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Visualizing Requirements using Use Case Diagram and Diagram 0 for Compound Information System

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Abstract: An accurate set of requirements is very critical in achieving required information system which can satisfy users. An accurate requirements also contributes to a quality information system. This paper models on designing an accurate requirements for Compound Information System. The system is critical for calculating compound to record the summons details, check summons details and payment status, update the summons details and delete if necessary. Unified Modeling Language is used for visualizing the system appropriately. This paper also discusses on use case diagram and diagram 0 for better elaboration on the requirements modeling.

Keywords: Actor, Compound Information System Requirement, UML

1 Introduction

Compound System is conducted by the district council in each state in Malaysia. District council is responsible for planning the structure of the urban development in line with current requirements, providing infrastructure like roads, street lighting, and drainage for residents, handling systematic and effective waste collection system, implementing economic development projects for the council including building stalls, shops, complexes and market and so forth. In this project, a Compound Information System(CIS) is developed for Majlis Daerah Pasir Mas, Kelantan (MDPM) in helping their staffs managing summons issued to related people in Pasir Mas. MDPM has owned a system, e-PBT(Elektronik-Pihak Berkuasa Tempatan) which facilitate day to day administrative operation and the system is one of the plan of Government on ICT. CIS is one of the e-PBT information system.

Before the system implementation, summons issued by MDPM are manage manually. The summons record were kept in the files. Therefore, if anything need to be done related to any summon issued, the staff has to find from the tremendous files. This tedious tasks have initiated MDPM to manage all the summons records using an online application system.

CIS is an online information system that were developed using PHP and Javascript which using MySQL to store all the records. By using CIS, MDPM staffs are able to save the summons issued, update the summons details, delete the summons record if necessary, update the summons status and search any related summons details.

2 Unified Modeling Language

In this study, Unified Modeling Language (UML) [1,2] is used for visualizing and describing requirements for Compound Information System. In visualizing use case diagram and state diagram, the developers need to identify actors, processes and data involved within the system environment. Therefore, list of functional requirements and non-functional for CIS is identified by the stakeholders to provide clearer picture of potential system requirements that are going to be system features in CIS.

3 Transformation of UML Constructs

The requirements in this case study is divided into two categories namely functional requirements and non-functional requirements [3]. Functional requirements describe what the system feature can do while non-functional requirements describe on the usability of the CIS.

Based on the Compound Information System (CIS), the system will have requirements as Table 1 and Table 2.

A Functional Requirements of CIS

Table 1 reveals list of functional requirements for CIS.

Table 1: List of Functional Requirements for CIS

| Functional requirements (FR) ID | Functional Requirements Description |
|--|--|
| FR1 | Staff or Admin able to record new summon information. |
| FR2 | Staff or Admin able to update an information about the person who get sued. |
| FR3 | Staff or Admin able to delete an information about the person who get sued. |
| FR4 | Staff or Admin able to generate payment status of people who get sued application. |
| FR5 | Staff or Admin able to update payment status of people who get sued application. |
| FR6 | Staff or Admin can search by identification number to find the information They also can view by date if they want to find the incident on that date. |

B Non-Functional Requirements of CIS

Table 2 reveals list of functional requirements for CIS.

Table 2: List of Non-Functional Requirements for CIS

| Non-Functional requirements (NFR) ID | Non-Functional Requirements Description |
|---|--|
| NFR1 | The security feature in this system will be implemented by providing default username and passwords to certain user like staff or admin of the organization since their login will valid only for a particular session (until windows are closed) . |
| NFR2 | <p>Operational</p> <p>The system is developed in a pure Internet/Intranet environment and runs on any browser. This system uses a browser-based interface and its tree-based navigation allows users to navigate to the context very fast, thus reducing long periods of user-based education. The system is designed using web-architecture and XML as the basic medium for data interchange.</p> <p>To be able to use this system, the user must be registered within the organization.</p> |

Diagram 0 [4] used in this study is to assist the system analyst in understanding the business process of Compound Information System (CIS). The diagram 0 is useful in identifying data flow and information in and out from CIS. According to Figure 1, Diagram 0 of CIS consists of five processes, with only one actor involved in the system environment. The repository used is known as D1, where it will keep all the information related to CIS.

According to Figure 1, CIS will be able to receive compound details from actor, search by ic number, view by date, update payment and delete compound details. Actor 'Admin' monitors compound details entered into CIS, then the information flows in CIS will flow in and out from the data store or data repository of CIS.

