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Application of Web Engineering Methods in Designing a Building Rental Information System

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ABSTRACT

The building is a place to hold an event with a large number of visitors. The use of the building in holding an event makes it easier for event organizers in the process of implementing the event. The current building rental system at the Kemuning building hall takes a long time in the process of renting the building. The search for information and the process of listing the status of building leasing still uses a manual system, which is recorded in a rental book. This can make the building rental system unstructured and poorly controlled. An information system can make it easier for tenants in the rental process for the yellow building. The building rental information system application uses the web engineering method which aims to build an integrated information system that can engineer the web with several technical requirements and identify information. The resulting information system is a building rental website that can minimize errors made by officers in registering tenants, data building rental recapitulation, avoiding data manipulation and being a distinct advantage for managers who prioritize technological advances by using the system through website-based database applications. The features on this website include a list of packages offered, the ease of making building rental reservations and making the payment process easier. This building rental information system can provide convenience for consumers and officers in the process of renting a building and managing data on the rental of the Kemuning building.

1. Introduction

Competent property asset management is an absolute necessity today in Indonesia, this is due to the rapid development and growth of office buildings. The building can be used as an alternative place for an event because it has various facilities according to your needs[1]. Business opportunities for building leasing are growing rapidly[2]. A building rental information system is an information system that makes it easy for building managers to manage the process of renting space and buildings. The Aula Kemuning building is a meeting hall that can be rented out for the wider community. The process of renting a building is currently carried out by the Kemuning Foundation through a manual process, where customers who wish to rent a building are required to come to the management office. The rental form is inputted by the building manager in the building rental log book. Security, time and efficiency are too far behind in the manual data collection process [3]. So far, the Foundation has conveyed information on leasing available rooms in the Kemuning Hall Building and accepting manual room rentals, namely customers who intend to rent building space must come directly to the management office.

The rental data collection process using a ledger is currently considered less efficient because when searching for empty days for building orders, there are problems in finding data on rooms that have been rented. Tenants also need time to find out whether the building has been rented or not [4]. Data security is one of the problems that become an obstacle with the rental system currently implemented at the Kemuning Foundation because the data input process by recording on books has not been able to maintain the confidentiality of unauthorized parties[5].

The convenience of a rental system is expected for consumers [6]. Based on these problems, the Dharmais Foundation needs a computerized and integrated database system so that all the data obtained can integrate so that users can see the latest information through a website that can help overcome the rental process in the Kemuning Hall Building. The website will help the Foundation develop the business activities

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of the network manager in monitoring the building rental process, as well as making it easier for consumers to rent buildings without having to come to the location.

2. Research Methodology

2.1 Method of Collecting Data

In this research, the author's data collection is as follows:

a) Observation

the author made observations and about the process of renting a building in the Kemuning Building Hall.

b) Library Research

The The authors collect data by literature study, namely studying literature in the form of journals, books, e-books, and other literature related to research themes that can support the author's research.

c) Interview

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2.2 Research Methodology

Web Engineering is a sub-discipline of engineering software that helps provide methodologies for designing, developing, maintaining and involves a web application[7]. The purpose of web engineering is the existence of complexity management to achieve the success and diversity of web application development. The stages in web development using web engineering methods can be explained in the following table:

TABLE 1

THE STAGES IN WEB DEVELOPMENT USING WEB ENGINEERING

Fase	Aktivitas
Akuisisi	Memperoleh informasi yang diinginkan pelanggan Mendeskripsikan solusi atas masalah yang terjadi
Orientasi	Mengidentifikasi target, produk, ruang lingkup yang dibahas dan asumsi-asumsi yang digunakan untuk implementasi sistem usulan
Identifikasi	Mengidentifikasi kebutuhan sistem usulan
Perancangan	Arsitektur aplikasi web
Realisasi	Realisasi Pengujian fungsional
Implementasi	Pengiriman produk ke pengguna Instalasi produk

The following is an explanation of the stages in the web engineering method:

a) Acquisition Phase

This stage focuses on extracting related information needs from users(customers and management), as well as the problem experienced so far.

b) Orientation Phase

This stage focuses on the target application to be made, the scope of the proposed system and the assumptions used to analyze user information needs.

c) Identification Phase

This stage consists of identifying the requirements of the proposed system and identifying the users, as well information needs of each user.

d) Desain Phase

At this stage the activity carried out is determining how the functional needs are and the need for a database on the proposed system can be realized. Functional requirements and needs The database is modeled using the Unified Modeling Language.

e) Realization Phase

This stage is to design a Graphical User Interface (GUI) integrated into a Content Management System based website application. Features are contained in the Content Management System tailored to user needs.

f) Implementation Phase

At this stage, it contains the output of a Content Management System-based website application distributed to users (customers and management). The user is asked to do testing of the building rental

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website application made before installation. At this stage too given training on how to use and manage the building rental application.

