

## Development of accounting information system (SIA-UMKM) with waterfall approach to standardize UMKM financial report based on standard of accounting financial entity without public accountability (SAK-ETAP)

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### ABSTRACT

The development of small and medium enterprises (SMEs) attract more serious attention from various circles either the government or the general public, the reason are because its role in increasing rate of employment, national income contribution (GDP) and because of its resilience to face obstacles. In general, SMEs themselves face two main problems, which are financial and non-financial problems. Non-financial issues such as: 1) lack of knowledge in marketing, which caused by the limited information they can get, and also the limited capability of SME to provide market demand 2) the lack of resources to develop human resources, and lack of understanding of finance and accounting. To solve the problem and speed up the process of growing and developing, SMEs needed a tool that could bridge between their stakeholders. This tool must be simple and user friendly one, that can make the Owner and employer of SMEs easy to use and help them to build their financial system. This study provides the development of information and communication technologic that create added value in the form of Accounting Software for SMEs in accordance with SAK – ETAP named SIA-UMKM. This paper presents the Development of Accounting information system (SIA-UMKM) with waterfall approach methods and using 5 tools of Unified Modelling Language (UML).

**KEYWORDS:** small medium enterprises (SMEs), user friendly, Accounting, SAK – ETAP, SIA-UMKM, Waterfall methods

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### INTRODUCTION

In nation's economic development in Indonesia, SMEs, Government and Higher Education have high role in nation growth. But in reality, each of those stakeholder seems to walk alone and don't have synergic actions. SMEs, an independent and economically productive activities, committed by individuals or entities that are not subsidiaries or branches of companies owned, controlled, or be a part either directly or indirectly with the Small Business or Large Business with the amount of wealth or annual net sales revenue as stipulated in Indonesian Law [2], as one of the national economy pillar play an important role since 1997 Indonesian economic crisis. Various issues have always encountered among sectors of capital, one of the issues is the difficulty of SME to access to capital sources, they used to say unbendable, or not appropriate to accept capital loan because of absence of financial statements of SMEs who apply for loans for working capital.

In view of the existing problems and find the best solution to solve the problem and speed up the process of growing and developing SMEs, SME needs a tool that could be used as a connectivity bridge between development actors such as the development of information and communication technologies that create added value in the form of Accounting Software devoted to SMEs.

There have been many accounting software in the market with various advantages and disadvantages, but until now rarely used in SMEs because they feel difficulties in implementing it, therefore the researcher focus in the development of accounting software for SMEs so that SMEs can easily present its financial statements in accordance with the expected standard SAK - ETAP so that the prospective capital providers do not doubt the existence of MSME seen from the financial aspects.

### MATERIALS AND METHODS

#### Accounting

Accounting is the information system that measures business activity, processes the data into reports, and communicates the results to decision makers. There are two board groups of users of financial information: internal users and external users. The internal users of accounting information are managers who plan, organize, and run

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the business to help them make decisions about the company. External users are individuals and organizations outside a company who want financial information about the company. The two most common types are Investors who use accounting information to make decision of the company and creditors (Such as suppliers and bankers) that use accounting information to evaluate the risks of getting credit or lending money. [1]

### SAK ETAP

The purpose of financial statements is to provide information of financial position, financial performance, and cash flows of an entity that is useful for a large number of users in making economic decisions by anyone who is not in a position to ask for financial reports to meet specific information needs. In fulfilling its purpose, the financial statements also show what has been done management (stewardship) or the accountability of management for the resources entrusted to it.

Financial Accounting Standards for Entities without Public Accountability (SAK ETAP) is intended for use entities without public accountability. Entities without public accountability is an entity that does not have significant public accountability and publish general purpose financial statements (general-purpose financial statements) for external users.[2]

### SDLC and Water Fall Methods

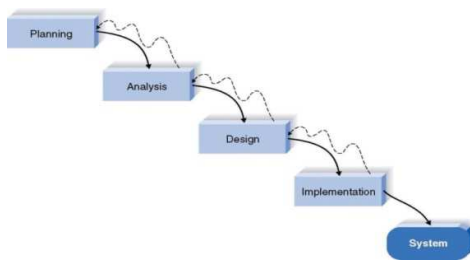


Figure 1 Core phase of System Life Cycle Development of a Software with waterfall methods[1]