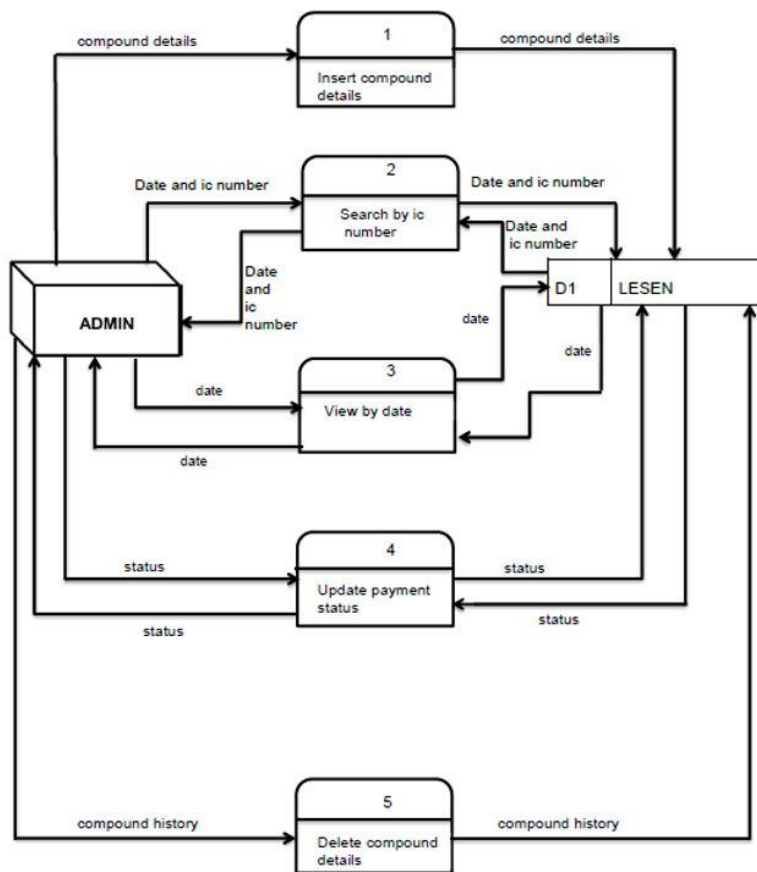


Figure 1: Diagram 0 for Compound Information System (CIS)

Use Case Diagram for CIS based on Functional Requirements

Use case diagram [5,6] is useful to see the idea of system features of CIS. It gives the simplest representation to visualize how actors interact with CIS conceptually. Figure 2 depicts on system features available in CIS.

According to Figure 2, actor ‘Staff’ will be able to interact with 8 system features whereas actor ‘Admin’ interacts with 7 system features. From the diagram, the system developer will be able to plan and design CIS modules for implementation purposes.

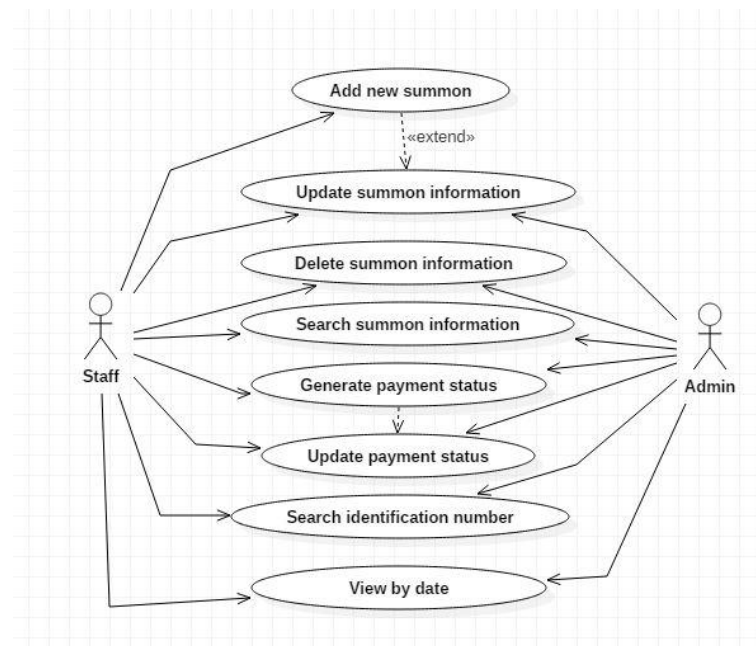


Figure 2: Use Case Diagram for Compound Information System

From this study, the authors identified there is an issue of actor definition while doing analysis for CIS. This issue needs to be further elaborated by the system analyst so that the developer can clearly understand the functions and users of CIS.

4 Conclusion

Better visualization of system requirements is expected to result from the UML manipulation on CIS. The system analysts and developers should have mutual understanding in order to understand the function of CIS. Different interpretation on the information system will result vague functionality of CIS.

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