Analysis and Design of Information Systems Financial Reports with Object Oriented Approach

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ABSTRACT
Micro, Small and Medium Enterprises (SMEs) are a group effort proved resistant to a wide range of economic crisis shocks. But in the operation of their business financial management is still not transparent and are also still mixed between business finance and personal finance. So that needs to be done with good financial management. In this research, analysis and information system design financial reports as a basis for the development of the system. Software development life cycle (SDLC) using the model of the object oriented approach. With object-oriented approach, the tools used by the notation Unified Modelling Language (UML). In object-oriented approach all systems applications are Viewed as a collection of objects that allow organisasi interloking and end users to Easily understand logical entities. Object-oriented approach Provides the benefits of the reuse of codes and saves the time for developing quality product.

Keywords: Software Development Life Cycle, SMEs, Object Oriented, UML, Financial Reporting, Analysis, Design, Systems, Information.

I. INTRODUCTION

Micro, Small and Medium Enterprises (SMEs) is one of the nation's economic driving. SMEs in the economy of Indonesia is a business group that proved resistant to a wide range of economic crisis shocks. However, there are obstacles that they face. Not a few of SMEs that are difficult growing quickly because it does not have the power to achieve bank financing program. The operational aspects of SMEs is still weak and less support to grow larger. One of the reasons this happens is less transparent financial management and there is no separation between personal and business money money. So the need for good financial management in order to produce quality information to support decision making.

The development of information technology provides the computer role originally emphasized as totalizer, has now developed a machine that can help a wide range of human activities constraints of SMEs financial management can be handled by the build system information software Financial Statements SMEs. To build the software there is a requirement of the software development life cycle (SDLC). A software development process, also known as software development life cycle (SDLC), is the structure used in the development of software products. It is often regarded as part of the system development life cycle [1].Satzinger et al.[2] also statet that SDLC, or alternatively, software development life cycle, is very fundamental concept in information systems development. SDLC is the process of creating or altering information systems, and the model and methodologies that could be used to develop these system[3]. A proper SDLC models can help in organizing not only in building a software product but also serves as a basis for planning, pegorganisasian, staffing, coordination made and directives [4].

A good methodology will address at least the following issues : Planning, Planning, Scheduling, Resourcing, Activities involved, Roles, Artifacts and Training. The software engineering development has two ways to develop the projects that : tradisional approach and object-oriented approach[5]. Object-Oriented methodologies for software development are aimed at viewing, modelling and implementing the system as a group of interacting objects, using the specialized modelling languages, activities and techniques needed to address the specific issues of the object oriented paradigm[6].

In Object-oriented development, information system is constructed so that the implementation of each part is quite independent of the implementation of the other part (decoupling of software), due to possibility of modularization. Each software object is coded and implemented and then integrated to the Information System. This continues until the entire Information System is completed[8].

Based on previous research that using a model approach to object-oriented easily in the development and replenishment system. in this study the analysis and design of information systems of financial statements with a model object oriented approach.

II. OBJECT ORIENTED APPROACH

In object-oriented approach, a system is viewed as a set of object, real-world process using objects. That is, the solution of problems can be seen as a set of objects or computations performed in the context of object[5][7]. Data and the processes that act on the data are encapsulated within every object. Each object's data (attributes or states) are the properties that relate to the object. An object can represent actual people, things, transactions, and so on. A software object is an instance of a class, and a class is a user-defined data type. A set of objects describe a class while each object consist of a set of properties.

2.1 Object Oriented Analysis

This phase is aimed at analysing and defining the system to be built. Two models are required to be developed in this phase: Requirements model and Analysis model[5]. In the first model, a conceptual picture of the system using objects of problem domain and specific interface descriptions of the system is developed. The second model is an architectural view (model) used for analysis of robustness. This model gives a conceptual configuration of the system, consisting of various classes like active controllers, entities, and interfaces.

2.2 Object Oriented Design and Implementation

In this phase system is built according to the requirement and analysis models designed in analysis phase. The design model is the refinement and formalization of the Analysis model. The implementation model depicts the actual code of the system. The OOD is focused on organizing the objects in the classes and all methods and the functions in a class are defined in OOD stage. OOD is process in which the user requirements are transformed to a design for software creation.

