



# Design of a web-based application for managing evidence data at the East Aceh District Prosecutor's Office

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## ABSTRACT

The prosecutor's office is a government institution that has the authority to delegate, prosecute perpetrators in court and carry out the decisions and decisions of criminal judges. Evidence is the object of a criminal act. Administrative processing of evidence at the East Aceh District Prosecutor's Office uses office computer applications so that the data stored is not well structured and is not centralized. This makes it difficult for evidence officers to recapitulate data quickly and efficiently. Apart from that, the risk of data loss or administrative errors is also prone to occur due to the absence of an authentication process for office computer application users for handling such evidence. The aim of this research is to build an evidence data processing application to facilitate the activities of evidence and confiscated property management section officers to manage data effectively.

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## 1. INTRODUCTION

The prosecutor's office is the only state institution which is a government apparatus that has the authority to delegate criminal cases, prosecute perpetrators of criminal acts in court and carry out decisions and decisions of criminal judges. This power is a characteristic of the prosecutor's office which differentiates it from other law enforcement institutions or agencies. Other This power is a characteristic of the prosecutor's office that differentiates it from other law enforcement institutions or bodies. In implementing the Judge's decision, the Prosecutor has the authority to execute the evidence by destroying or confiscating it for the benefit of the state or returning the evidence to its rightful owner in accordance with the decision determined by the Panel of Judges[1]. Evidence includes objects that are objects of criminal acts, proceeds from criminal acts and other objects that are related to criminal acts[2][3].

Evidence and confiscated goods at the East Aceh District Prosecutor's Office are managed by the Evidence and Confiscated Property Management Section originating from general crimes and special crimes. The administrative implementation of the management of evidence and confiscated items at the East Aceh District Prosecutor's Office is carried out entirely by administrative staff,

including recording the identity of suspects, articles of suspicion, types and quantities of evidence, where the implementation of administrative procedures has so far not been supported by an information system. Administrative processing of evidence at the East Aceh District Prosecutor's Office uses office computer applications so that the data stored is not well structured and is not centralized. This makes it difficult for evidence officers to recapitulate data quickly and efficiently. Apart from that, the risk of data loss or administrative errors is also prone to occur due to the absence of an authentication process for office computer application users for handling such evidence.

Based on these conditions, it is necessary to support information and communication technology in the form of computer applications so that evidence data management at the East Aceh District Prosecutor's Office can run effectively. Computer-based applications are a medium for processing raw data into meaningful messages and then used as tools to assist decision makers. Applications cannot stand alone but must be supported by hardware and users, procedures and databases that aim to provide information that supports operations, management and decision-making functions within the company[4]. Eddy Prahasta stated that Applications are special tasks that are carried out within the enterprise automatically and semi-automatically, whereas according to Roger S. Pressman Application software are independent programs that answer detailed business needs[5].

## 2. RESEARCH METHOD

The research method used for application development is the waterfall method. The Waterfall method is a method that provides a sequential or sequential approach to software life flow[6]. The Waterfall Method has the following stages [7].

- 1) Requirements analysis and definition  
System services, constraints and objectives are determined by the results of consultations with users which are then defined in detail and function as system specifications.
- 2) System and software design  
The system design stage allocates system requirements for both hardware and software by forming the overall system architecture. Software design involves identifying and describing the software's basic system abstractions and their relationships.
- 3) Implementation and unit testing  
At this stage, software design is realized as a series of programs or program units. Testing involves verifying that each unit meets its specifications.
- 4) Integration and system testing  
The individual units of a program or programs are combined and tested as a complete system to ascertain whether they meet the software requirements or not. After testing, the software can be sent to the customer.
- 5) Operation and maintenance  
Usually (although not always), this stage is the longest stage. The system is installed and used in real life. Maintenance involves correcting errors that were not found in previous stages, improving the implementation of system units, and improving system services as new requirements arise.

The design methods used in this research are data flow diagrams (DFD) and entity relationship diagrams (ERD). DFD is an effort to form the concept of a computer system or application through graphic media so that users can easily understand the flow of data running in a system or application and transform it to another purpose.[8]. DFD is a diagram that uses notation in the form of symbols to describe the flow of data in a system. DFD is depicted starting from level 0, level 1 to level 2[9].

