

Performance Evaluation Land Transportation License System in Banjarmasin City

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Abstract—Banjarmasin Transportation Agency as a service under the Government of Banjarmasin City has a duty in the field of transportation implementation. In reality, the Department of Transportation is always involved in the licensing service of the operator and private transport owners. A clean, fast, and reliable bureaucratic service is the hope of the wider community. To meet the expectations of the community, the Department of Transportation set a mission among which is the realization of information systems. This research proposes the development of information system of land transportation license. Development of information system adopted model MVC (Model-View-Controller) where previously still use native model. While the framework used is the Yii framework. The test is done by comparing the native model with the model that has been developed using the Yii framework. The results showed that the model using the native model better than the Yii framework.

Keywords—evaluation, land transportation, licence, Yii

I. INTRODUCTION

Indonesia as an archipelagic nation has favourable circumstances regarding populace and geological conditions. Viewed from the aspect of the population, the projection of population shows an increase in the population of Indonesia in 2035 to 305.6 million people from the total population of 238.5 million in 2010 or an increase of about 67.1 million people. In 2035 out of 305.6 million people, about 54.7 percent live on the island of Java [1]. Increasing the number of the population causes the number of mass transit increases [2], [3]. Although the development of the transport sector occupies an important priority, transportation sector management is still faced with low service quality [4].

In addition, the quantity of mishaps in the nation is expanding quickly [5]. The number of traffic accidents that resulted in the death of the victim also increased [6]. This causes the land transportation permit system to be tightened. In conjunction with that, the transportation agency is required to organize a transportation licensing management information system that can support the service for the better [7].

Previous research has been carried out the development of land transport licensing system [8]. The study used a native model in system development. The system is built based on existing business processes in the city of Banjarmasin, Indonesia. The research is only doing the

development of the system then do the black box testing only. The study did not test when the system was running.

Development of information systems using the framework has been done. Frequently used frameworks are CakePHP, CodeIgniter, Symfony2, the Yii and PhalconPHP [9], [10]. the Yii and CakePHP are becoming the most popular in their use [11]. The Yii and CakePHP are open sources, making it easier for users to perform the scripting process.

Yii is an elite, segment based PHP structure for quickly creating present day Web applications. The Yii is a non specific Web programming structure, implying that it can be utilized for building up a wide range of Web applications utilizing PHP. In view of its segment based design and advanced reserving support, it is particularly reasonable for growing huge scale applications, for example, entrances, gatherings, content administration frameworks (CMS), web based business ventures, Tranquil Web administrations, et cetera [12]. The Yii is also an easy, efficient, extensible framework and MVC model [13].

Yii is a PHP system intended to enable engineers to fabricate extensive scale, superior web applications. With MVC pattern design features and code generation automatically, the Yii implementation can also help developers complete timely app creation projects. The Yii itself stands for Yes It Is is a short answer to the question of speed, security, professional commonly expressed by the developer when choosing a framework to be used in application development. The Yii is also adopted by the Chinese character Yi which has a simple, flexible, and easy meaning [14].

Previously there has been some research that uses the Yii as a framework in the development of information systems. One of them, research [15] which builds a knowledge management system using the Yii framework. The results of the study say that the system can provide results in accordance with the commands given to users.

Another research [16] that uses the Yii framework is to create an integrated library system. The study says that the Yii framework is a framework that is easy and fast to learn. And the results of these studies show a 100% accuracy rate. It is strengthened by the subsequent research [17] showed satisfactory results with the results of the reliability of 99.1%, amounting to 82.33 usability and the efficiency of the average load time of 2.55 seconds.

B. Design

System flow built can be seen in Figure 1. In this system, there are 4 actors they are a user, admin, operator and head of the field. For the role of user here is the driver of transportation, the role of the admin here is only as the management of incoming data, the role of the operator to input and make changes in the data entry and Head Field here only see the reports, data that has been updated from operator and see the development graph of the annual permit. Requirements [25] that must be fulfilled by the user is as follows.

- Tax ID number
- Deed of Establishment of Company / Cooperative / Individual Individual
- Company domicile certificate
- Business Place License
- Statement of Ability to Own or Own Motor Vehicles
- Statement of Ability to Provide Motor Vehicle Storage Facilities

Users (drivers) can access the website of licensing services to see if the user is registered as a transport route permit or not. If not already registered, the user will go to the Office of Transportation by bringing documentation files to register, where the files will be submitted in the service section to check whether the files are in accordance with applicable provisions. If it is appropriate, then the user can register by filling out the permission form provided by the service. After filling it will be done checking the form whether the data filled by the user is complete or not, if not then the form will be returned to the user.

Upon completion of all requirements, the application for a transport business license is filed to the following.

- Regent or Mayor according to company domicile, both for head office and branch office.
- The Legislative head of the Exceptional Capital Locale of Jakarta for the candidate domiciled in the Extraordinary Capital District of Jakarta.

The operator will input the data from the form filled by the user earlier to the website. Then the form requested operator will be returned to the user and the user will access the website to later find out whether the route permission has been completed or still in the stage of the manufacturing process or has not been made at all.

