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Design of Information System for Application for Employee Promotion in the Ministry of Religion of Medan City

Perancangan Sistem Informasi Kenaikan Pangkat Pegawai di Kementerian Agama Kota Medan

Wini Istya Sari Lubis [1], Helmi Fauzi Siregar [2], Muhammad Yasin Simargolang[2]

[1] Faculty Of Science and Technology, Information System, Universitas Islam Negeri Sumatera Utara, Medan, Indonesia
[2] Informatics, Universitas Asahan, Kisaran, Indonesia

A B S T R A C T

A promotion is an application for a promotion given to civil servants who have reached a certain work period limit for promotion to rank or position, namely once every two years and if they have fulfilled the requirements based on the applicable laws and regulations. At the Medan City Ministry of Religion Office, promotions are carried out every two years within two months and are still done manually, namely when submitting promotion documents, the personnel department checks the civil servant decree and notifies the employee concerned if there are incomplete requirements that must be completed to be submitted to Promotion if there are problems requires a long time to check employee data and employee files which must be completed as a condition for applying for promotion, considering that there is a risk of losing employee files. Applications for promotions that are made manually also often experience delays in issuing promotion letters. The result of this research is an information system in the form of a website for applying for employee promotions which was built to assist the Medan City Ministry of Religion Office, especially the personnel department, in scheduling and issuing promotion decisions and can assist in filling out employee decision letters quickly, accurately and personally.

Keyword: information systems, employees, waterfall, website

A B S T R A K

Kenaikan pangkat merupakan proses pengajuan yang diberikan kepada Pegawai Negeri Sipil (PNS) yang telah mencapai batas masa kerja tertentu untuk naik ke pangkat atau jabatan yang lebih tinggi, yaitu setiap dua tahun sekali, selama telah memenuhi persyaratan sesuai dengan peraturan perundang-undangan yang berlaku. Di Kantor Kementerian Agama Kota Medan, proses kenaikan pangkat dilakukan setiap dua tahun dalam rentang waktu dua bulan, dan hingga saat ini masih dilakukan secara manual. Dalam proses manual tersebut, saat pegawai mengajukan berkas kenaikan pangkat, bagian kepegawaian akan memeriksa Surat Keputusan (SK) PNS dan memberikan pemberitahuan kepada pegawai yang bersangkutan apabila terdapat persyaratan yang belum lengkap. Proses ini memerlukan waktu yang cukup lama karena pemeriksaan data dan berkas pegawai harus dilakukan satu per satu, serta terdapat risiko kehilangan dokumen pegawai yang penting. Selain itu, proses manual juga sering menyebabkan keterlambatan dalam penerbitan surat keputusan kenaikan pangkat. Hasil dari penelitian ini adalah sebuah sistem informasi berbasis website untuk pengajuan kenaikan pangkat pegawai, yang dibangun untuk membantu Kantor Kementerian Agama Kota Medan, khususnya bagian kepegawaian, dalam menjadwalkan serta menerbitkan surat keputusan kenaikan pangkat. Sistem ini juga dapat mempercepat proses pengisian surat keputusan pegawai secara cepat, tepat, dan terintegrasi.

Kata kunci: sistem informasi, pegawai, waterfall, website

* Correspondence :
Wini Istya Sari,
Information System, Universitas Islam Negeri Sumatera Utara, Medan, Indonesia
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1. INTRODUCTION

Technology is developing so rapidly that it is not only ineffective, but has recently impacted all global life. Be it education, business, administration, agencies and social life. The aim of technological development is to facilitate human work in solving problems related to labor productivity and efficiency [1], [2]. The role of information technology is very necessary, such as collecting data efficiently and effectively in companies. The Medan City Ministry of Religion as an agency that manages various religious affairs and manages employee data or information requires an information system for submitting data collection efficiently and effectively in every company activity [3], [4].

A promotion is a position that indicates the level of a Civil Servant (PNS) based on their position in the civil service and is the basis for providing remuneration [5]. At the Medan City Ministry of Religion office in the civil service department, applications for promotions are still done manually, which can result in a lack of files that should be needed and lost documents [6]. Applying for a promotion is an award and each award only has value if the promotion is given to the right person at the right time [7], [8]. The aim is to improve the welfare of employees and encourage them to further increase their work morale. Promotion is used to measure an employee's ability to carry out the tasks assigned to him [9]–[11].