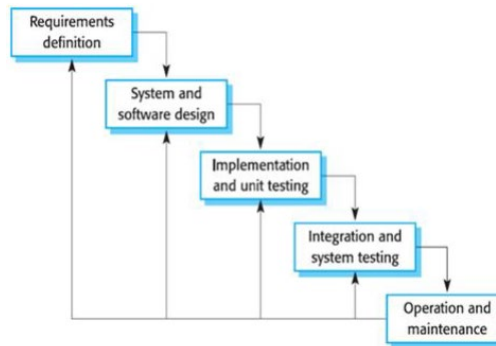


Figure 1. Waterfall Method Diagram[7]

**3. RESULTS AND DISCUSSIONS**

**3.1. DFD Design**

DFD level 0 is at the highest level, which describes one large circle that represents a system that interacts with external entities [9]. The level 0 DFD design in this application can be seen in Figure 1 below. DFD level 0 design shows user interaction, namely admin, with the application to be built. In this design there is one entity, namely the admin, which interacts with the system where the admin can process case data, evidence data and return evidence as in Figure 2.

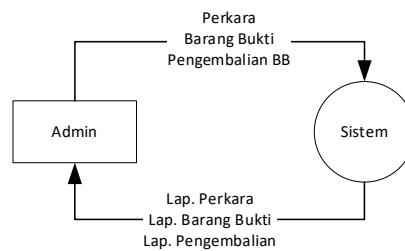


Figure 2. Level 0 DFD Design

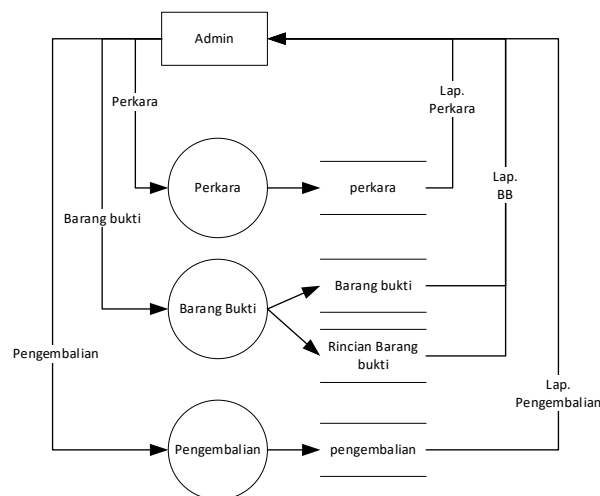


Figure 3. Level 1 DFD Design

DFD level 1 is a derivative or further stage or detail of DFD level 0, where all processes in DFD level 0 will be fully detailed so that users understand the system process flow more clearly. Existing main

processes will be broken down into sub-processes. In figure 3 below it is explained that every data entered by the admin will be stored in each data storage.

### 3.2. Entity Relationship Diagram Design

Entity Relationship Diagram (ERD) is a concept illustration in building a computerized data storage structure consisting of entities and relationships between entities [10]. ERD is a diagram that contains a summary of data processed in a system or application[11]. In the design of the ERD in this research there are four entities, namely cases, evidence, details of evidence and returned documents. Each entity has different attributes.