Satzinger, et al explains in his book, titled System Analysis and Design in a Changing World that the System Development Life Cycle or SDLC is called with an approach to explain the phases and activities necessary in the development of a project. In his book System Analysis and Design In a Changing World, Satzinger et.al divided into 5 phases of SDLC (a set of activities that are carried out.[3] Figure 1 shows the System Development Life Cycle phases of a system. Before the Analysis phase, there is a requirement engineering step, which is accepted as one of the most crucial stages in software design and development as it addresses the critical problem of designing the right software for the right customer.[4]

### System Modelling

When analysing and designing a system, it is needed to use a model to describe what a system is. When the entity to be built is software, the model must be capable of representing the information that software transforms, the functions (and sub functions) that enable the transformation to occur, and the behaviour of the system as the transformation is taking place. There are two kinds of model which are Behaviour model and Functional Model.[5] in this paper we use UML Diagram to build the Model.

### UML (Unified Modeling Language)

Unified Modelling Language (UML) is a standard language for writing software blueprints. It is a visual language that provides a way for people to visualize, construct, and document the artefacts of software system. UML version 2.0 set 13 Diagramming techniques. Many diagrams provided by UML 2.0 aims to satisfy stakeholders. The diagrams are divided into two major classifications, which are structure modelling diagram (diagram modelling structure) and behaviour modelling diagram (diagram modelling the behaviour).[6]

### Use Case Diagram

Use case diagram is a very simple way to describe how the main functions of the system and how the user (users) interacts with each other differently. The main purpose of use case diagram is to provide analysts a way to document and understand the needs of the information systems that are running. Use case diagram is a very important tool used in the object-oriented analysis and design system.[7]

### Activity Diagram

Activity diagram is a technique to describe procedural logic, business processes and work flows in many cases. Activity Diagram has a role as a flowchart, but the difference with the flowchart is an activity diagram can support parallel behaviour while flowchart can not. This diagram can be used to model the flow of work ranging from the business level and also can describe the detail of use case diagram. Activity diagrams can be used to explain all levels of the process.[7]

**Sequence Diagram**

Sequence diagrams are used to describe the behaviour in a scenario. This diagram shows a number of objects that participate in a use case and messages passing among objects in a time. Because the sequence diagram emphasizes the sequence based on the time of an activity among a set of objects, it is a very suitable diagram to help understand the real needs time and the complexity of use cases.[7]

