

Vista Angkasa Apartment Management System

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ARTICLE INFO

Article history

Received: September 2019

Revised: October 2019

Accepted: November 2019

Keywords

Vista Angkasa Apartment,
Management, System

ABSTRACT

Vista Angkasa Apartment is one of the oldest apartments in the Bangsar South area, with a total of 8 blocks and consisting of more than 1000 units of houses. Currently, all the transaction related to the maintenance of each apartment is recorded manually. It is very difficult to manage all the data manually and if some information is required urgently then to obtain it also is very difficult. It will not only take a lot of time, but it also increases the chances of errors. Therefore, to solve the issues faced, an apartment management system that allows management staff to view the apartment's data and tenant's data as well as maintenance requests, notices and complaints has been developed. It also increases the efficiency and the effectiveness of Vista Angkasa Apartment Management by eliminating the current manual system. Compilation of data can be done easily with just a click of mouse. The methodology that has been applied to develop the system will be Agile with the PHP programming language. The developed system has successfully tested with the real time data at the Vista Angkasa Apartment. Based on the obtained results, the Vista Angkasa Apartment Management System solved the current issues with the management office and tenants.

1. Introduction

Nowadays, the apartments are increasing day by day. People coming from abroad to settle down in the city, they will not know the information about the apartments. As the name suggests, the apartment management system allows a person to search for the apartment region.

Vista Angkasa Apartment Management System is a computer-based system which is used to monitor the various activities of a regular residential metropolitan society. The concept of apartment management system has arisen from the fact that various large societies need monitoring and maintenance for their various day to day activities.

In a normal residential society, the day to day chores include maintenance of the society, plumbing, complaint management, security facilities and inventory management. These activities individually are very tedious and long processes. They require the coordination between the respective management societies coupled with the vendors which provide these services so that the appropriate convenience can be provided. Apartment management is the operation, control and oversight of real estate as used in its broadest terms.

2. Project Objectives

The core objectives which have been designated as fundamental to the project are:

- i. To design functional and nonfunctional requirements for Vista Angkasa Apartment Management System.

- ii. To develop an apartment management system that allows management office staff to view the apartments and tenants details as well as maintenance requests, notices and complaints.
- iii. To test the developed system at the organization.

3. Problem Background

Vista Angkasa Apartment is one of the oldest apartments in the Bangsar South area. It is located immediately behind the University LRT station and opposite KL Gateway shopping mall. As it is close to University Malaya, public can expect too much during weekdays. But, we will find all necessary important elements nearby such as hospitals, malls, public transports and other educational institutions. We can make a quick access to any part of the city through major KTM stations like Bank Negara, Kuala Lumpur, KL Sentral and Mid Valley.

Currently, all the transactions related to the maintenance of each apartment is recorded manually. It is very difficult to manage all the data manually and if some information is required urgently then to obtain it also is very difficult. It will not only take a lot of time, but it also increases the chances of errors.

The operating hours of the management office will be from 8am-4pm on weekdays and 8am-12pm on Saturday. Besides that, the management office is closed on Sunday and Public Holidays. As we all know, most residents residing at this apartment are working professionals and it is very hard for them to visit the management office during weekdays for any kind of request and make complaints because of the them are working at this office hour time.

On the other hand, the management office will be crowded on Saturday due overwhelming maintenance request and complaints from residents. This can cause loss of data as all the information gathering is being gathered and recorded manually. This also causes troubles and loss of time to the residents as they need to walk into the management office.

4. Project Scope

A. Scope of User

The users for the system will be System Admin, Admin Apartment, Maintenance and Tenants.

B. Scope of System

The project scope defines the description of the work that is required in delivering the apartment management system. The following are the scopes of the project.

- i. To assist the management staff in accelerating their efforts to provide tenants with up-to-date information, settle complaints and maintenance with efficiency and zero error.

- ii. To ensure the system meets the needs and requirements of the management office and tenants.
- iii. To ensure the system is created with user-friendly interface to ease the navigation of the system.

C.COMPARISON BETWEEN EXISTING SYSTEMS

Table V.I shows the comparison of the current manual system. Three Apartment Management systems that has been reviewed: Sako Apartment Management system (Web 1), WPAMS - Apartment Management System (Web 2) and Apartment and Society Management (Web 3).

Table V.1 : Comparison between Existing Systems

Criteria/ Module	Web 1	Web 2	Web 3
Web based system	√	√	√
Apps available for Android and IOS	√	√	-
User- Friendly	√	√	√
Notification of action and feedback via email	√	√	√
Information stored in database	√	√	√
Complaint Management	√	√	√
Maintenance Request	√	√	√
Generates Report	√	√	√

5. Methodology

A methodology is a system of methods and principles for doing something, for example for teaching or carrying out research. The purpose of methodology is to allow for controlling the entire management process through effective decision making and problem solving, while ensuring the success of specific processes, approaches, techniques, methods and technologies.