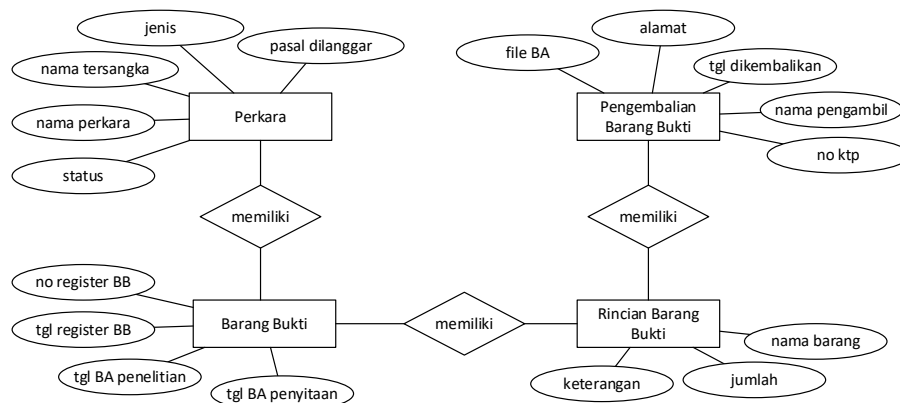
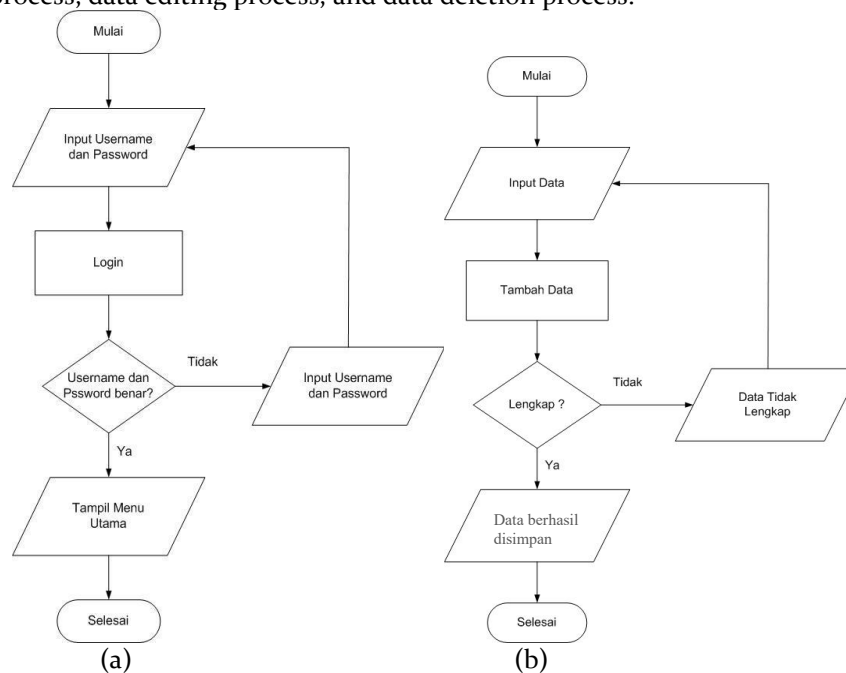


Figure 4. Entity Relationship Diagram Design

### 3.3. Flowchart Design

A flowchart is a conceptual structure in graphical form that displays specific process data flows [12]. The flowchart design in this research consists of the admin login process, data adding process, data search process, data editing process, and data deletion process.



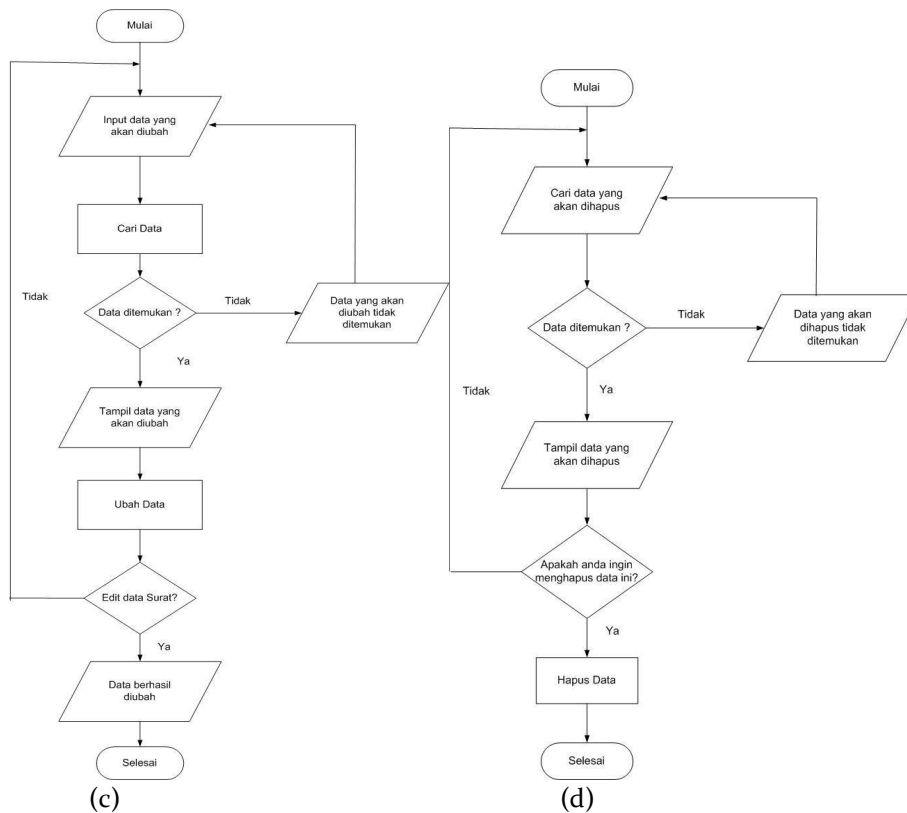


Figure 5. Flowchart Design; (a) login; (b) adding data; (c) editing data; (d) deleting data

### 3.4. Interface Design

The interface is well designed to make the system easy and simple to use. The interface design follows a previously designed flowchart. On the login page, the admin as the user of this system enters the username and password to be able to access the system as a whole. The login page can be seen in figure 6 below.