The development of information and communication technology today has become a solution for existing agencies. In the Medan City Ministry of Religion Office, information and communication technology has not yet been implemented, such as submitting files for employees who wish to be promoted is still done manually by collecting files offline or face to face. This makes it difficult for employees who carry incorrect or incomplete files and takes a long time [12]–[16]. To overcome this problem, the author plans to create a web-based application to store and manage employee data privately at the City Ministry of Religion Office. Terrain [17]–[19].

With the development of information technology, the Ministry of Religion must also follow developments in information technology, namely creating a system to assist employees in facilitating employee promotions, managing employee files and promotion requirements [20]–[22]. By implementing appropriate and comprehensive information technology , the promotion application system will be well designed and provide very profitable benefits ranging from easy access to information, accurate data security, and easy data management [23], [24].

As for previous research at the Medan City Ministry of Religion Office, the process and procedures for employee promotions were still carried out manually, employees experienced difficulties because they had to collect information regarding promotion requirements, then employees had to directly send data regarding promotions to staff, then department staff, then the HR staff will correct the claim request information, and when it is complete, the HR staff will send it to the office manager for review by the office manager. Additionally, after the office manager reviews the proposed promotion information, HR staff will print the office manager's confirmation of the employee's promotion and issue a letter to the employee [25]–[29].

Therefore, we need an information system that is capable of processing data and documents using various information technologies to archive personal information and documents, namely to archive personal information and documents. The design system was created using a modeling language using UML. The archiving information system was created using the PHP programming language and using a MYSQL database [30]–[32].

Based on previous research, the difference lies in that the data input system for employee data is done manually or by collecting files and then collecting them with staff after which they are processed and takes quite a long time. Then in this research employee data or personal information was collected online or on a website with the function of managing employee daily records, providing work relationship information, managing personal information, and the system can be accessed easily anywhere and at any time. With this system, it is hoped that managing employee information will become easier, HRD will be notified when the work contract is about to end, so they can act immediately. And managers can manage employee daily records to account for employee performance reviews.

2. METHODOLOGY

The waterfall method or what is known as the waterfall method is used to develop this system. Waterfall is a traditional software development process that is often used to build software projects. This is a sequential model, so executing one set of actions will trigger the next action. It is called a waterfall because the process takes

place systematically from one stage to the next. Create a software framework. There are several variations of the model, each using different notation for each step. Requirements, design, implementation, inspection, installation and maintenance.