**Process of SIA-UMKM**

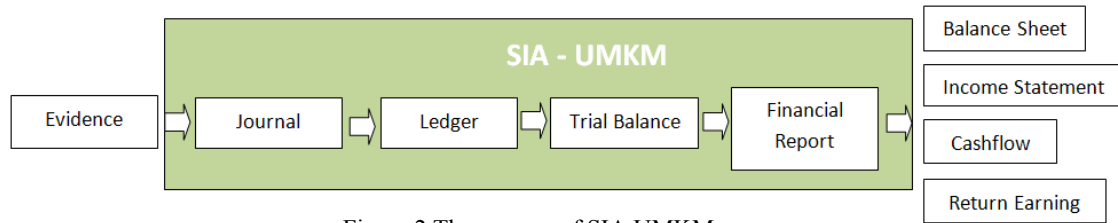


Figure 2 The process of SIA UMKM

**RESULTS AND DISCUSSION**

**Use case Diagram**

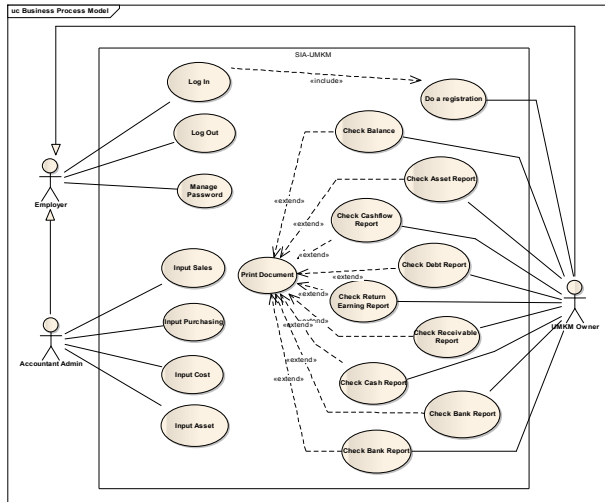


Figure 3 Use Case Diagram of SIA-UMKM

The first step of System analysis after Gathering the requirement of SIA-UMKM is building a Use Case Diagram of SIA-UMKM. From this use case diagram we can see that this system has 3 actors with 11 use case / functions. Use Case diagram can be seen from Figure 3. Use Case diagram can show functions of a system, it can't describe how the system do that functions. A Use Case description and activity diagram can answer the limitation of use case description. Each use case is explained more detail in use case description and activity diagram.

Use case shows functionality of a system. But it did not show how the systems do that functionality. That will be described in the next diagrams. Each use case, detailed more in use case description, since there are 16 use cases, there are also 16 use case descriptions, which are:

- |                   |                                  |                        |
|-------------------|----------------------------------|------------------------|
| 1. Log In         | 7. Check Balance Sheet Report    | 12. Check Debt Report  |
| 2. Log Out        | 8. Check Income statement Report | 13. Check Asset Report |
| 3. Input Sales    | 9. Check Cash flow Report        | 14. Check Cash Report  |
| 4. Input Purchase | 10. Check Return Earning Report  | 15. Check Bank Report  |
| 5. Input Cost     | 11. Check Receivable Report      | 16. Print The document |
| 6. Input Asset    |                                  |                        |

To explain more, this paper will explain the next diagrams with scenario one use case only, “input penjualan” use case. Use case description of Input penjualan use case is explained in Figure 4. While Figure 5 will show the activity diagram and figure 6 will show sequence diagram for the same use case.

<b>Use Case name :</b>	<b>Input Sales</b>	<b>ID : UC.01</b>	<b>Importance level : High</b>
<b>Primary actor :</b>	Employer	<b>Use case Type :</b> Detil, Essential	
<b>Stakeholders and interest :</b> Employer – want to input Sales data			
<b>Brief description:</b> this use case shows how an employer can input sales data			
<b>Trigger :</b>	Transaction	<b>Type :</b> -	
<b>Relationships :</b>			
<b>Association :</b> Employer		<b>Extend :</b> -	
<b>Include :</b> -		<b>Generalization :</b> -	
<b>Normal flow of events :</b>			
1	System shows "Form1.main menu"		
2	Employer press "Sales" menu		
3	System will show "Form2. Purchasing entry" which shows : <ul style="list-style-type: none"> <li>• Date (Sistem fill autوماتcally based on current date)</li> <li>• Evidence number (Text field)Helper Code(Text Field)</li> <li>• Essay (Text field)</li> <li>• Number (Text field)</li> <li>• button "new/save","edit","delete","cancel","exit"</li> </ul>		
4	Employer press button "new"		
5	Employer input sales data		
6	Employer press save button		
7	System do verification for the completeness of data		
8	System save the data		
9	System give message: "do you want to re-entry purchasing data?"		
1	System Shows "Form2. Purchasing entry"		
0			
<b>Subflows :</b>			
<b>Alternate/exceptional flows :</b>			
5.a.	Employer press "cancel" button System reset ""Form2.purchasing entry"		
5.b.	Employer press "exit" button System shows "Form1.main menu"		
6.a	If the data input is not complete System will show an error message "data filled is not complete yet, please fill the data"		

Figure 4 Use Case description of use case "Input Sales"

**Building the System**

After analysis and design phase, the system must be implemented which means conduct the code for program. Below are the features of accounting information system (SIA-UMKM).

