Development Dashboard of Information STT Ibnu Sina Batam Method Using Object Oriented Analysis and Design (OOAD)

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Abstract

The increasing number of students encourages the management of STT Ibnu Sina Batam to continue to improve the service in terms of delivering important information in order to be implemented properly, effectively and efficiently. Almost all circles in universities both students and lecturers want to get information digitally. Some digital media have been created and used in various fields. Digital Dashboard is an information system that provides one-stop service that combines some important information needed by the academic community (Staff, Lecturer and Student). In designing the dashboard to make it easier to get all the information in STT Ibnu Sina Batam the author chose the method of Object Oriented Analysis and Design (OOAD) in order to produce the design of academic civitas academic information digital dashboard STT Ibnu Sina Batam modern.

Keywords: Object oriented Analysis and Design, Dashboard, Wall Magazine.

1. Introduction

Education is an effort undertaken by students to create a learning In this modern era, technology becomes a necessity for the general public, whether it is in searching information or transfer information to electronic media and internet. Utilization of information technology can not be separated from hardware and software computer that can support business activities, economic, social and cultural. Information technology can have a significant impact on industrial progress, and the Indonesian nation

Digital Dashboard is an information system that provides one-stop service that combines some important information needed by the academic community (Staff, Lecturer and Student).

In designing the dashboard to make it easier to get all the information in STT Ibnu Sina Batam the author chose the method of Object Oriented Analysis and Design (OOAD). OOAD is an analytical method that examines requirements from the classroom and object class viewpoint encountered in the scope of the problem that directs the software architecture based on the manipulation of system objects or subsystems.

Selection of OOAD method itself is done because this method emphasizes on the user object side. So that the resulting design meets the needs of its users. The OOAD method has several advantages, among which are easier to use in system development, there is no separation between design and analysis phases, thus improving communication between users and developers.

2. Literature Review

2.1. Design

The concept of design based on is a process in determining a matter in detail how the components can be implemented. Based on the above understanding can be concluded that the design is a development process in determining a matter in detail and specifications in the components that will be implemented[1].

2.2. Performance Dashboard

Shadan Malik (2005) used the terminology "enterprise dashboard", which is defined as an interface computer that presents information in the form of tables, reports, visual indicators, and alert mechanism dynamically and with relevance.[2]

Stephen Few (2006) used the terminology "information dashboard", which is defined as a visual display of crucial information made by arranging it in such a way that the performance of an organization can be supervised in a glance and ease the user in reaching a certain purpose. Such visual display of information must be designed well in order to quicken user's understanding of the information and its meaning[3][4].

Based on the previous elaborations, it can be inferred that enterprise dashboard, information dashboard, and dashboard are means of displaying crucial information in the form of tables, reports, visual indicators, and alert mechanism which exists in performance management. Those information are designed in such a way to be visually displayed on a screen in a manner that eases the user in supervising and managing his business initiative.

2.3. Characteristic of Enterprise Dashboard

Shadan Malik (2005) identified several basic characteristics for a company's dashboard by the acronym S-M-A-R-T (Synergetic, Monictor, Accurate, Responsive, Timely) and I-M-P-A-C-T (Interactive, More data history, Personalized, Analytical, Collaborative, Trackability). SMART consists of several basic elements which needs to exist in a dashboard, namely:

a. Synergetic

It must be ergonomic and visual to ensure its utilization to be done effectively by user in order to synergize information regarding different aspects in a single screen display

b. Monitor

It must display the critical KPI which is required in effective decision making done by dashboard users.

c. Accurate

The presented information must be completely accurate to gain full trust from the dashboard user. Supporting data for the dashboard must be tested and validated appropriately.

d. Responsive

It must respond to the predetermined limitation by having "user alert" added to the visual presentation in other dashboard (for example: voice alarm, email) to attract user's attention shall a critical problem occurs.

e. Timely

It must present the most updated information to guarantee effective decision making. Information must be real-time and right on time of occurrence. Beside the aforementioned basic elements, enterprise dashboard also needs to have these additional elements, which goes by the acronym IMPACT, namely:

f. Interactive

It must enable the user to trace and acquire details, root of the problem, et cetera.

g. More data history

Dashboard must enable the user to asses the timely trend for a given KPI. For example, right now, market segmentation may experience an increase (positive trend), yet last year, it decreases (negative trend).

h. Personalized

Performance dashboard must be specified for each user according to the responsibility, right, and limitation of data.

i. Analytical

It must enable the user to conduct analysis.

j. Collaborative

Dashboard must facilitate user to exchange information regarding special observation on each user's dashboard. In other words, dashboard serves as a communication platform for managerial tasks and obedience control.

k. Track ability

It must enable each user to adjust the metric which he desires to track. From hereon, enterprise dashboard and dashboard will be referred to as performance dashboard.

