Web-Based Complaints Service Information System at Dewantara District Office

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Abstract

The Complaint Service Information System is a web-based platform designed for the Dewantara District Office. The title Complaint Service Information System is based on the need for technological solutions to improve the quality of public services, especially in handling public complaints. This system was chosen because it facilitates more efficient complaint reporting, increases transparency, and speeds up responses to issues raised by the public. By applying information technology in handling complaints, it is hoped that we can create a public service environment that is more responsive, open and adaptive to the ever-growing needs of society. The process of creating a complaint service information system involves several main stages. First, the needs analysis stage is carried out to identify and understand the needs of users and related parties in handling complaints. This involves a survey and analysis of associated documents. Next, the system design and design stage involves database structure, user interface, and business logic. This Information System design process involves critical steps to ensure the success and effectiveness of the system, including coding, creating a user interface, and setting up a database. The results of designing the Complaint Service Information System include a simple and responsive user interface, an online complaint form, a status tracking system, and analytical reports. A structured and secure database stores, manages, and retrieves complaint data. Afterwards, the implementation phase involves running the entire system and, if necessary, data migration. Through the creation of this Information System, it is hoped to evaluate the impact of the level of accessibility and ease of navigation in the system on employee performance in searching, monitoring and managing incoming complaints. With a web-based approach, this system provides easy, fast access for users from various locations and increases transparency in managing services provided to the community.

Keywords: *Information Systems, Complaints, Platforms, Office.*

1. Introduction

An information system combines various information technology components that produce information to obtain a single communication channel within an organisation or group [1]. This process includes hardware and software and involves human aspects, policies and procedures to achieve synergistic integration [2]. In processing information, information systems, information technology and other components are interrelated and have different roles[3]. Dewantara is the name of one of the 27 sub-districts in North Aceh Regency [4]. Dewantara is also a sub-district which was formed in 1945 after Indonesia became independent and the name Dewantara is said to have been given by Teuku Bujang bin Teuku Rhi Mahmud based on his admiration for Ki Hajar Dewantara, one of the heroes of the National movement who was once exiled by the Dutch [5]. Dewantara Sub-district is one of the sub-districts in North Aceh Regency and is the centre of government, which regulates several village governments [6]. To provide the best service, the sub-district makes it easy for its residents to complain to the government by giving criticism and suggestions by filling out the suggestion box [7]. However, the system is still carried out in writing and recorded in a complaint book, so errors often occur, and it takes a long time to find out which complaints are frequently reported [8]. Therefore, we need a system to assist in writing and grouping public complaint data [9]. The existence of an online general complaint system is a solution to problems, making it easier for all residents in Dewantara District to submit suggestions and criticism quickly and effectively [10]. In digital development, to facilitate access between residents and the sub-district government, the process of creating a complaint information system is carried out so that it is easy for the community to express their aspirations effectively [11]. Public complaint reports are recorded online, making it easier to recap and report to resolve problems [12].

2. Literature Review

Systems are generally a collection of sub-systems that interact with each other to achieve the same goal [13] [14]. In various scientific disciplines, system concepts are used to analyse and understand the complexity of relationships between elements in a particular context

[15]. The meaning of a system can also differ depending on the field of study, such as in computer science, management, biology, or engineering [16]. The definition of a system is that a system can be said to be a collection of functioning networks consisting of different elements connected to achieve a specific goal [17] [18].

The word "system" is used often in everyday conversation, discussion forums, and scientific documents[19]. This word is used for many things and fields, so its meaning varies. In the most general sense, a system is a collection of objects that have relationships between them [20].

Information is data processed into a form that has meaning for the recipient, which can be facts and valuable value. So, there is a process of transforming data into information, namely the input-output process [21]. Data is the raw material for information.

The difference between information and data is very relative, depending on its helpful value for the management that requires it. Information for a specific management level can become data for management at levels above it or vice versa. In the book Information Systems Analysis [22] [23].

3. Method

3.1. DFD (Data flow Diagram)

Data Flow Diagram (DFD) is a visual representation of a system that shows how the system is divided into smaller modules. The main advantage of using DFD is that it simplifies understanding of the system for users who do not have in-depth computer knowledge, so they can more easily understand how the system they will use works.

