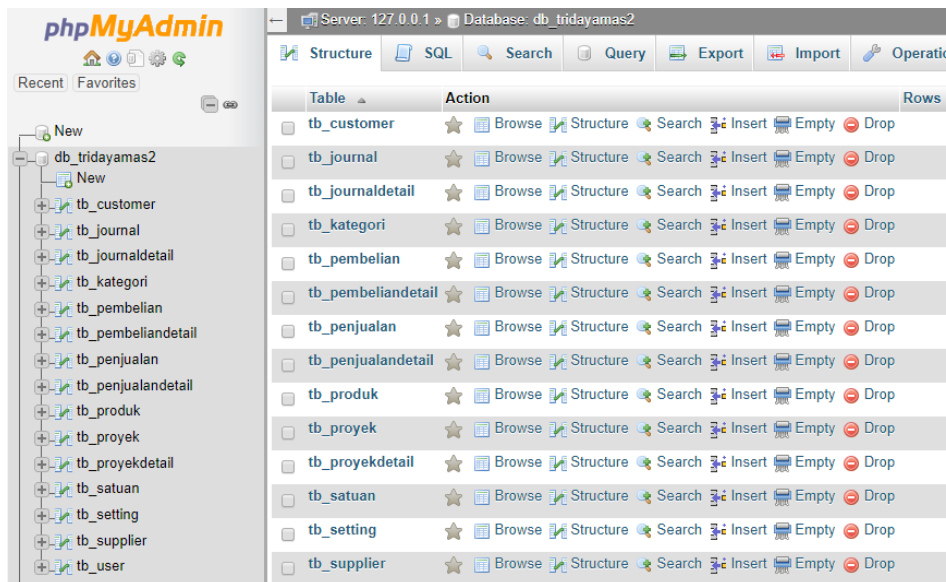
Figure 6 Layout Design System

Implementation

Implementation of the system is a step do to implement of a system that has been designed using a model of the system or the language of the user (user) into a programming language or form of program code (coding).

Implementation Database

Figure 6 Implementation Database

Implementation stage is the stage of making a database that is made to create a MySQL database using phpMyAdmin with Xampp webserver. Making the database used to store a database consisting of multiple tables (tb_customer, journaling, journaldtl, category, purchasing, purchasesdtl, sales, salesdtl, product, unit, setting, and suppliers). Each table is made has a relation to the other table table, the function of the relation table is to allow a user to create a report or display the desired information.

Implementation Program

Implementation stage is the stage program to create and design a program to connect into the database. All of data that has been entry by user will save into database, the function of this program is to connect the website program into database. The implementation uses a programming language based websites.

Figure 7 Implementation Program

```php
<?php
        $host = "localhost";
        $user = "root";
        $pass = "";
        $db_name = "db_tridayamas2";

        mysql_connect($host, $user, $pass) or die ("Koneksi Gagal!");
        mysql_select_db($db_name) or die ("Database Tidak Bisa Dibuka");
?>
```

The Code is a code that used to connect to the MySQL database program from the website, where there is a configuration and database connections are written in php code.

Figure 8 Implementation Login

```php
<?php
    include "database.php";

    $user   = $_POST['user'];
    $pass   = $_POST['pass'];

    $query  = mysql_query("SELECT * FROM tb_user WHERE Username = '$user' AND Password = '$pass'");
    $data   = mysql_fetch_array($query);

    if ($data['Username'] == $user AND $data['Password'] == $pass)
    {
        if($data['Status'] == "1")
        {
            session_start();
            @$_SESSION['Nama']      = $data['Nama'];
            @$_SESSION['Level']     = $data['Level'];
            @$_SESSION['KodeUser']  = $data['KodeUser'];
            @$_SESSION['Username']  = $user;

            header("location: ../sa/?page=index&KodeUser=$data[KodeUser]");
        }
```

The Code is a code that is used to create a user login validation prior to accessing the application system. If the login valid, user can access system application, if login invalid, user cant access system application. In this code we declare username and password to protect user data, only user who has username and password can login into the system. If user entry wrong username or password, user will get denied by system.