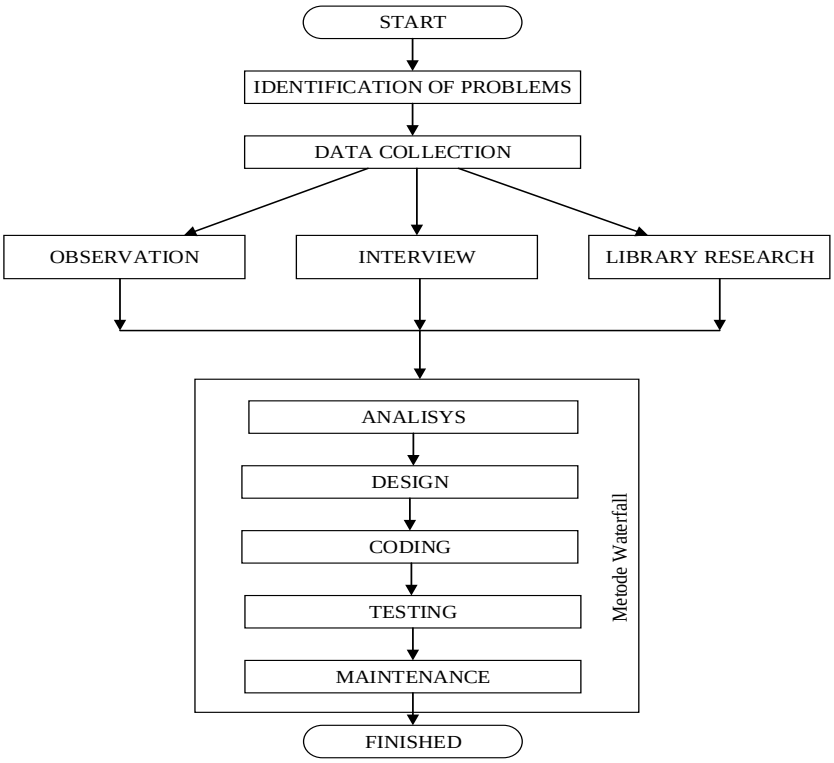

Figure 1 Research Methodology

2.1 Identification Of Problem

The identification of the problem in this research is the design of promotion applications at the Medan City Ministry of Religion office which still uses manual methods. Some of the problems that may occur are loss of files because there are no copies or backups which cause difficulties in searching and processing files, the risk of delays in promotion or late access to information because you have to search manually, as well as the potential for errors in recording files or placing files that can occur. interfere with data accuracy [33]-[35].

2.2 Data Collection

The framework starts from data collection carried out in field research and also library research.

a. Observation

This data collection method is carried out by directly observing activities and situations in the field that are occurring in the agency with the aim of becoming an object of research. Direct observations were carried out at the Ministry of Religion of Medan City in the civil service section when carrying out practical work from September to October 2023. From these observations, the results showed that employees submitted or collected employee data files still using manual methods.

b. Interview

This method is carried out by asking respondents structured questions about the problem being discussed and listening to their responses to get more in-depth information.

c. Library Research

The library research method involves collecting data from written sources such as books, journals, articles and other related documents. By searching and analyzing literature related to the research topic. So that the information found is useful for understanding the context, theories and previous views related to the research.

2.3 System Development

The waterfall method or what is known as the waterfall method is used to develop this system. Waterfall is a traditional software development process that is often used to build software projects. This is a sequential model, so executing one set of actions will trigger the next action. It is called a waterfall because the process takes place systematically from one stage to the next. Create a software framework. There are several variations of the model, each using different notation for each step. Requirements, design, implementation, inspection, installation and maintenance.

a. Needs Analysis (Analysis)

Analysis is the study of an existing framework with the goal of designing a new or updated framework. The steps in the analysis process are problem identification or problem identification (knowledge), which is the initial step carried out at the framework research stage. Systems analysis can be identified as part of a complete data framework with the goal of isolating and evaluating problems, open doors, obstacles encountered, and anticipated needs to propose improvements.

b. Creating a Waterfall Design (Design)

Design is a configuration that is a movement to provide the client with a complete picture of a new frame of reference. The design output report includes a narrative, namely a presentation containing pictures or pictures and audio or sound that explains each flow in the resulting frame. The design output report also contains a configuration layout format. The layout format is the plan that appears on the screen.

c. System Coding (Coding)

Coding, also known as programming, refers to the process of creating computer instructions that can be executed by a machine or computer device. It involves writing, understanding, and organizing code (often in a specific programming language) to create applications, software, websites, and many other types of software. This code is written in a human-readable format, but must also follow the syntax and rules specified by the programming language used.

d. System Testing (Testing)

At this stage each part of the system is tested separately. The purpose of testing this equipment is to find out whether all parts of the system are functioning properly and according to specifications. This step is also carried out to test the system by end users or end user representatives to ensure that the system meets user needs and is accepted by users. The testing phase is very important because it helps to determine whether the system is working properly according to the given specifications and user requirements. The system testing process uses black box testing to test system input against the expected output.

e. System Maintenance (Maintenance)

This step is taken to avoid problems that might occur in the system being developed. Maintenance is very important to ensure that the system implemented continues to run well and can be used effectively and efficiently from time to time. Maintenance also helps solve emerging problems, update systems according to environmental changes and improve service quality.

3. RESULTS AND DISCUSSION

In this section, we will describe the results of research that has been carried out in accordance with the stages that have been carried out. In developing a promotion application system, a system design is needed to be able to present the system so that it can run and be well organized.

