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Development of Information System Based on Web Application for Measuring Educational Performance Indicator Using Codeigniter Framework

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Performance indicators are quantitative and/or qualitative measures that describe the level of achievement of a defined goal or objective. Also called, performance indicators are a variable used to quantitatively express the effectiveness and efficiency of a process or operation with reference to the goals and objectives of the organization. So it is clear that performance indicators are the criteria used to assess the success of achieving organizational goals embodied in specific measures. To present performance indicators, such as educational performance indicators, quickly and accurately, its need a application based on computerized information system. This research will develop a information system based on web application to present and measuring performance indicators, both qualitative and quantitative data. Information system will develop using codeigniter framework that use MVC concept. Presentation of performance indicator information using tables or graphs obtained from the indicator data entered. This information system is expected to help the leadership to know the level of success of the institution in achieving targets that have been determined in the performance indicators.

Keywords: Web Applications, Information Systems, Performance Indicators, Codeigniter.

1. INTRODUCTION

Today the information system can not be separated with computer technology that feels growing rapidly along with our increasingly complex needs. These developments can be seen from the many organizations or institutions in various fields that use computerized systems to perform various jobs quickly and with great accuracy. The use of computerized systems is expected to minimize errors made by humans thereby reducing large losses. And can shorten the time in completing the job quickly and accurately.

Performance indicators are variable used to quantitatively express the effectiveness and efficiency of a process or operation with reference to the goals and objectives of the organization. In general, various organizations or institutions, such as educational institution, still use the manual way to present main performance data of the institution. The success rate of target achievement on each performance indicator is also done manually. This causes the presentation of data to be old, less accurate and can not be real time. This can be improved by building a computer-based information system, where the computation of the success of target achievement is done by the computer, so that the presentation of data becomes faster, accurate and real time.

Educational performance indicator information system is information system that used to present the data of key performance indicators, both qualitative and quantitative. Presentation of performance indicator information using tables or graphs obtained from the indicator data entered.

This research is intended to build an information system of key performance indicators based on web application that can present performance indicator data and success rate of achievement of performance target quickly, accurate and real time.

2. MODEL-VIEW-CONTROLLER (MVC) ARCHITECTURE

Model-View-Controller (MVC) is a concept introduced by the inventor of Smalltalk (Trygve Reenskaug) to encapsulate data along with processing (model), isolate from the process of

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manipulation (controller) and view to be represented on a user interface.[1] MVC follows the most common approach of Layering. Layering is just a logic that divides our code into functions in different classes. This approach is easily recognized and the most widely accepted. The main advantage in this approach is the reusability of the code.[2] The technical definition of the MVC architecture is divided into three layers,[3] i.e., model, view and controller. Models, views and controllers are very closely related, therefore, they must refer to each other. Figure 1 illustrates the basic relationship of Model-View-Controller.

The MVC architecture has the benefit of separating between model and view allowing multiple views using the same model. As a result, an application model component is easier to implement, test, and maintain, as all access to the model runs through this component.[4]

3. CODEIGNITER

Codeigniter is an open source web application framework that is used to build dynamic php applications.[5] The main purpose of Codeigniter development is to help developers to work on applications faster than writing all the code from scratch. Codeigniter provides a variety of libraries that can simplify the development. Codeigniter was introduced to the public on February 28, 2006.[6]

Codeigniter is built using the concept of Model-View-Controller (MVC) development pattern.[7] In Codeigniter, the browser interacts through the controller. The controller will receive and reply to all requests from the browser. When the controller needs data, then the controller will ask to Model. As for the view to the user will be handled by View. So the brain of the application is in the controller, the advance application is in viewed an data is in the model. This is shown in Figure 2.

4. EXPERIMENTAL DETAILS

Software design of the information system shown on Figure 3. There are two user group define in the information system, admin and leader. Leader group only have access performance indicator report feature on system. The main actor of the system is an admin. Admin group can access 4 feature on system, there are:

a. Check performance indicators master, will saved on mstiku table.

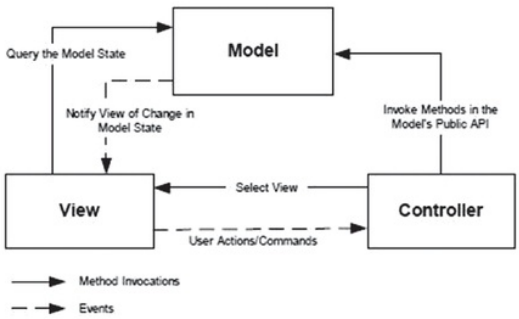

Fig. 1. Relationship between model, view, and controller.