The methodology that has been chosen to develop the system will be Agile Model. Agile software development refers to a group software development methodology based on iterative development, where requirements and solutions evolve through collaboration between self-organizing cross-functional teams.

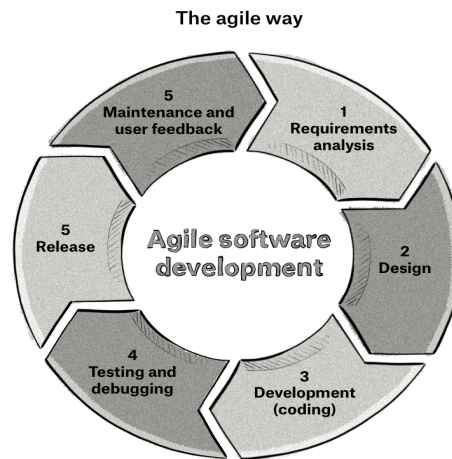


Figure VI.1 Agile Model

Figure VI.1 shows the Agile Model which includes the phases involves in the methodology. The agile method anticipates change and allows for much more flexible than traditional methods. The small objective changes without huge amendments to the budget or schedule. The process involves breaking down each project into prioritized requirements and delivering each individually within an iterative cycle.

Iteration is the routine of developing small sections of project at a time. Each iteration is reviewed and assessed by the development team and client. The insights gained from the assessment are used to determine the next step in development. Detailed goals are set in each iteration meeting such as; expected changes, time estimates, priorities and budgets.

The agile method is based on giving high priority to user participation, from the very beginning of the development cycle. The objective is to keep the user involved at every step so that they have a product that they are happy with at the end. Traditional models of project management would not find defects as early because they do not test as often. Typically (in traditional methods of production) defects that are not discovered at the different stages can find their way into the final product. This can result in increased overhead prices and client dissatisfaction.

6. System Design

System design is the process of defining the elements of a system such as the architecture, modules and components, the different interfaces of those components and the data that goes through that system. It is meant to satisfy specific needs and requirements of a business or organization through the engineering of a coherent and well-running system