3.1 System Design

This design was created using UML (Unified Modeling Language). UML is a standard language for specification, visualization, construction, and documentation of software components, and is used for business modeling. UML is used to draw the structure, behavior and interactions of systems that will be used by users.

a. Use Case Diagram

Use case diagrams describe the behavior of an information system. Use cases describe interactions between one or more actors and the information system being created. Roughly speaking, use cases are used to find out what functions exist in an information system and who has the right to use these functions.

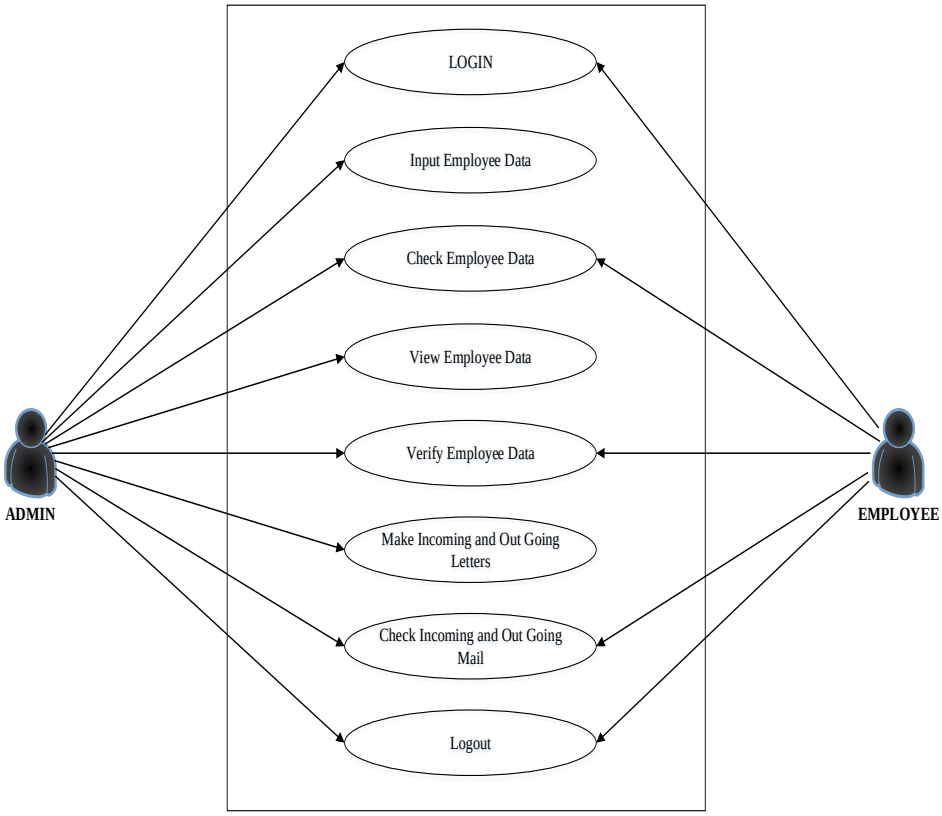

Figure 2 Use Case Diagram

Employees must log in first, then collect the files, after which they are sent to human resources. Staffing first checks the completeness of the data, then inputs the data, after which it is sent to the head of the office. Meanwhile, the head of the office is tasked with verifying and validating employee data, which is then sent to the civil service and the civil service informs the employee that the report has been approved, and the civil service receives the information.

b. Class Diagrams

Classes with UML notation are marked with boxes. The class name is capitalized at the beginning of the sentence and placed in the cell. When a class has a name consisting of combined bytes without spaces while the initial letter of each syllable is capitalized.