The data flow diagram applied by the author uses the Yourdon and De Marco model, with specific symbols used in this diagram being as follows:
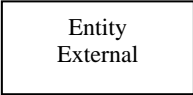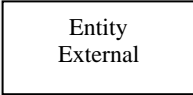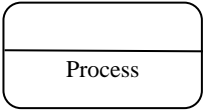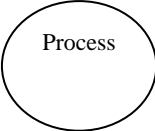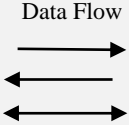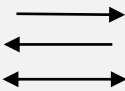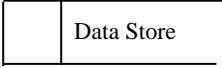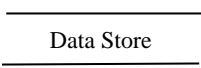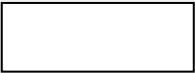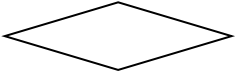
Gane/Season	Yourdon/De Marco	Information
Entity External	Entity External	External entities can be people/units interacting with the system but outside the system.
Process	Process	The person/unit that uses the data transformation. Physical components are not identified.
Data Flow	Data Flow	Data flows in a specific direction from source to destination.
Data Store	Data Store	Data storage or where processes view data

Fig 1. Data Flow Diagram symbols

3.2. ERD (Entity Relationship Diagram)

Entity Relationship Diagram (ERD) is a method applied to design the data needs of an organisation, generally by system analysts at the requirements analysis stage of a system development project. As if it were the basis for relational database design that supports information system development, ERD, together with supporting details, forms a data model which will later be used as a specification for the database.

| Symbol	Information
	Entity, namely a collection of objects that can be uniquely identified
	Relationship, namely the relationship that occurs between one or more entities. Types of relationships include one-to-one, one-to-many and many-to-one
	Attributes, namely characteristics of an entity or relationship, which is a detailed explanation about the entity

	Relationships between entities and their attributes and entity sets with their relationship sets
————————	
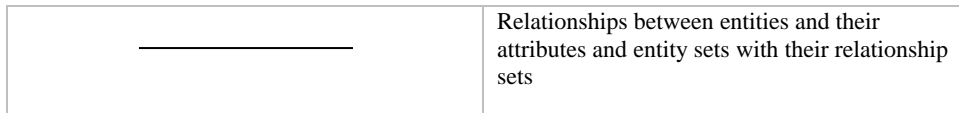
Fig 2. Relationship Diagram Entity Symbol

4. Analysis and Discussion

4.1. DFD (Data flow Diagram)

Data Flow Diagram (DFD) is a local description of the system. This description does not depend on hardware, software, data structure or file organisation. To be more apparent, the following data flow is depicted (DFD) level 0 in the complaint service information system at the Dewantara sub-district office as follows:

4.1.1. DFD Level 1 Registration Process
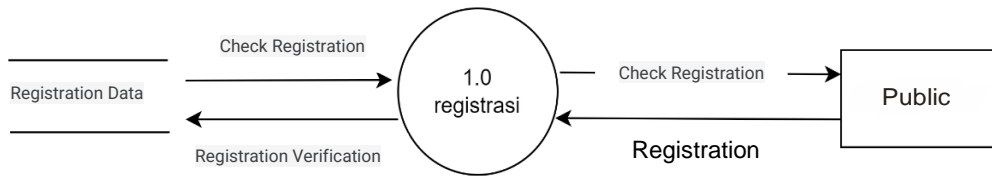
Fig 3. Level 1 Registration Process

The picture above explains that the public enters data for registration into the system, then the data is validated in the database, and then the system provides registration validation information to the public.

4.1.2. DFD Level 1 Login Validation
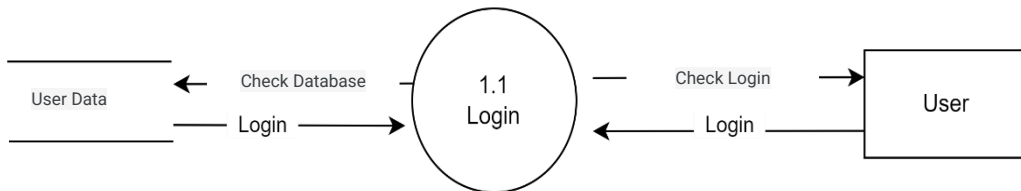
Fig 4. DFD Level 1 validasi Login

The image above explains that the user enters a username and password to log in to the system, then the data is validated in the database, and then the system provides username and password validation information to the user.