Web engineering methods perform techniques that can make it easier for users to apply the website [8]. Web engineering takes the concept of software engineering in a basic concept that emphasizes technical and management activities[9]. Web engineering focuses on the application of the methodology, engineering, and tools in design and web based software development [9]. The following is a web engineering activity according to the pressman:

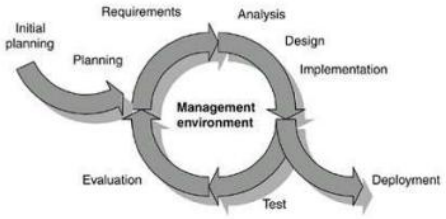

Fig 1 Web Engineering Activity

3. Result and Analysis

In this study, the uses the use of supporters such as Entity Relationship Diagram, Logical Record Stucture, Unified Modelling Language. The following is an ERD diagram made to support this research:

3.1 Use Case Diagram

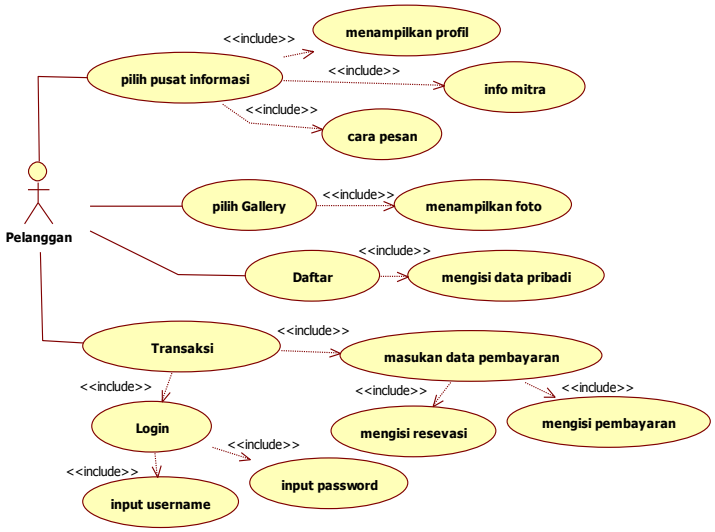

Fig 2 Use Case Diagram Building Rental For Customer

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3.2 Activity Diagram

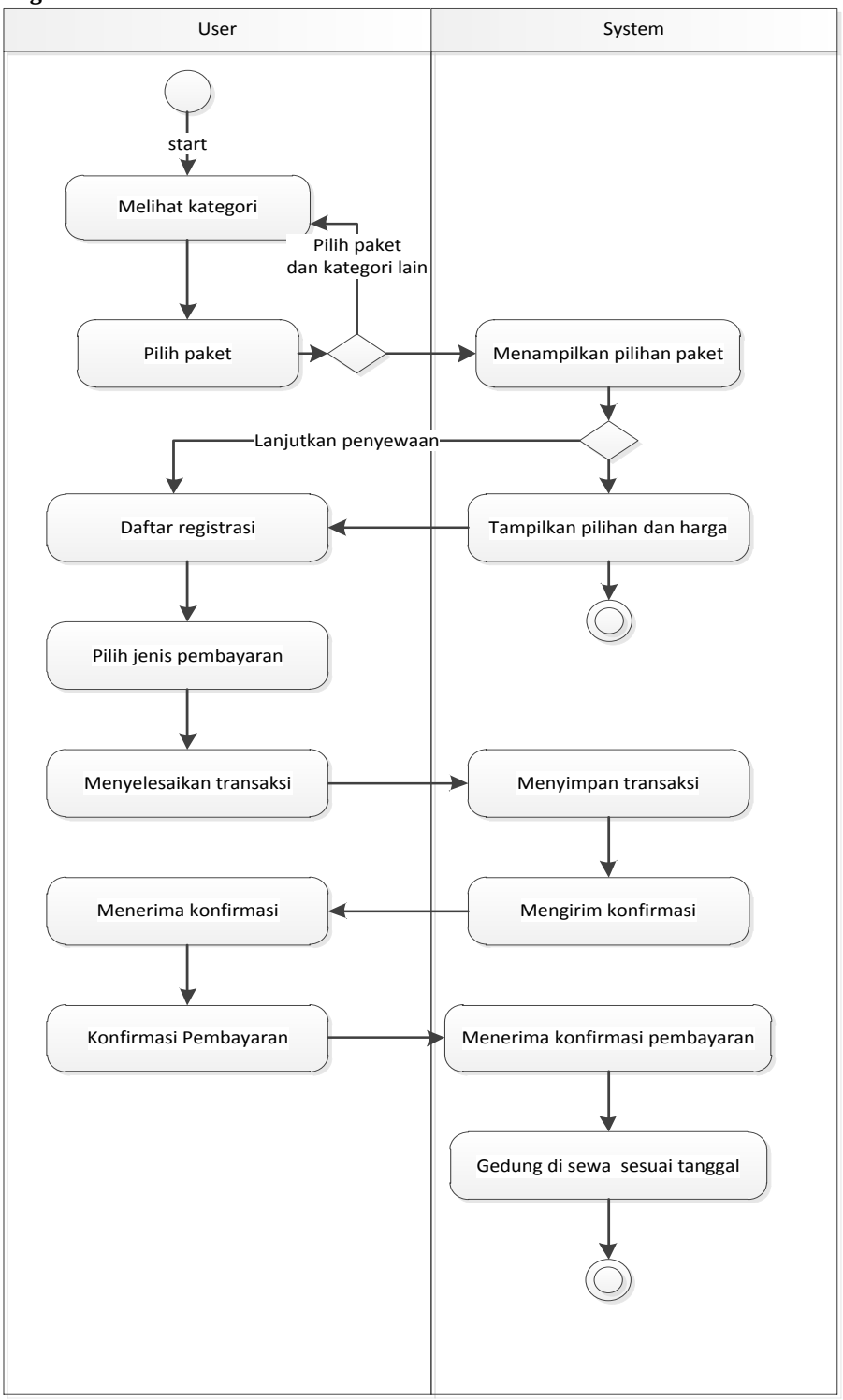

Fig 3 Activity Diagram For Customer In Building Rental Information System

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3.3 Database Desain

At this stage the author will explain the database design and interface design of the building rental information system.