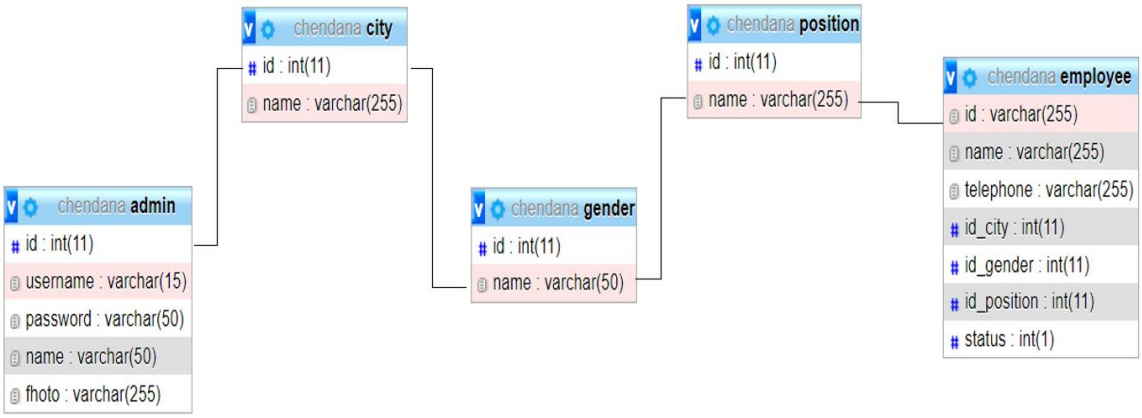

Figure 3 Class diagram

The class diagram consists of 5 classes, namely Admin, City, Gender, Position, Employee.

3.2 User Interface Design

The following are the results of system implementation where the website has been built and is functioning well.

a. Login Screen

In this login display there is a username and password which must be filled in by employees according to their respective accounts.

Figure 4 Login Screen

b. Home Display

In this home display, you can see what data has been filled in by the employee and you can see the statistics directly

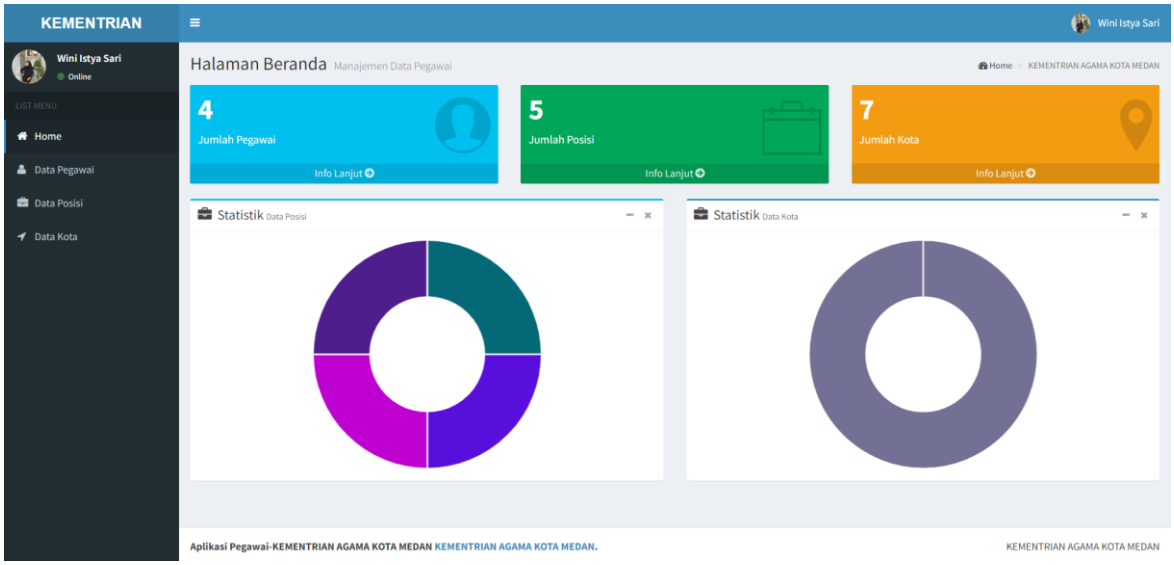

Figure 5 Home Display

c. Employee Data Display

In this employee data display, complete employee personal data can be seen. If you want to add employees, you can also add or import data

