

Android-Based Student Behavior Study using Cloud Computing Infrastructure

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ABSTRACT

Android-based student behavior data collection system is a system to improve student data collection so that student data can be seen as fellow students, besides this system makes it easy for students to see grades and absences for 1 semester so that accessing grades and absences is very useful for students' parents, design Android-based student behavioral data collection system uses the UML (Unified Modeling Language) design method, the purpose of this system is to improve student data collection, absences, grades and achievements with a computerized system that users can access student data online. The result of system design is a system that can be used by students, lecturers, to make it easier to collect student data.

Keyword : Unified Modelling Language, Online, Student, Android.



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1. INTRODUCTION

Currently, information technology has developed rapidly, many have implemented information technology in various fields, information technology trends are now based on internet networks and all are accessed without limits and space. The implementation of information technology-based information systems in certain fields has also been very far behind if it is only made automatically but has not been able to synergize between the information sub-system with other information sub-systems. Educational institutions such as the campus are now starting to use information technology to pursue profits, besides information technology is also very useful in carrying out existing business processes at a campus institution.

in a campus institution the role of students is so vital, it often happens that the student's personal data is not systemized, grades, absenteeism and student activity are camped out making it difficult for the lecture staff to record in detail. According to Nazrudin Safaat H (2011), Android is an operating system for Linux-based mobile devices that includes an operating system, middleware, and applications. Android is an operating system for cellular phones based on Linux. Android provides an open platform for developers to create their own applications. It was originally developed by Android Inc., a newcomer company that makes software for mobile phones which was later bought by Google Inc. For its development, the Open Handset Alliance (OHA) was formed, a consortium of 34 hardware, software and telecommunications companies including Google, HTC, Intel, Motorola, Qualcomm, T-Mobile, and Nvidia.

Dhita Syilvia, 2012, In his research the final task information system for new student registration can facilitate the input and processing of data and reporting. So that it can speed up the registration process and improve services so that the time spent can be more effective [2]

The system is a collection of elements that are interrelated between one another that can not be separated, to achieve a certain goal. Simply put, a system can be interpreted as a collection or set of elements, components, or variables that are organized, mutually interdependent, and integrated. A system consists of parts or components that are integrated for one purpose. (Tata Sutabri, 2012). [3]

Cloud computing is a technology that utilizes internet services using a virtual server center for the purpose of maintaining data and applications. The existence of cloud computing will obviously cause

changes in the workings of information technology systems in an organization. This is because cloud computing through the concept of virtualization, standardization and other fundamental features can reduce the cost of Information Technology (IT), simplify the management of IT services (Ahmad Shaykh) [1].

2. METHODOLOGY

The stages of research carried out in completing this design are:

1) Library Research

At this stage, search for information and references through books, the internet, or other material related to the topics discussed,

2) Data collection

At this stage collecting materials in the form of hardware, software and books relating to the design made.

3) Systems design analysis

At this stage the research includes the analysis stage of the system needs problem, the analysis of the design and implementation of the system so that conclusions can be drawn that serve as benchmarks for designing an Android-based behavior data collection system.

At this stage the design of an Android-based student behavior data collection system will be explained where in the Design stage the intensive interaction stage between the system analyst and the system user community (end-user). The use of UML (unified modeling language) tools is in designing android-based student behavior data collection system.

At this stage the system design will be explained. The following stages of system design are divided into several stages such as Use Case Diagrams are used to structurally describe the steps in the interaction of the system with its users. There are 2 types of actors in the system designed namely the user and admin. In this case, the user acts as the user and the admin acts as the system data manager. The Use Case Diagram is described as follows:

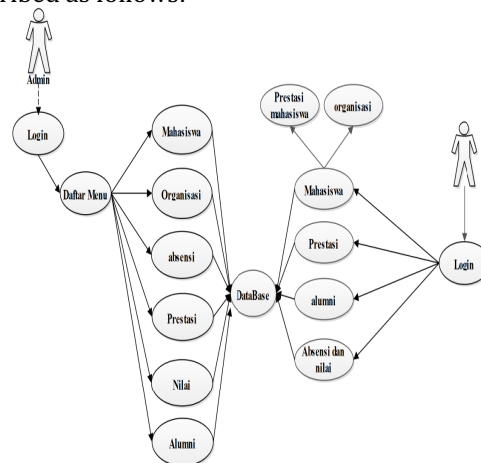


Figure 1 Use Case Diagram

In the Use Case Diagram above explained that in the cloud computing-based E-student system there is a manager as an admin who has a collection of menu menus, all the data in the menu menu is entered into the database and then will be processed by the system.

In the admin usecase, the first thing the admin does is log in to the system administrator to be able to access menu menus on the administrator page such as students, organizations, attendance, achievements, grades, alumni, and settings, then in the student admin menu the student can add unregistered students by the system and can delete students because an admin has access rights that can delete, edit and add data, In an organization's usecase an administrator can add, delete and edit data from the organization's menu, such as the name of the organization's name and the number of members. In the attendance usecase an administrator can display the attendance of each student based on the semester, attendance data obtained from us will be input into the E-student system so that it can display attendance.