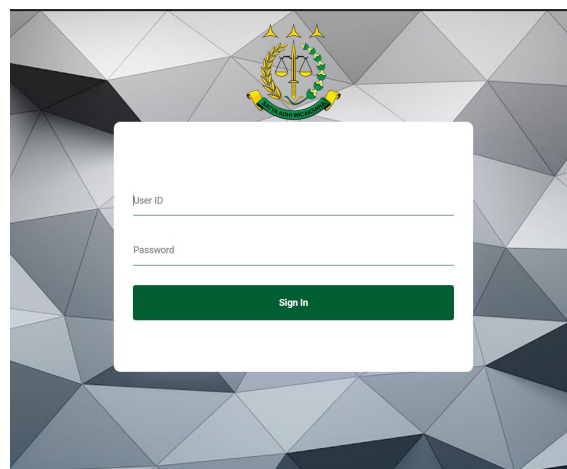


Figure 6. Login Page Design

On the case data page, admins can add data, change and delete case data easily. The data will be displayed in a table and it is easy to search based on existing columns. Each row of data has an edit

button to change the data and a delete button to delete the data. The case data page can be seen in Figure 7 below.

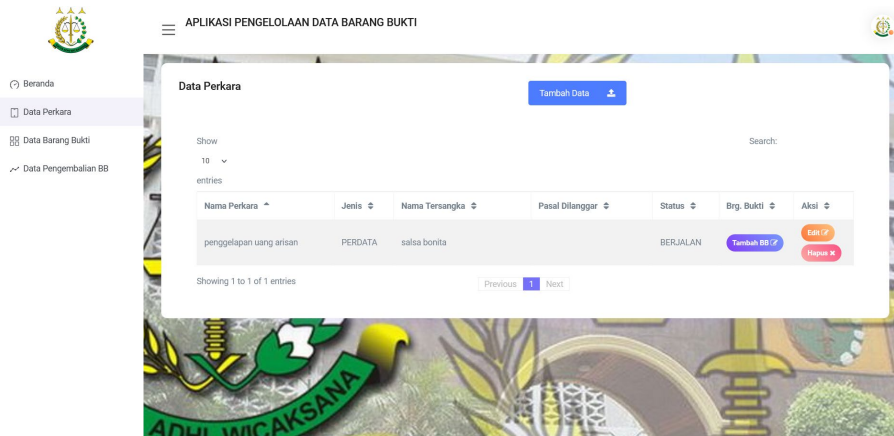


Figure 7. Case Data Page Design

This page (figure 8) is used by the admin to add and change evidence data. Evidence data can be added from one of the previously entered case data.

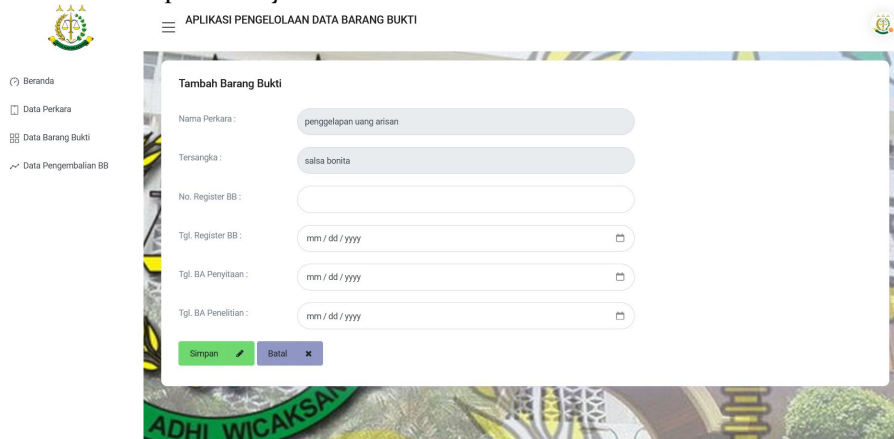


Figure 8. Page Design For Adding And Editing Evidence Data

The evidence data page (figure 9) displays the data that has been entered or changed and there is a delete button to delete the data. The evidence detail page (figure 10) displays data, adding and deleting evidence detail data. The evidence return page (figure 11) is used by the admin to add, change and delete evidence return data and then it will be displayed in a table where each row of data has an edit and delete button.