Activity diagram of use case "input Sales"

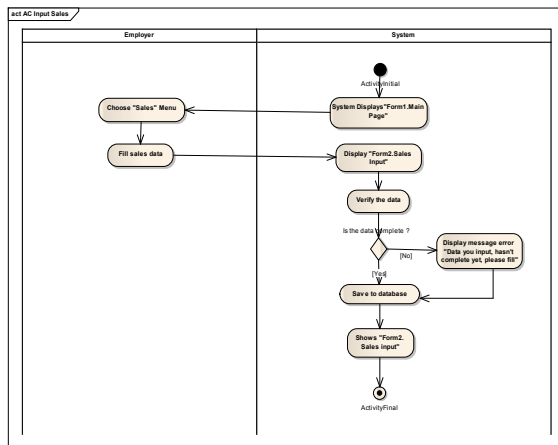


Figure 5. Activity of use case "Input Sales"

Sequence Diagram of use case "input Sales"

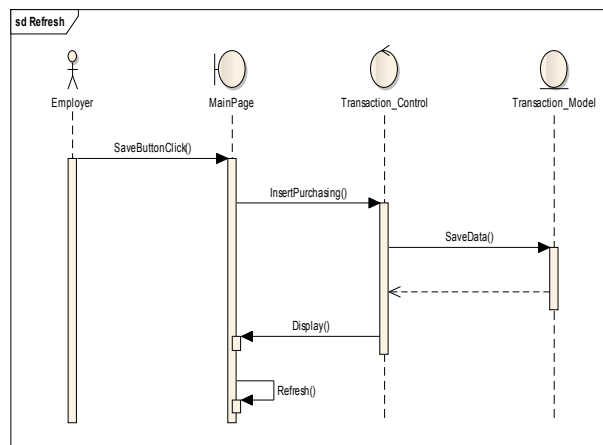


Figure 6. Sequence Diagram of use case "Input Sales"

1. Log in
2. Log Out
3. Input purchase order
4. Input sales order
5. Input expenses
6. Input fixed Assets
7. Report
  - a. Balance Sheet
  - b. Income Statement
  - c. Cash flow
  - d. Return Earning
  - e. Account Receivable
  - f. Account Payable
  - g. Aktiva (Asset)
  - h. Detil Kas (Cash)



Figure 7. User interface for the main page “Form1. Main Menu”



Figure 8 User interface for the main page “Form2. Report”

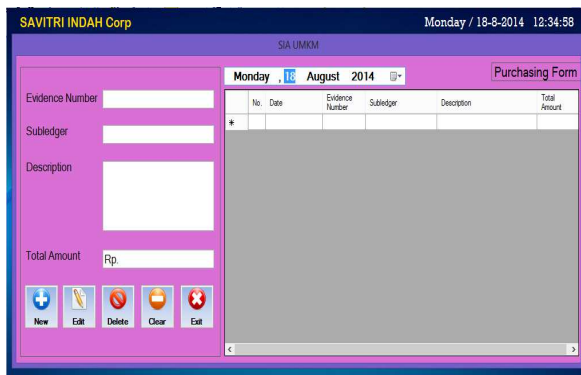


Figure 1 user interface for Purchasing input page  
“Form2. Input Pembelian

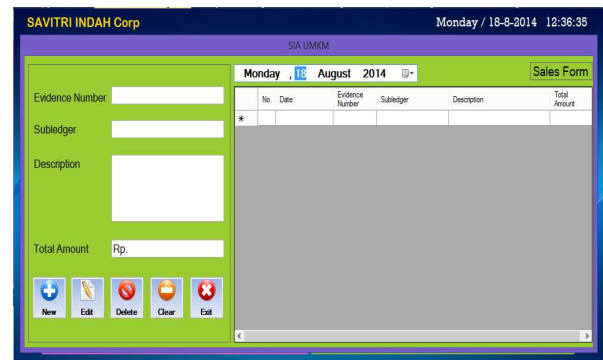


Figure 10 user interfaces for Sales input page  
“Form3. Input Penjualan

## CONCLUSION

This system has three actors, which are staff of UMKM and owner who generalize actor staff. In analysis and design phase, this system is designed to have 11 functionalities that can be seen in use case diagram. From Use case diagram, we can see what a system can do. While how the system do those functionality is explained with Use case description, activity diagram and Sequence diagram. The next step, is implementation phase. In order to accomplish the purpose of this research, the user interface was designed as interesting as possible with colourful design.

In future research, we recommend a web based development. Since internet are going worldwide, is known in the whole world including SMEs user, this system can give maximal benefit when developed using web programming.

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