2.3 Testing

Testing Is an activity to verify that a correct system is being built. Testing is traditionally an expensive activity, primarily because many faults are not detected until late in the development[5].

2.1 Unified Modeling Language (UML)

Unifified Modeling Language is a "language" that has become the industry standard for visualizing, designing and documenting software systems. By using UML models can be created for all types of software applications, where the application can run on any hardware, operating system and any network, as well as in any programming language. The Object Oriented approach uses some diagramming techniques known as UML.
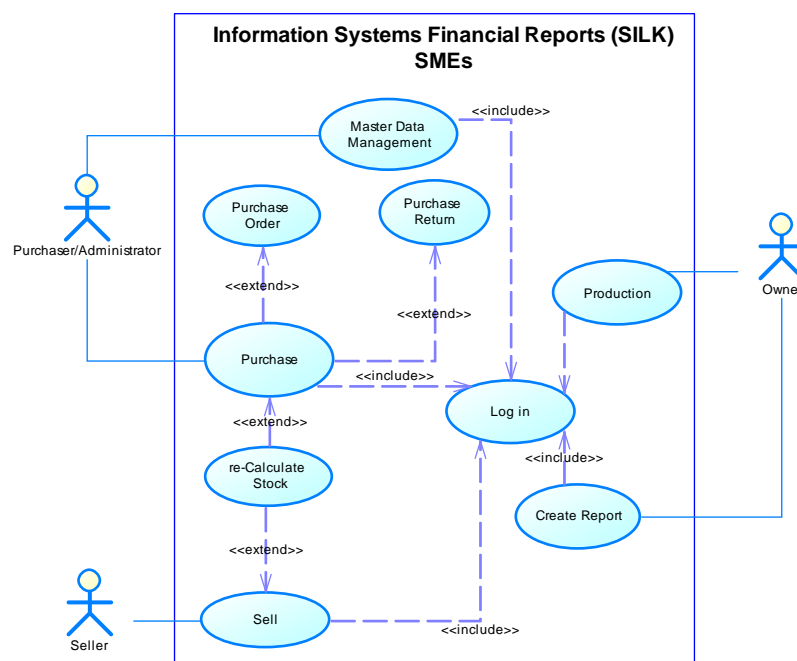

Fig 1. Use Case Diagram of Financial Information Systems SMEs

2.1 Use Case Diagram
Use case diagrams describe the functionality expected of a system. The emphasis is on "what" is done the system, and not the "how". A use case represents an interaction between actors with the system and use case is a specific job. In the system of financial reporting information SILK SMEs, generates use case diagram shown in Figure 1.

2.2 Sequence Diagram
Sequence diagrams describe the interaction of objects in and around the system (including user, display, and seagainya) message depicted in the form of the time. Sequence diagrams consist of vertical dimension (time) and horizontal dimension (objects related).
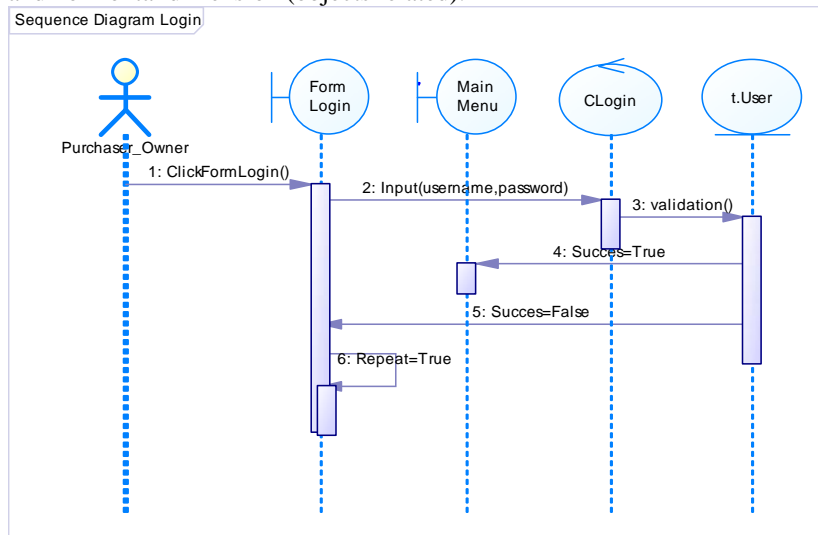