Figure 9 Implementation Layout Program

```php
<?php
    include "proses/Customer.php";
    include "proses/Supplier.php";
    include "proses/Produk.php";
    include "proses/Penjualan.php";
    include "proses/Pembelian.php";
    include "proses/Format.php";

<div class="row">
    <div class="col-lg-6">
        <div class="panel panel-default">
            <div class="panel-heading">
                <b> MASTER DATA </b>
 <div class="col-xs-12">
   <div id="count"><?php echo $countCustomer; ?></div>
       <span class="pull-left"> Customer </span>
           </div>
<div class="col-xs-12">
  <div id="count"><?php echo $countSupplier; ?></div>
       <span class="pull-left"> Supplier </span>
           </div>
<div class="panel panel-default">
       <div class="panel-heading">
           <b> TRANSAKSI </b>
<div class="panel-heading">
               <b> GRAFIK PENJUALAN </b>
           </div>
<div class="panel-heading">
               <b> GRAFIK PEMBELIAN </b>
           </div>
```

The code used to create the main menu display menu consists of master data, customer, supplier, and transactions, as well as sales and purchases graphic display products. Systematically writing website program is based on the basic concepts of OOP, object oriented programming, in which the processes that occur are referred to by the class of an object. Each class created has its own workflow processes and functions to perform a printah, so as to connect between the code process with the display code only calls based on the class definition. One example is #include "process / customer.php is a class named customer, the function of the relevant class of all customer data processing, whether the transaction data, cash flow and journals.

Testing

The test is performed stage to examine whether the implementation phase conducted in accordance with the design during the process of analysis and system design as well as

functional and it is expected that the system needs. The test is done using black box testing, black box testing is a way for testing an application based on the application's functionality.

Table 2: Black Box Testing

No.	examination	Testing conditions	Test result
1	Login Form	If a user name and password in the user entry is correct then go to the main menu, if any it will display a dialog "login failed"	valid
2	veranda	If the user successfully logs in, it will display the main (home).	valid
3	Master Data	If the user memlih master data menu, it will display a drop down menu customers, suppliers and products	valid
4	Customer	If the user selects the customer menu, it will display the customer menu	valid
5	Supplier	If the user selects a menu of suppliers, it will display the menu display supplier	valid
6	Product	If the user selects a menu of products, it will display the menu display products	valid
7	Transaction	If the user selects the menu of the transaction, it will display a drop down menu of purchase and sale	valid
8	Purchase	If the user selects the menu purchase, it will display the purchase menu	valid
9	sale	If the user selects a menu of sales, it will display a menu of sales	valid
10	Journal	If the user selects the menu journaling, it will display a drop down menu of Cash Flow and Journal	valid
11	Cash flow	If the user selects the menu cash flow, it will display the cash flow menu	valid
12	Journal	If the user selects the menu journaling, it will display the journal menu	valid
13	print Data	If the user selects the menu journaling, it will display a drop down menu Master and Transaction	valid
14	Master	If the user selects a master menu, it will display a drop down menu customers, suppliers and products	valid
15	Customer	If the user selects the customer menu, it will display the print menu of customer data	valid
16	Supplier	If the user selects a menu of suppliers, it will display the print menu supplier data	valid

17	Product	If the user selects a menu of products, it will display the product data print menu	valid
18	Transaction	If the user selects the menu of the transaction, it will display a drop down menu of purchase and sale	valid
19	Purchase	If the user selects the menu purchase, it will display the print menu purchasing data	valid
20	sale	If the user selects a menu of sales, it will display the print menu sales data	valid
21	system	If the user selects the menu system, it will display a drop down menu user	valid
22	user	If the user selects the user menu, it will display the user menu	valid

CONCLUSION AND SUGGESTIONS

The writing is focused on making an accounting information system applications that are useful for cv Tridayamas. Based on the analysis and development of the system is done in this study by using waterfall method can be concluded that. The accounting information system applications that have been created based on user needs (cv Tridayamas) acceptable and goes well as planned and expected. The problems that exist in cv Tridayamas regarding the computerized system can be resolved, and the related needs of the business processes are automatically fulfilled. Business processes run better and effective in recording transactions and products, user can see all data in detail, and all of information can be provided in real time.

Based on the results of research and discussion and conclusions that have been raised, the following are some suggestions that are expected to be entered and consideration to make the accounting information system for better, these suggestions are:

1. For business owners expected the addition of new services to increase operating revenues and a more diverse product variants.

2. In business of sales, Implementing a computer system in online business or e-commerce to promote the product for supporting marketing product and advertising marketing to attract customers and disseminate the product to increase sales product.

3. For authors and other researchers the method of this study could be more added for the analysis system and development system

4. For authors and other researchers for futher research is expected features and functions of the accounting information system developed more widely, the addition

of a menu for the presentation of information and reports can be made more numerous and varied, so that the data can be resulted more specific and accurate.

5. For authors and other researchers, the system could be more modify to add accounting functions, for instance ratio calculation. in management system, the system accounting information system could be complete with decision support system (DSS) to supporting owners to make a plan for the future.

6. This research can be used as a reference for other researchers in developing a website-based accounting information system that is practical, effective, complete and interesting.

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