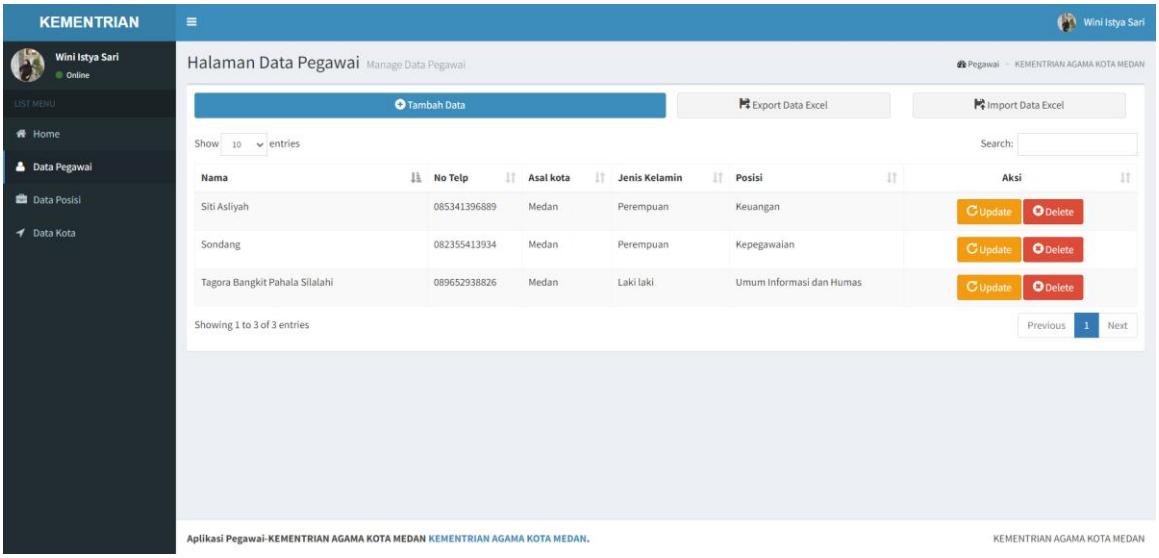

Figure 6 Employee Data Display

d. Position Data Display

In this position data display you can see information about employee classes. If you want to add groups, you can also add data or import data

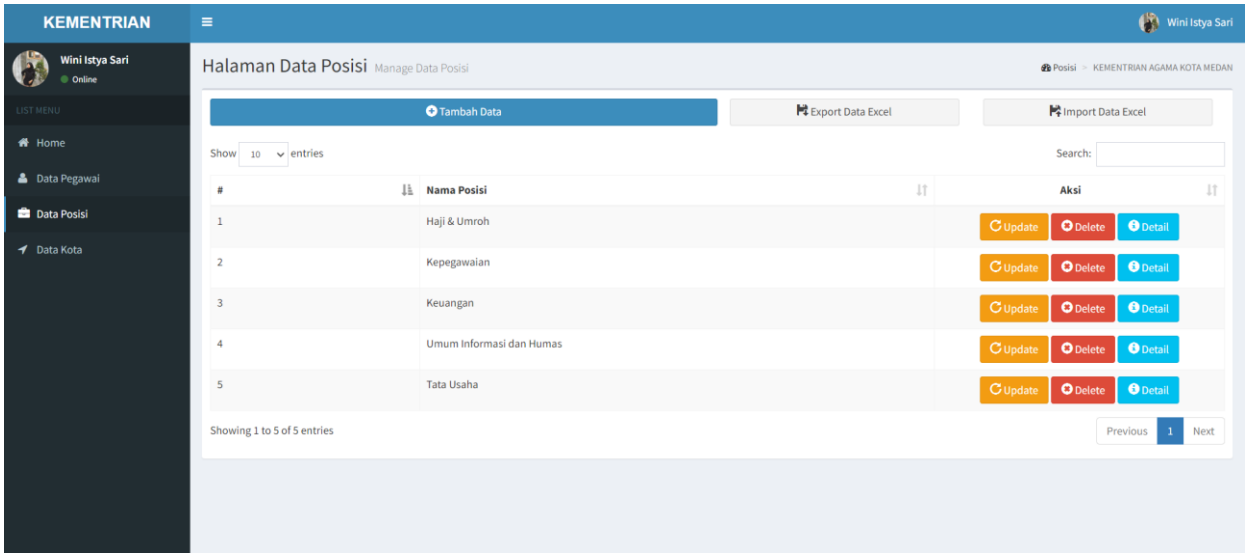

Figure 7 Position Data Display

e. City Data Display

In the city data display you can see information about the origins of employees. If you want to add an employee's origin, you can also add data or import data

