

Real Estate Tax Billing System: Database for OpenLGU

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Abstract—The Real Estate Tax Billing System: Database for OpenLGU is an open source information system that automates processing of payment of real property tax (RPT). It handles processes such as generation of tax declaration and statement of account, and taxpayer profiles. It aims to provide accessible environment for LGU workers and taxpayers to manage records and accounts. The system was developed using the Yii 2.0 framework, Apache web server, and PostgreSQL.

I. INTRODUCTION

A. Background of the Study

A real estate is a property that consists of the land and its natural resources such as minerals, crops, or water, as well as anything fixed or permanently attached to it such as roads, fences, trees or buildings.

The three categories of a real estate are: residential, commercial and industrial. Residential real estate is a property that is purchased for individual use, some of which are houses or condominiums. Commercial real estate is a property that is used as an investment to obtain a business objective, like office buildings, warehouses, or retail store buildings. Industrial real estate is a property used for manufacturing purposes including mines, farms or factories. [1]

Real Property Tax (RPT) is a tax that owners of the property should pay annually so that the local government unit (LGU) will not put up the property for sale. The payment of RPT is done by securing latest tax declaration from the municipal/city assessor, then presenting it to the municipal/city treasurer's staff for verification of previous year's payment. After verification, the officer-in-charge will give the statement of account/real property tax bill. The taxpayer shall pay the corresponding fees stated in the statement of account. A copy of property tax receipt will be given as proof of payment. [2]

This web application can be viewed by the administrators on any platform or console as long as internet connection is existent. However, this system only allows administrators, the assessors and treasurers since it contains the credentials of the taxpayers.

B. Statement of the Problem

Some LGUs in the country are still processing tax declaration and computing the tax due manually. The efficiency of the staff is challenged since they are doing manual calculation at the same time handling long queue of tax

payers. Also, delays and errors due to the inefficiency and unreliability of the manual system cause the taxpayers great inconvenience. Most of the existing automated systems are not uniform and not easily accessible through the Internet.

C. Significance of the Study

With the current development in technology, web-based automation of systems and procedures are a great advantage. Records and financial management will be easier, faster and simple. The taxpayers can pay their dues without much difficulty and having long queue of people when paying tax will be avoided.

D. Objectives

In general, this study aims to develop a web-based tax billing system that will automate the processing of payment of RPT. Specifically this study aims to:

- Develop a web-based automated system that will administer the procurement of documents needed for payment of tax;
- Provide significant information regarding the status of a real estate property;
- Calculate correct tax with penalty and/or discount;
- Allow information updates on taxpayer's account;
- Develop an interface for the website that the user can easily understand and use.

II. REVIEW OF RELATED LITERATURE

An efficient tax billing system provides quick, easy, and simple way of paying tax. In creating this real estate tax billing system for OpenLGU, several studies were considered and analyzed.

Gatbonton developed a web-based system in 2013 which merges the processing of business permits and licenses. The fees of each business are evaluated by the assessor and the treasury department saves the records of the payments done by the taxpayer. The account of the taxpayer will be soon updated according to the transactions he made. [3]

A system about fixed asset management was created by Marte in 2013. Users with proper privilege can create, edit, and delete a record item or an employee account. Only the head treasurer can generate reports and return slips, assign privileges to other users of the system to ensure security. The system is able to access data like fixed asset and employee information

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by connecting to PostgreSQL 9.2 database with Yii 1.1.12 as framework. [4]

By using the Google Map, users can locate the different real estate properties in a specific area. This study by Pages in 2011 has the database of all the properties located different places. Also, nearby landmarks and streets are also seen in the map. [5]

Another study for a system which uses the same framework and database for software development was developed by Pendon in 2012. The system can handle all the information about the employees, creating, deleting, editing, and viewing of profiles, and keeping track of record inventory. [6]

III. METHODOLOGY

A. Development Tools

The software packages that were used in developing the system are as follows:

- Yii (Yes, It Is!) 2.0
- PostgreSQL 9.5
- Apache web server

B. System Requirements Definition

a) Functional Requirement

- Assessment of Fees
- Payment Records
- Issuance and Generation of tax declaration
- Generation of statement of account
- Search for real estate property

b) Non-Functional Requirement

- Design a user-friendly interface with a clean, well-organized layout and easy navigation.
- Write high-quality code that strictly conforms to the programming standards used in the entire development of the OpenLGU project.
- Program code contains detailed documentation.

C. System Design

LGU employees can have access to the system through the Internet.

- Login Page
There are 3 types of users: ASSESSOR, TREASURER, and ADMIN. Unregistered users will not be able to access the system.
- Search Property
The assessor can look for a property and view its data, as well as the profile of its owner.
- Issuance of Tax Declaration
The assessor can issue a tax declaration of property.