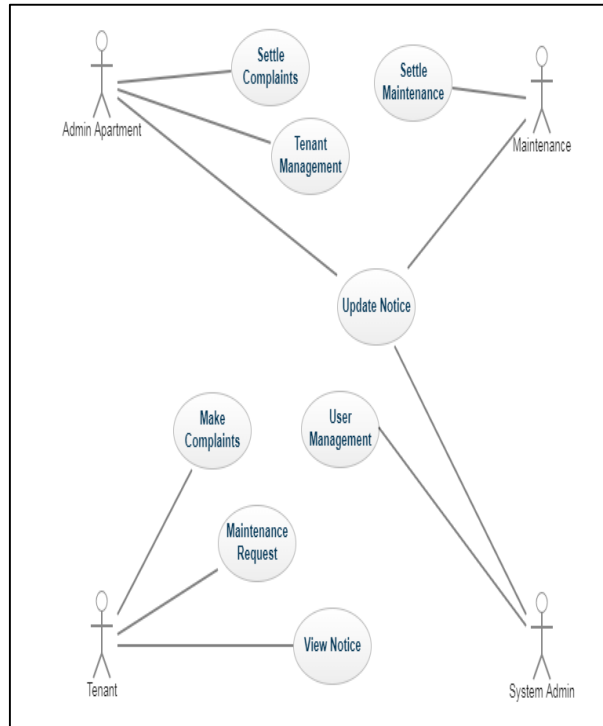


Figure VII.1 Use Case Diagram

Figure VII.2

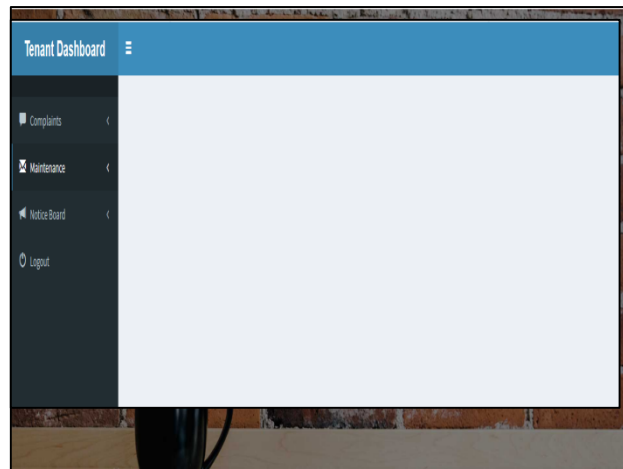


Figure VII.3 Tenant Dashboard

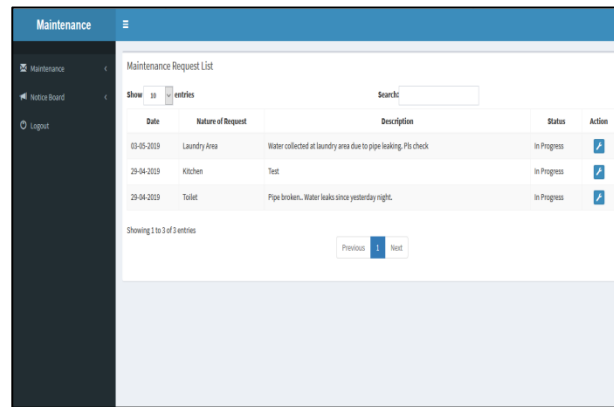


Figure VII.4 Maintenance Request Page

7. Implementation And System Testing

A. Implementation Of System

Implementation is the process of putting an action for the formulated plan. Before we implement, the plan should have been completed and our objectives should be clear.

B. Testing of System

Software testing is defined as an activity to check whether the actual results match the expected results and to ensure that the software system is Defect free. It involves execution of a software component or system component to evaluate one or more properties of interest. Software testing also helps to identify errors, gaps or missing requirements in contrary to the actual requirements. It can be either done manually or using automated tools. Some prefer saying Software testing as a White Box and Black Box Testing. In simple terms, Software Testing means Verification of Application Under Test (AUT).

C. Black Box Testing

Black box testing is a type of testing which is done without knowing about the internal structure of the code. This method is named so because the software program, in the eyes of the tester, is like a black box; inside which one cannot see.

Test Objective:	To check whether the entered Username, Password and Level are valid or invalid.
Test Data:	USER NAME: priya5918 Password: priya5918 and Roles: Tenant

Step	Expected Result	Actual Result	Result
Enter User Name without enter password and choose level but press the LOGIN button.	Should Display Warning Message: "Enter Password" for password field and "You must choose an item from the list." near level field.	Displayed Warning Message: "Enter Password" for password field and "You must choose an item from the list." near roles field.	□
Enter Password Name without enter User Name and choose level but press LOGIN button	Should Display Warning Message: "Enter User Name" for User Name field and "You must choose an item from the list." near level field.	Displayed Warning Message: "Enter User Name" for user name field and "You must choose an item from the list." near level field.	□
Enter User Name, Password and choose level and press the LOGIN button	Should Display Warning: "Failed Login" near level field.	Displayed Warning Message: "Failed Login" near level field.	□
Enter User Name, Password and choose level and press the LOGIN button	Should navigate to Tenant Dashboard	Navigated to Tenant Dashboard	□

Table VIII.1

D. *White Box Testing*

White box testing is a software testing method in which internal structure is being known to tester who is going to test the software.

Coding	Expected Result	Result

<pre><?php \$error=''; include "connection.php"; if(isset(\$_POST['submit'])) { \$username =\$_POST['username'] \$password = \$_POST['password']; \$query = mysqli_query(\$conn, "SELECT * FROM user WHERE username='\$username' AND password='\$password'"); if(mysqli_num_rows(\$query) == 0) { \$error = "Username or Password is invalid"; } Else { \$row = mysqli_fetch_assoc(\$query); \$_SESSION['username']=\$row['username']; \$_SESSION['level'] = \$row['level']; if(\$row['level'] == "AdminApartment") { header("Location: pgaadmin.php"); } else if(\$row['level'] == "Maintenance") { header("Location:pgmaintenance.php"); } else if(\$row['level'] == "SystemAdmin") { header("Location: pgsadmin.php"); } else if(\$row['level'] == "Tenant") { header("Location: pgtenant.php");</pre>	<p>User authenticati on in Login Module</p>	<p>□</p>
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<pre>} else { \$error = "Username or Password is Wrong! "; } } } ? ></pre>		
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8. Discussion Of Testing Results

Managing the flow of apartment involves more than one party and works maybe very complicated if the communication between the parties is not good. Miscommunication of the file versions always happen when the files are not properly documented. The record keeping would be very difficult if things are done manually by using the paper to register and update the record traditionally to the person-in charge. Not to mention that the report generation would need higher time than by using a system. Therefore, in order to help in reducing the problems, web base application name Vista Angkasa Apartment Management System has been created which is accessible by the authorized user anytime and anywhere. The system is easy to use as it has a user-friendly interface, easy to manage the record as insert, update, view and delete is just a click of a button away.

9. Conclusion

Overall, the project is considered a success, where all the functional and non-functional requirements have been successfully implemented. The success of the project can also be judged on the basis of meeting the objectives of the project. It is grateful that the deliverable in this project have been produced and delivered on time. This essentially important because failing to meet the deadlines could deter the success of a project, which happens almost to every project in the world today.

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