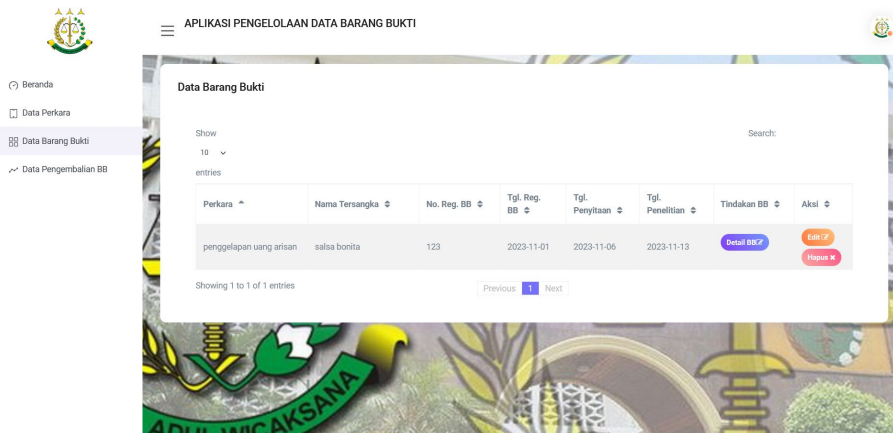


Figure 9. Evidence Data Page Design

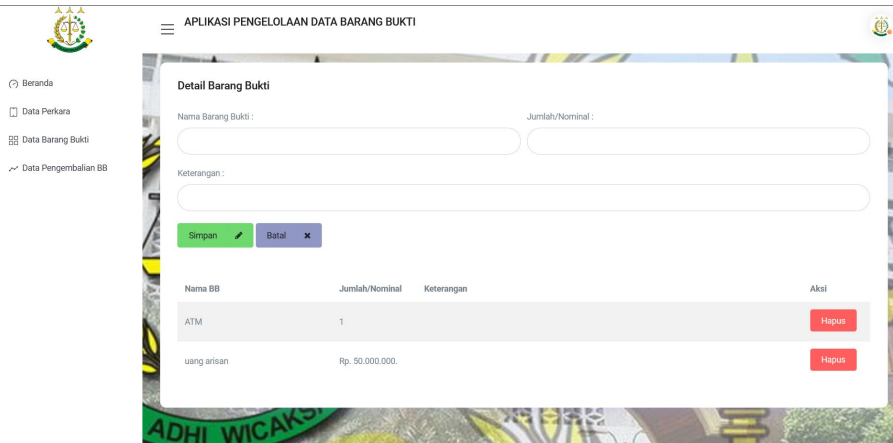


Figure 10. Evidence Data Details Page Design

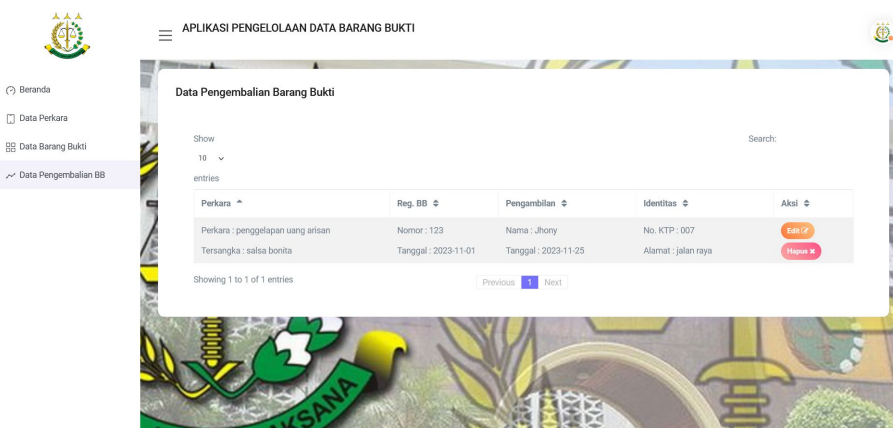


Figure 11. Returning Evidence Data Page Design

#### 4. CONCLUSION

Based on the results and discussion above, several conclusions can be drawn in this research, including:

1. This application runs well according to the design of the data flow diagram and flowchart.

2. This application makes it easy for Admins to process and process evidence data.
3. The test results carried out by the author on this system show that the functions contained in the application run well and are in accordance with needs and design.

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