4.1.3. DFD Level 1 Community Data Input
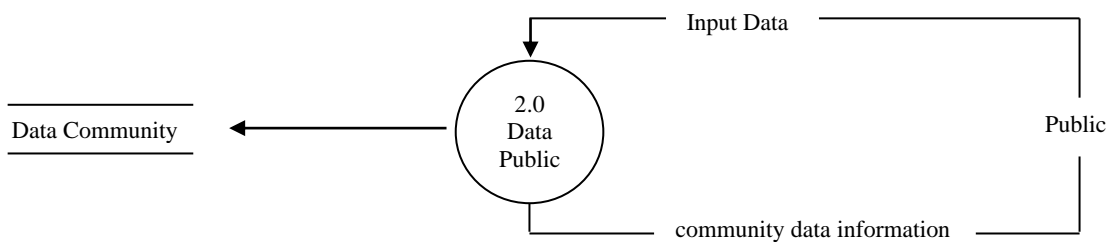
Fig 5. DFD Level 1 Input Data Public

The picture above shows that people enter data, which can be saved into a database. Next, the system will provide information to the admin regarding the data that has been input.

4.1.4. DFD Level 1 Complaints and Complaint Responses
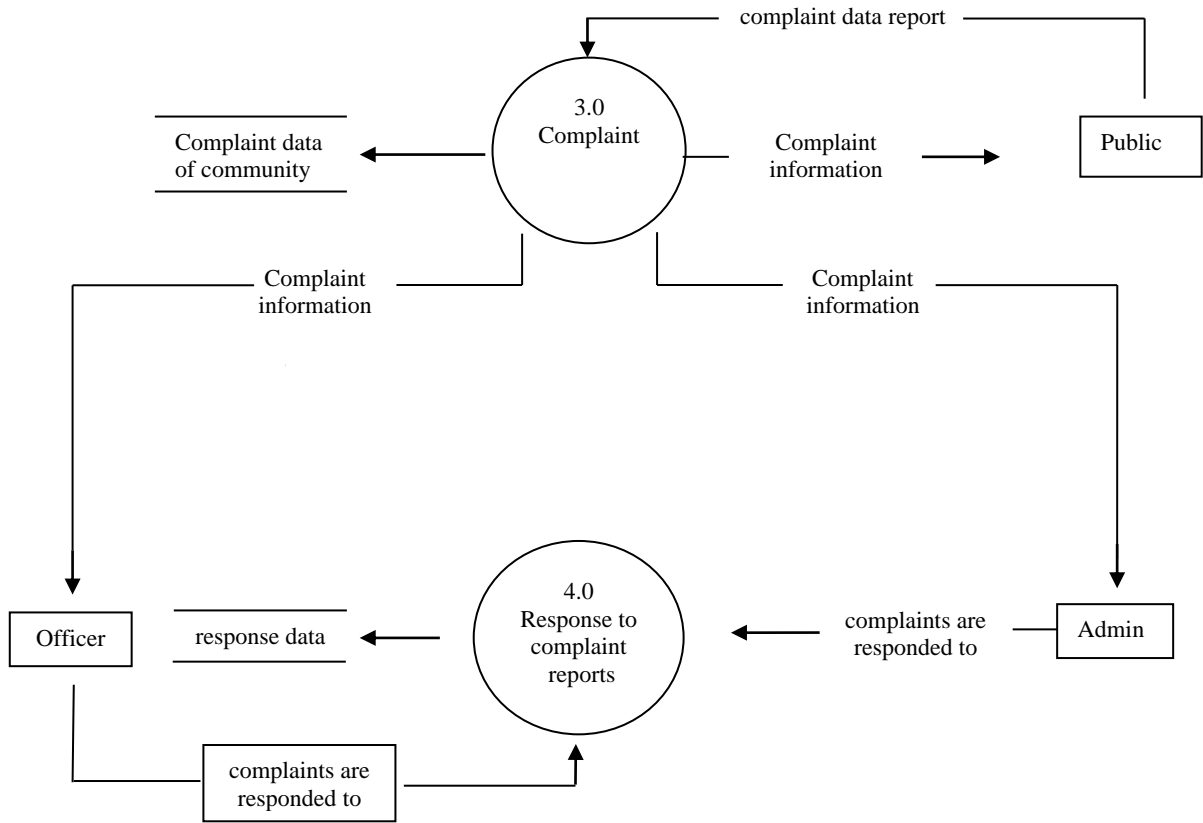
Fig 6. DFD Level 1 Complaints and Complaint Responses

The picture above shows that the public makes complaints or complaints, and then the admin responds to the complaints or complaints, which are then stored in the database based on these responses.