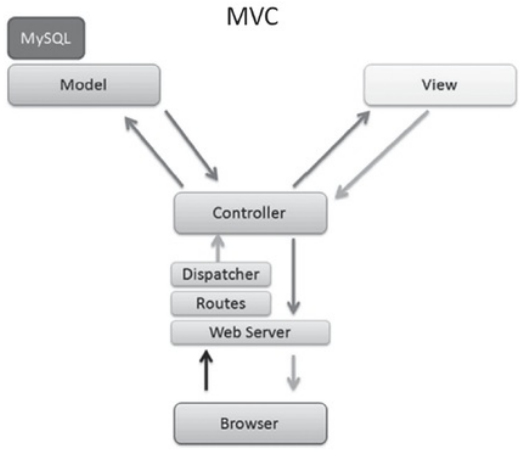

Fig. 2. Codeigniter data flow.

b. Entry performance indicators target, will saved on targetiku table.

c. Entry performance indicators values, will saved on capaianiku table.

d. Performance indicators report, present on graph and table.

The scenario of the system is admin will entry performance indicators target at the beginning of year. And then at the end of year, admin will entry performance indicator value. Target and value of performance indicator will compare and process. The result will be present on graph and table that shown at Figure 4.

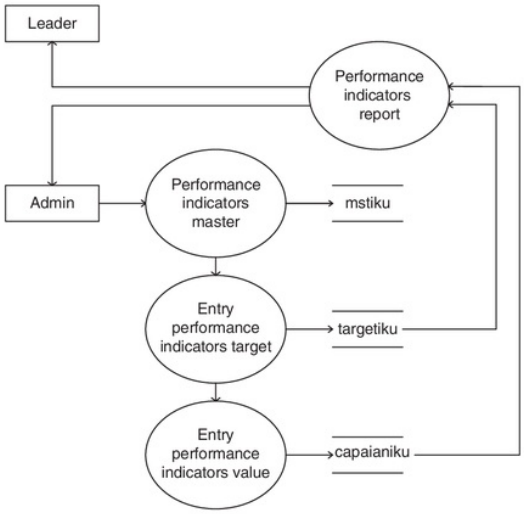

Fig. 3. Software design.

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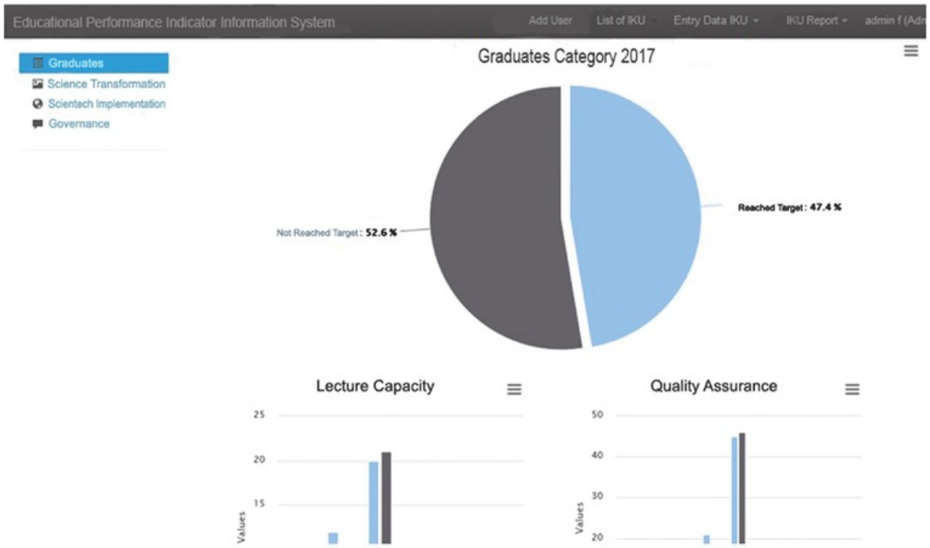

Fig. 4. Display of dashboard module.

5. CONCLUSION

In conclusion, this information system provides feature to entry performance indicators target, achievement of the target, compare it and then present the report on graph and table. There are 2 group user on system, admin and leader, that each group have a different right access. Application testing shows that all functions contained in this application can work as expected.

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