If the user (driver) wishes to renew and create a new permit then the user will contact the service and carry a route permit to be provided from the service to the administrative division to inspect the route permit. Then will be updated by the operator to the website and the user will make payments to the service, the route permits of the user is eligible to be renewed and updated on the website.

Revocation of route permits is done when the user (driver of transport) has violated the provisions in which certain parties provide information to the Head of Section which will subsequently call the operator to revoke the existing permits on the website and the service will provide information about the revocation of such permission to the user. Head of Field

here can only access the reports on the process of passing the transport route permit on the website.

Route permit can be categorized into 3 types, that is the permission for new an applicant, renewal of permit period, change of permit. The process of changing the permit [25] can be seen as follows.

- The addition of routes or the addition of vehicles or the addition of frequencies.
- Route reduction, or vehicle reduction, or reduced frequency.
- Change of travel hours.
- Route changes (in case of the route change, route extension or route shortening).
- Replacement of missing or damaged permissions documents.
- Transfer of ownership of the company.
- Replacement vehicles include vehicle rejuvenation, vehicle identity changes and exchange of vehicle operating location.

The contents of the route permit contain at least the following [25].

- Decision number
- Company name
- Vehicle number
- Vehicle number sign
- Test number
- Brand factory
- Production year
- The carrying capacity of people
- Route code served
- Service code

C. Implementation

Because the information system developed is a web-based application, then as with other web applications, the system architecture used is a 3-tier architecture. This 3-tier architecture consists of a web server, business processing logic written in server side programming language, and database management system.

The author re-creates previous research using only the native model using the Yii framework and MySQL. After the design process is done, then the next step is to convert it into the program code. Because the Yii framework uses an object-oriented programming approach, then the written code codes apply the same approach.

D. Testing

Testing is done by testing the performance using some helpers [26]. The auxiliary tools used are Pingdom, Gtmetrix and Dareboost. On account of sites and programming

applications, ease of use has been characterized as the straightforwardness at which a normal individual can utilize the product or site to accomplish particular objectives [27].

The mechanized Convenience Testing instruments are utilized for testing the execution of site. Execution depends on a few components i.e. data transfer capacity, reaction time, stack time and page measure. From these devices, the basic parameters Execution, Speed, No. of Solicitations, Load time and Page measure are chosen. Pingdom, GTMetrix, Qualidator, Site Grader, Page Speed Understanding, Website Analyzer, Site page Analyzer instruments assessed the site in light of execution.

Pingdom is essentially an observing administration which keeps the tab on a server, a system and the site too. The site speed testing apparatus by Pingdom works on the web and is accessible for nothing Another substantial report which Pingdom devices bring is reports in regards to the page investigation, which offers data the time it takes the site to stack, the page estimate and different solicitations. The Pingdom instrument examines the stacking rate of a site and proposes how to make them quicker. This device recognizes what is quick in a given page, moderate, too huge and what best practices originator are not following. In the wake of entering URL of a site, the apparatus checks the aggregate number of HTTP demands, add up to stacking time of the page and aggregate size. The device additionally gives a definite structure of the segments that add to the aggregate size of the site [28].

GTMetrix is a free apparatus that evaluate your site's speed. GTMetrix device breaks down the page speed score of a site and recommends how to make them quicker. In the wake of entering the URL of a site, the apparatus checks the no. of solicitations, add up to stacking time of page and aggregate page measure. So this device gives an itemized structure of the segments that add to the aggregate size of the site [29].

Dareboost is a new business made in 2014. It is a group of seven energetic individuals, with the desire to accelerate the web. Dareboost is a Genuine Program Testing administration in light of standard programs (Google Chrome). While propelling a Dareboost test or executing an observing, one of our tests runs a Chrome session to peruse the website page to be tried, as indicated by the propelled settings you have characterized generally our default parameters. As an outcome, the web execution test is overseen inside exceptionally shut conditions to a genuine site clients [30].

III. RESULT

The results of testing using auxiliary aid can be seen in Table I, Table II and Table III below.

TABLE I. PINGDOM RESULT

Instrument	Yii	Native
Performance grade	75	88
Number of Requests	6	9
Load Time (s)	1.37 s	1.75 s
Page Size	122.3 KB	298.6 KB

TABLE II. GTMETRIX RESULT

Instrument	Yii	Native
PageSpeedScore	92	94
Requests	8	10
Load Time (s)	1.9 s	2.1 s
Page Size	128 KB	303 KB

TABLE III. DAREBOOST RESULT

Instrument	Yii	Native
Request	8	10
Weight (KB)	126	306
First Byte (s)	0.86 s	0.59 s
Start Render (s)	1.5 s	1.67 s
Fully Loaded (s)	2.09 s	2.81 s

IV. CONCLUSION

Based on the results, Yii framework has not better than the native model. This is because the size of the java script is not compressed. The native model has a smaller java script size. In the default condition, three tools indicate test web applications developed using Yii has some drawbacks. These weaknesses are in the performance grade, pagespeed score, and first byte parameters respectively on Pingdom, GTMetrix, and Dareboost test tools. Further research is expected in order to test the ease and convenience of use of the user. And also the Yii Framework has to decrease the size of java script.

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