Fig 2. Sequence Diagram of the use case "Login"

Figure 2 represent the sequence diagram of the login process while Figure 3 represent the sequence diagram purchasing process
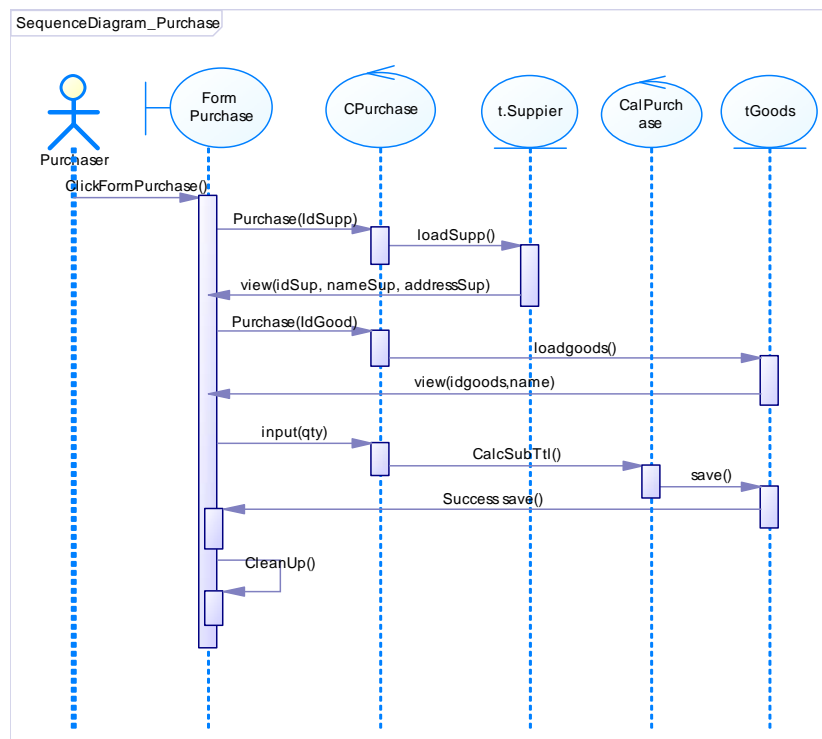

Fig 3. Sequence Diagram of the use case "Purchase"

2.3 Collaboration Diagram

Collaboration diagram also illustrates the interaction of objects such as sequence diagrams, but more emphasis on the role of each object and not on time delivery of the message. Each message has a sequence number, where the message of the highest level has the number 1. Message of the same level have the same prefix.
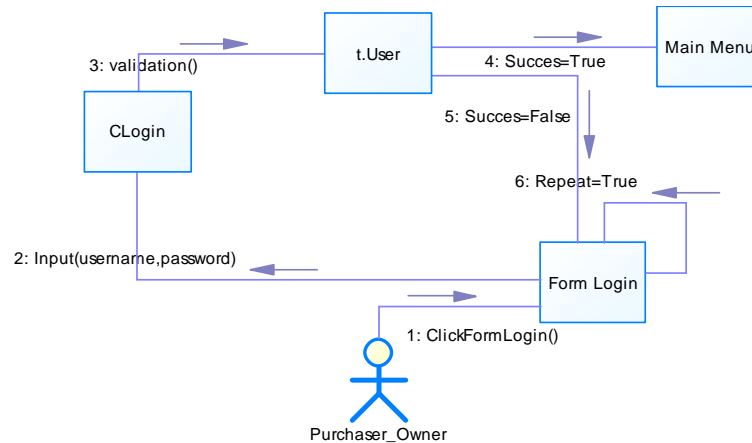

Fig 4. Collaboration diagram of "Purchase"