2.4. Object Oriented Analysis and Design (OOAD)

The OOAD concept includes the analysis and design of a system with an object approach, ie object-oriented analysis (OOA) and object-oriented design (OOD). Object-oriented design (OOD) is a design method that includes an object-oriented process of decomposition and a record to describe both physically and logically as a model as well as static and dynamic of the system under design. Object-oriented analysis (OOA) is an analytical method that examines the requirements from the perspective of classes and objects found in domain problem terms[5][6][7].

3. Methodology

3.1. Research Framework

The stage and scope of work to be performed on the problem-solving framework are as follows:

a. Library Studies

This research activity begins by collecting relevant information on the topic in research

b. Determine the Principal Issues and Objectives

This step is done so that Analysis and Design Dashboard information activities and lectures more clearly and directed.

c. Collecting Data

Data collection conducted either primary or secondary data aims to obtain the required data sesusai with system requirements to be designed.

d. Determining User Needs

This step is done to design the system in accordance with the needs of the user dashboard STT Ibnu Sina Batam

e. System analysis and design

Analysis and design of the system is a description or design of the application to be built, starting from the initial design, the design of the processes that occur until the design of the display interface for the application. The design technique used is object-oriented analysis and design (OOAD)

f. Design Interface

Based on the results of responsive web-based application design, it can be described the layout of the new dashboard layout to help students get information on activities that previously existed in the wall magazine.

3.2. Research Document

a. Display of academic information and non-academic student academic at STT Ibnu Sina Batam at this time

b. Presentation of Information System at STT Ibnu Sina Batam.

c. The format of data acceptance of lecture information is still conventional in the form of paper leaflets.

d. Data Lecturer attendance information is still asked to student academic administration bureau staff

4. Result and Discussion

4.1. System Dashboard System User Needs

From the identification of user scenarios that produce twenty-two (22) scenarios, the class and object selection can be generated as follows:(1) Class Category derived from the dashboard category, (2) Activity Class derived from category announcement of activities, (3) Class Banner dashboard coming from banner dashboard category; (4) Class Attendance of lecturer coming from lecturer attendance category; (5) Class Poster activities that come from poster category of activities (6) Class News running text from category News running text (7) Class Gallery activities derived from category gallery Activity.

4.2. Class Diagram

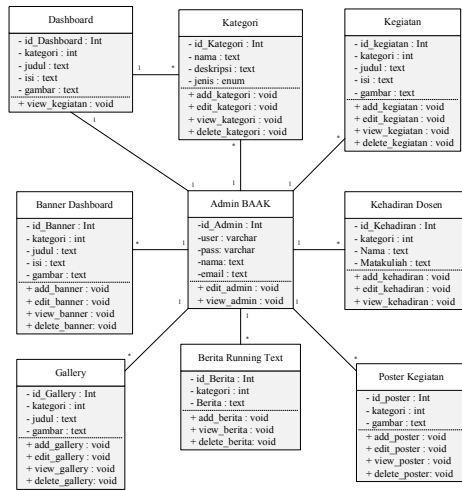Results Design class diagram of the system dashboard Object Oriented Analysis and Design.

Fig. 1. Class Diagram

4.3. Design Interface

Results of design dashboard system STT Ibnu Sina Batam.

Fig. 2. Result Design Interface Dashboard System STT Ibnu Sina Batam.

5. Conclusion

The results of research and discussion conducted on the delivery of information through the design of the dashboard STT Ibnu Sina Batam by using Object Oriented Analysis and Design method, it can be concluded as follows:

a. The application of Object Oriented Analysis and Design (OOAD) method in the design of STT Ibn Sina dashboard found the design stage of dashboard information system with actor determination stage with use case diagram, diagram activity usage dashboard, sequence diagram dashboard interaction, dashboard class diagram[8][9].

b. Implementation of the design of the dashboard information system using Object Oriented Analysis & Design method, obtained a blueprint interface from the dashboard STT Ibnu Sina Batam[10].

c. Implementation of design and analysis of this design can form a real application of the dashboard information system STT Ibnu Sina Batam in accordance with the design that has been done.

d. Blueprint Interface in the design of information system dashboard STT Ibnu Sina Batam needs a more detailed design be-

fore the implementation of application development dashboard STT Ibnu Sina Batam.

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