a) Entity Relationship Diagram

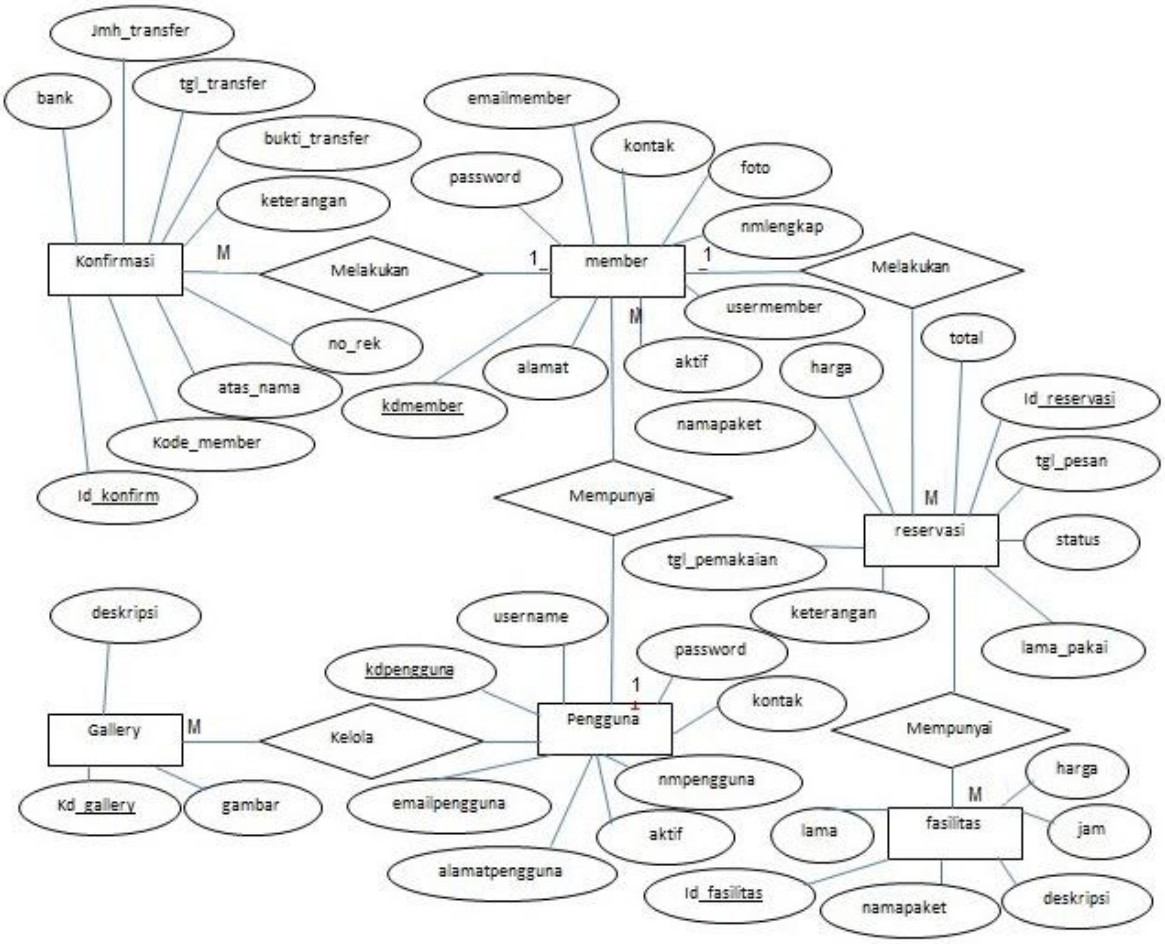

Fig 4 Entity Relationship Diagram For Building Rental System Information

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b) Logical Record Structure

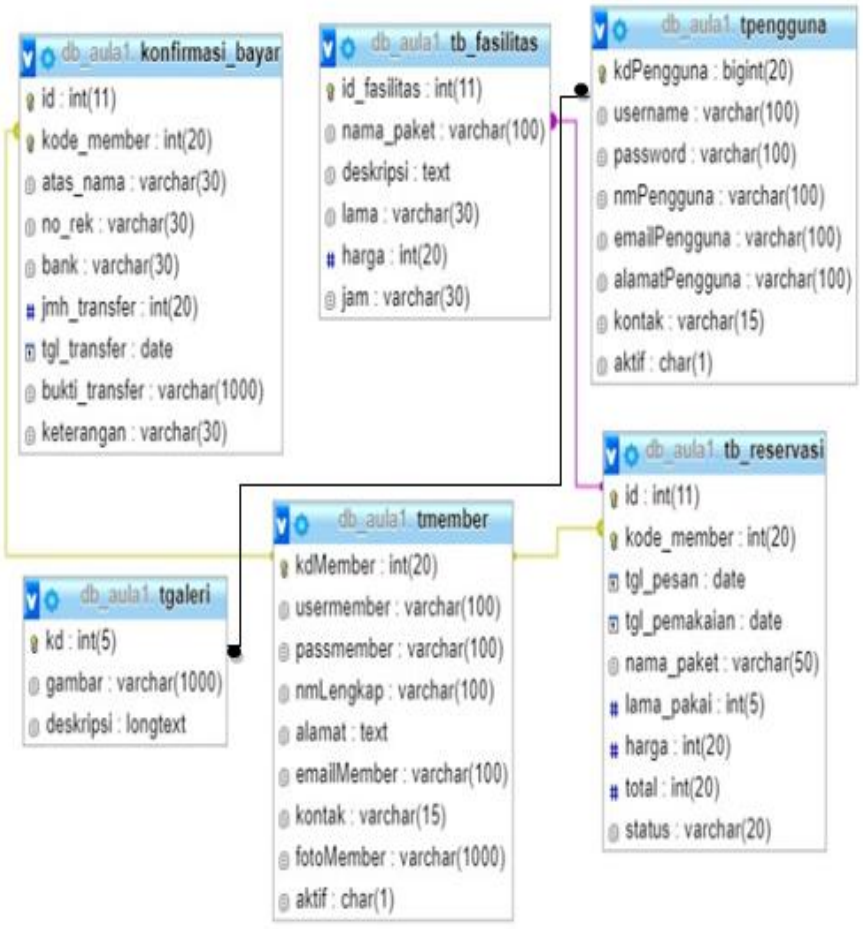

Fig 5 Logical Record Structure For Building Rental System Information

3.4 User Interfase Implementation

a) Home Page Building Rental Information System

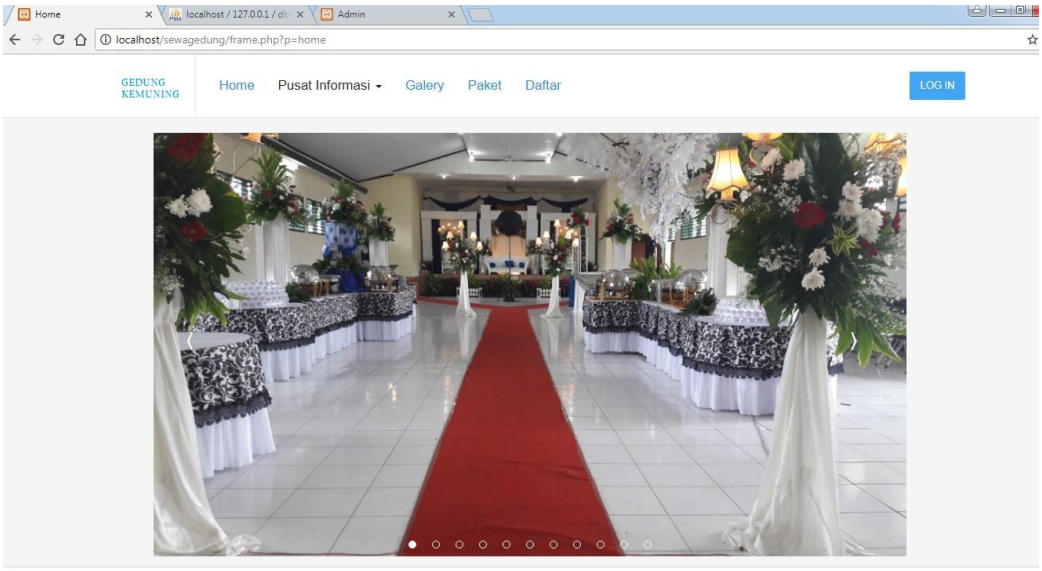

Fig 6 User Interface Home Page Customer

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b) Home Page Reservation Form

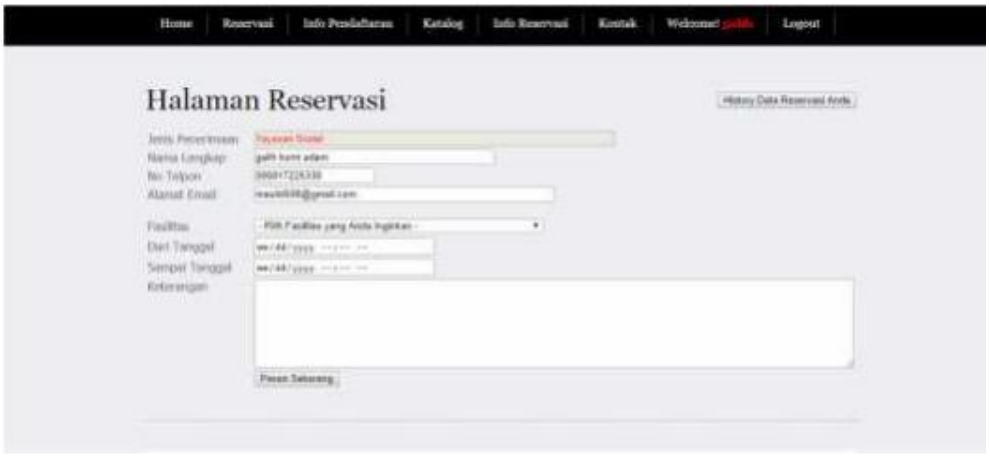

Fig 7 User Interface Reservation Form

3.5 Blackbox Testing

TABLE 2
BLACKBOX TESTING RESERVATION FORM

No	Testing Scenario	Test Case	Expected Result	Test Result	Status
1	Name, phone number, email address, facilities, of date, until date, information then click submit a query	Name: (empty) Phone no: (empty) Email address: (empty) Facility: (empty) From date: (empty) Until date: (empty) Description: (blank)	The system will notify that it must, fill in the existing input	According to expectation	Valid
2	Name, phone number, email address, facilities, of date, until date, information then click submit a query	Name: (filled) Phone no: (blank) Email address: (empty) Facility: (empty) From date: (empty) Till date: (empty) Description: (blank)	The system will notify that it must, fill in the existing input	According to expectation	Valid
3	Name, phone number, email address, facilities, from date to date, description then click submit a query	Name: (filled) Phone No: (Filled) Email Address: (Filled) Facility: (Filled) From Date: (Filled) Until: (filled) Information: (filled)	The system will store new data	According to expectation	Valid

4. Conclusion

a) The building rental information system is designed to make it easier for prospective tenants to rent a building because it is a website that can be accessed at any time without having to come to the building rental location.
b) This information system helps make it easier for officers to monitor building rental data so that there are no errors in recapitulating building rental data.
c) Reports generated through this information system can be used as a support for decisions to determine strategies for the advancement of building rental prospects.

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