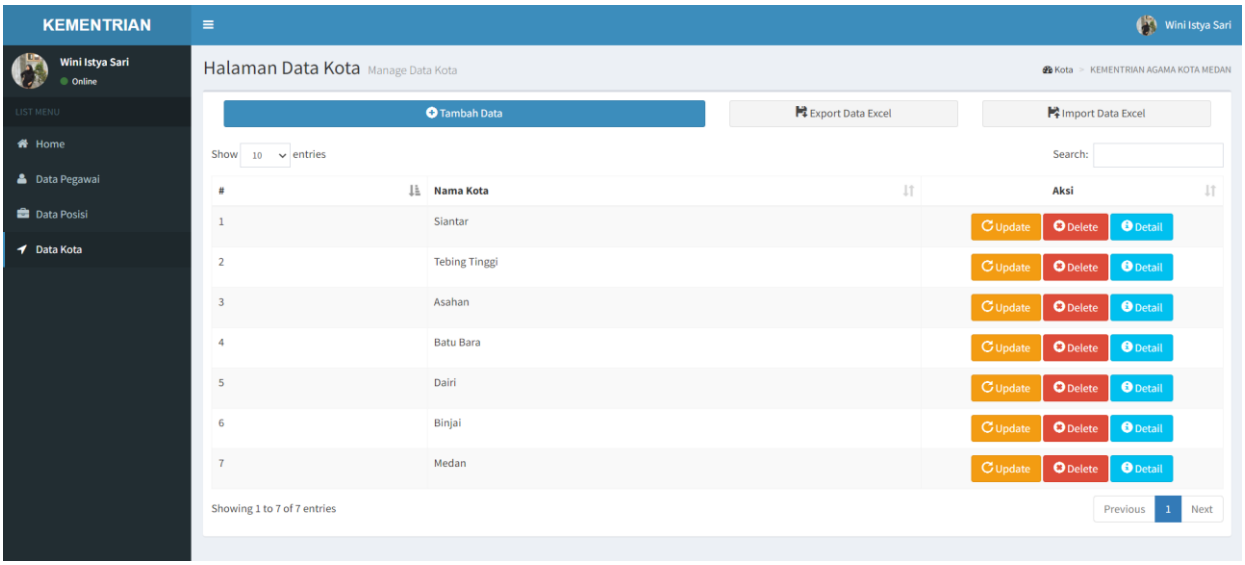

Figure 8 City Data Display

3.3 Testing

Testing the system to try to increase the rank of an employee to ensure all icons or buttons function perfectly, such as ensuring functionality, ensuring security, and ensuring ease for users. System testing is carried out using the black box method.

Table 1. Table Testing

NO	Tested Parts	Testing Steps	Test Result
1	Login	Enter your username and password correctly then click the login button	succeed

NO	Tested Parts	Testing Steps	Test Result
2	Home	Check the display, check the function of each window, and the response of the home page	succeed
3	Employee Data	Check that the functions of each display can be carried out and can be input	succeed
4	Position Data	Check that the functions of each display can be carried out and can be input	succeed
5	City Data	Check that the functions of each display can be carried out and can be input	succeed

System evaluation shows that the system has met needs and achieved the expected criteria after going through the testing phase.

The system design using UML including use case and class diagrams greatly facilitated clear and structured modeling of the promotion process as demonstrated by Junaidi et al. and Siagian et al. [3], [4]. The web based interface for login, dashboard, and management of employee, position, and city data adopted a consistent layout and intuitive navigation in line with Husin et al. and Sukatmi [6], [10]. This design allows efficient data import export and real time statistics monitoring. Testing using a black box approach confirmed that all functions from authentication to data management operate exactly as specified, mirroring functional verification practices in Tapin and Taspen systems, and demonstrating that the application meets essential security and reliability requirements in a government context [2], [16].

4. CONCLUSION

The web based promotion application developed for the Medan City Ministry of Religion Office successfully streamlines workflow, accelerates file processing, and increases transparency of personnel information. The UML based design provided a comprehensive blueprint, the intuitive interface enhanced user efficiency, and thorough testing guaranteed system stability and security. Together, these elements establish a robust foundation for ongoing development and maintenance.

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