- Assessment
The treasury department can issue an assessment of fees for the property.
- Payment Records
The treasury department can save records of payments made by the taxpayer when he presents his property tax receipt copy after payment.
- Add and Edit Profile
The administrator can add profile of a new taxpayer and edit the information of the existing ones.

D. Diagrams

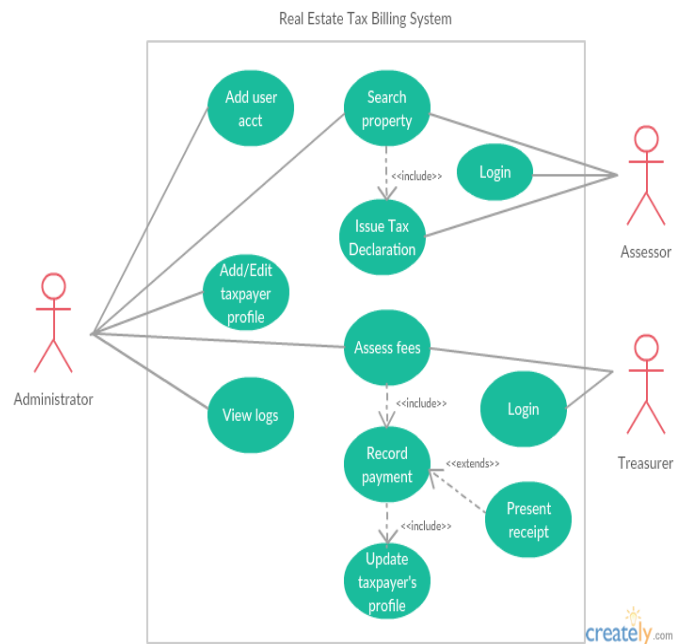


Fig. 1. Use Case Diagram of the system

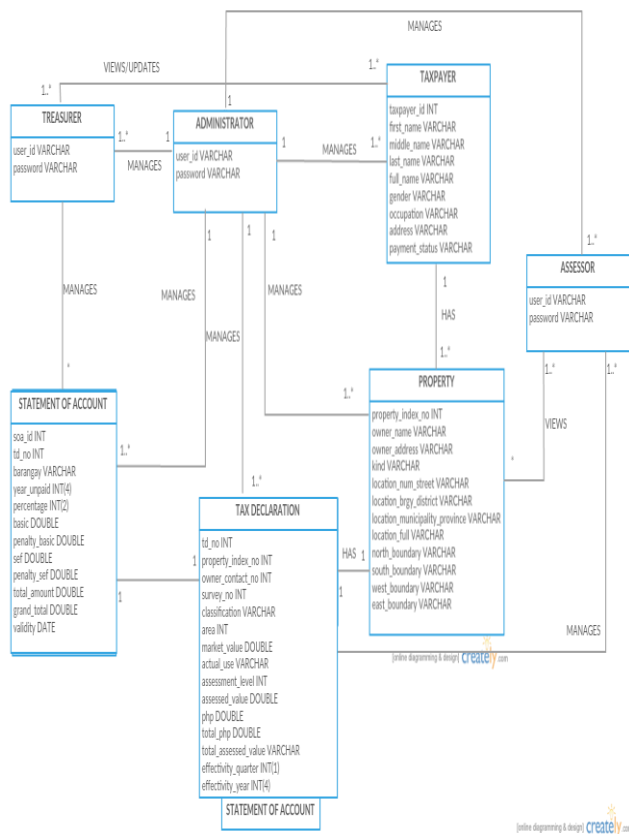


Fig. 2. Class Diagram of the system

IV. RESULTS AND DISCUSSION

The software packages needed to develop the system were successfully installed and collaborated properly. All form validation features were functional. The database was populated with data from the Municipality of Lemery, Batangas. The system also has a simple user-interface that has links to different functionalities of the tax billing system. The users with the right access will be able to create tax declarations and statements of account. Taxpayers can view their profile and properties owned.

Different users logged in in the system will be able to see their account profile and can change their passwords. The role-based access control feature was successful in enforcing the privileges of each user role by limiting access to certain pages and hiding fields to unauthorized users.

V. CONCLUSION

The Real Estate Tax Billing System successfully processed real property tax payment more efficiently than the manual transactions. It was able to perform the CRUD of the taxpayer profiles, tax declarations, properties and statements of account. The clean user interface of theme provided by Yii worked its purpose of being user-friendly and lightweight.

VI. RECOMMENDATION

The system can be improved by providing transaction logs for administrator's viewing to track down each activity done by the employees. It can also be extended to provide reports per department.

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