4.2. ERD (Entity Relationship Diagram)
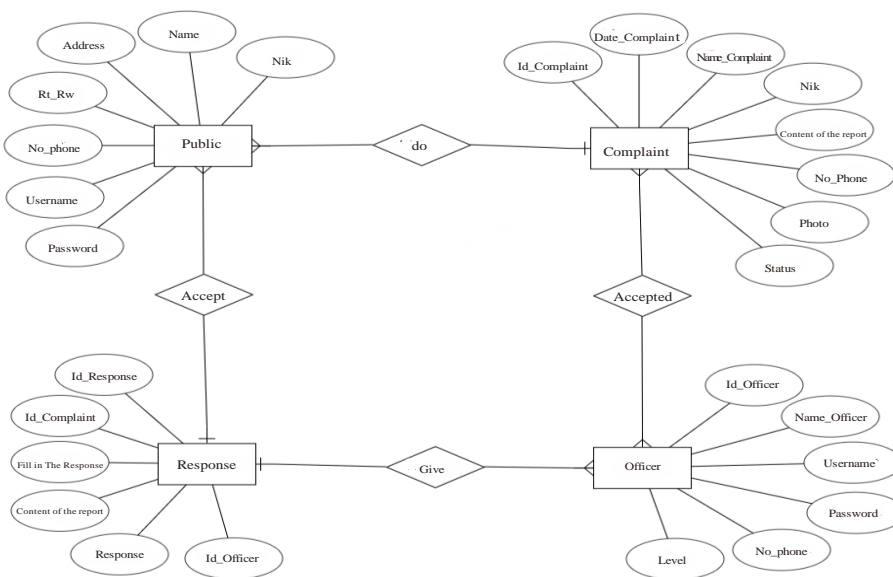
Fig 7. Entity Relationship Diagram

The image above explains the public's access rights, where the public can log in to the login page by entering their username and password and then can make complaints to the system. Complaints can be managed by the admin and officers who are responsible for the complaint service at the Dewantara District Office.

4.3. Planning Tabel
The following is a table design for the Web-Based Complaint Service Information System at the Dewantara District Office. The officer table functions to store usernames and passwords and store officer data.

Table 1. Table Officer

No	Field Name	Type	Char	Information
1	Officer_id	Integer	11	Primary key
2	Officer_name	Varchar	35	-
3	*user*name	Varchar	25	-
4	password	Varchar	32	-
5	phone	Varchar	13	-
6	level	Enum		-

4.3.1. Table Public
The Community table functions to store usernames and passwords and store Community data.

Table 2. Table Public

No	Field Name	Type	Char	Information
1	Nik	Char	16	Primary key
2	name	Varchar	35	-
3	address	Text		-
4	rt/rw	Varchar	20	-
5	*User*name	Varchar	25	-
6	Password	Varchar	32	-
7	phone	Varchar	13	-

4.3.2. Table Data Public
The Community Data Table functions to store community data

Table 3. Table Data Public

No	Field name	Type	Char	**Information**
1	Public_id	Integer	11	Primary key
2	name	Varchar	50	-
3	Nik	Char	16	-
4	address	Text		-
5	rt/rw	Varchar	50	-

4.3.3. Table Complaint
The Complaints Table functions to store complaint data

Table 4. Table Complaint

No	Field Name	Type	Char	Information
1	Complaint_id	Integer	11	Primary key
2	complaint_date	Varchar	40	-
3	Complaint_name	Varchar	40	-
4	Nik	char	16	Foreign key
5	Contents of the report	Text		-
6	phone	Varchar	13	-
7	photo	Varchar	255	-
8	status	enum	0	-

4.3.4. Table Response
The Response Table functions to store Complaint Response data.

Table 5. Table Response

No	Field Name	Type	Char	Information
1	Response_id	Integer	11	Primary key
2	Complaint_id	Integer	11	Foreign key
3	Complaint_date	Varchar	40	-

4	Contents of the report	Text		-
5	response	Text		-
6	Officer_id	Integer	11	Foreign_key

5. Conclusion

After designing a Web-based Complaint Service Information System at the Dewantara District Office, it can be concluded that:

1. Several critical stages involve Designing and building a Web-Based Complaints Service Information System at the Dewantara Sub-district Office. First, a needs analysis was conducted to understand user requirements from the sub-district office and the community. Then, designing a simple and responsive user interface focuses on ensuring accessibility and affordability for users. The next step is selecting the right technology, such as a web platform and database. Then, developing main features such as complaint forms, status tracking, and reporting requires careful implementation and integration with databases for efficient complaint management.

2. Implementing a Web-Based Complaints Service Information System at the Dewantara Subdistrict Office requires a planned and organised approach. The process begins with preparing adequate technological infrastructure, including servers, networks and other hardware. After that, software installation and configuration are carried out, ensuring the system meets requirements and can operate optimally. Data migration, if necessary, is carried out carefully to ensure there is no loss of critical information. Training sub-district office employees is a crucial step so they can master the use of the system well.

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