Figure 4 represent the collaboration diagram of the login process while Figure 5 represent the collaboration diagram purchasing process
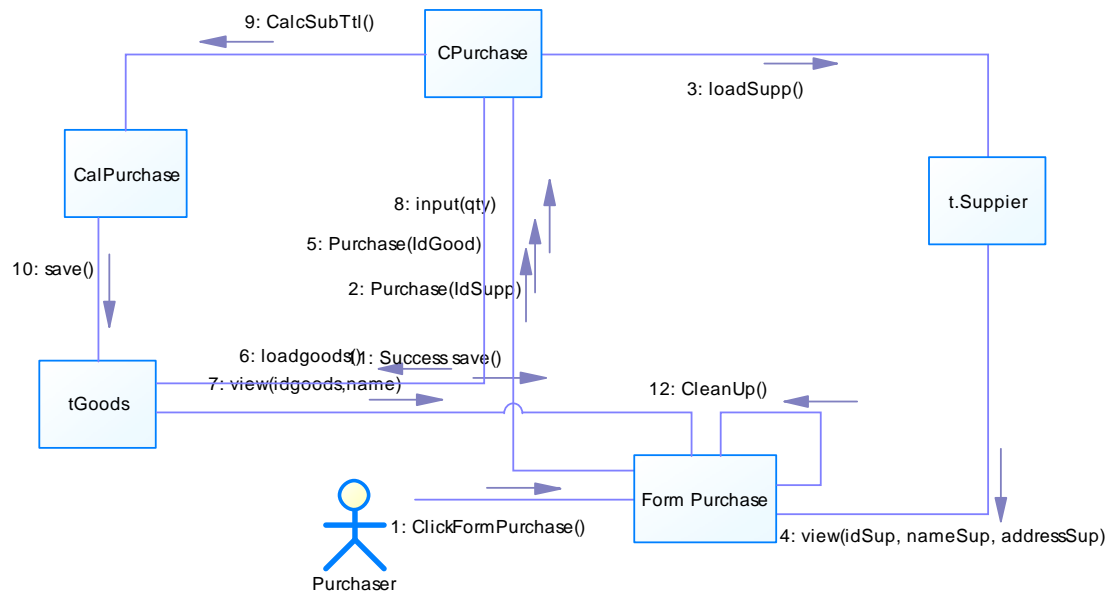

Fig 5. Collaboration diagram of "Purchase"

2.4 Activity Diagram

Activity diagram illustrates the various flow activity in the system that is being designed, how each flow starts, decision that might occur, and how they ended. Activity diagrams can also illustrate the parallel processes that may occur in several executions.
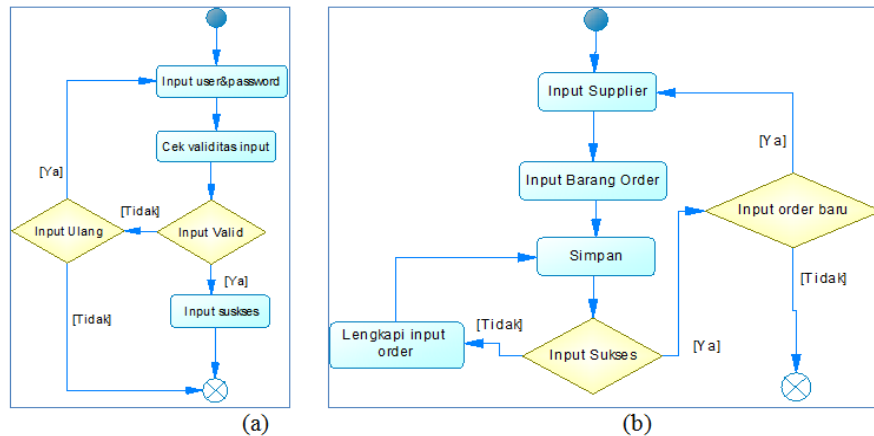
Fig 2. (a) Activity Diagram of the process Login
(b) Actitity Diagram of the process of the Purchase Order

2.4 Class Diagram

Class diagram describing the structure and description of the class, along with the package and object relationships to one another such as containment, inheritance, associations and others.

III. CONCLUSION

This paper raised the analysis and design of information systems to the financial statements using a model of the object oriented approach. With object-oriented approach to simplify the system development process. In object-oriented approach all systems applications are viewed as a collection of interloking object that allow organizations and end users to easily understand logical entities. In Object oriented approach more emphasis is given on behaviour and functionality of objects of given domain. Object-oriented approach provides the benefits of the reuse of codes and saves the time for developing quality product.

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