Activity Diagram illustrates the flow sequence of activities. This diagram is also used to model actions that are performed when an operation is executed and model the results of those actions. The following admin activity design diagram that the author designed can be seen in Figure 2:

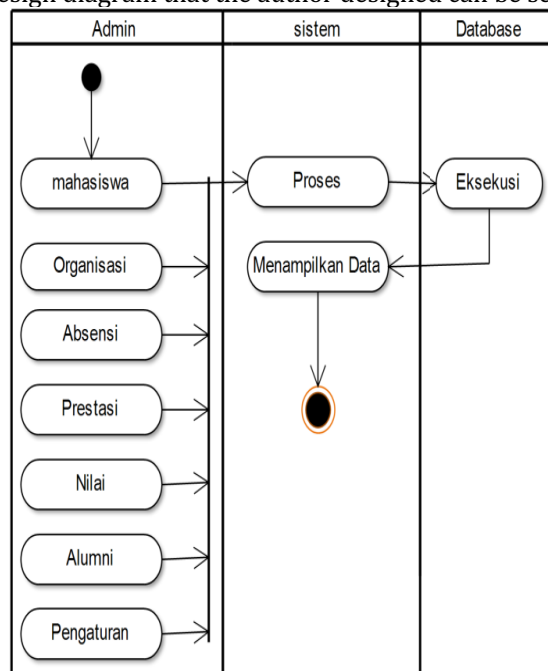


Figure 2 Admin Activity Diagram

The information in Figure 2 explains that the Admin activity diagram illustrates the admin login logic when managing the system. Where the admin can enter the system and have access rights where each menu such as students, organizations, attendance, achievements, grades, alumni and data settings can be added, deleted and edited according to the needs of the E-student system. So when the admin wants to add the name of the organization just go to the organization menu and also want to enter the attendance data an administrator can enter it. Here is the User Activity diagram that the author designed in Figure 3:

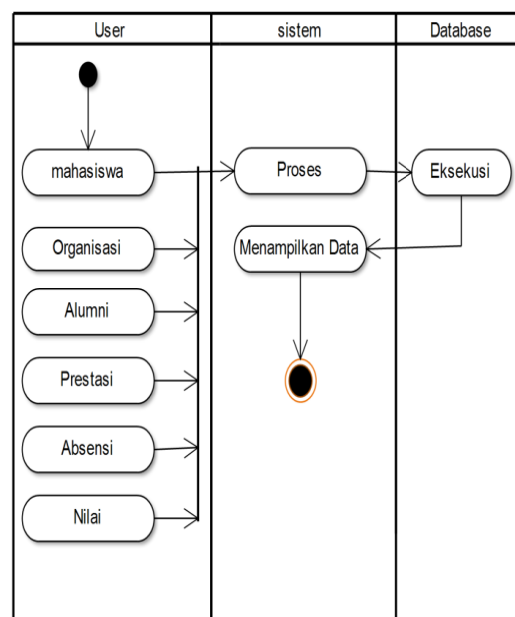


Figure 3 User Activity Diagram

The figness of Figure 3 explained that the User Activity Diagram illustrates the user's logic when wanting to use an E-student system. When the user chooses to log in the system will process and will display data such as student data, achievements, attendance, alumni and organizations. In the student menu there are student grades and grades each semester and absences each semester so that it is very effective for students and in the alumni menu there are alumni names.

3. RESULTS AND DISCUSSION

In the user system display that functions as a system used by the user to see the student behavior data collection system, this system functions as a medium for students to be able to see other student data and grades and attendance. The following is the display found on the user's system. In the login menu, students are required to enter their username and password on the form that is available, the system will check into the database whether the username and password are valid, if valid the system will display the main menu of data collection on Android-based student behavior.

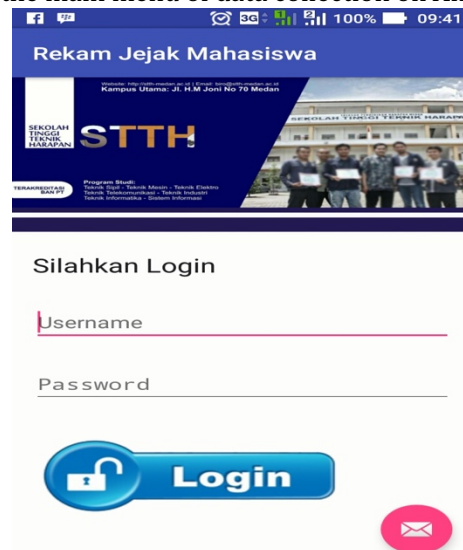


Figure 4 Display the system login menu

In the student behavioral data collection system there are menu menus such as alumni menus, absent data and grades data, student menus and achievements, all menus can display information needed by the user, can be seen in Figure 5:

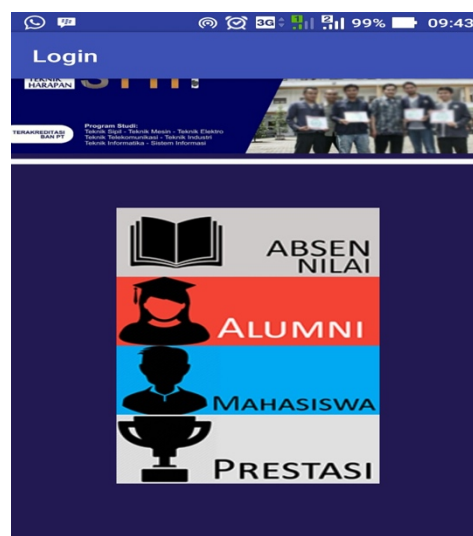


Figure 5 Display the main menu

The data display menu is absent and the value will display data such as absent data and then the value of a student, the user only needs to input npm then directly select the search data so the system displays the required npm data directly, as in Figure 6 below:

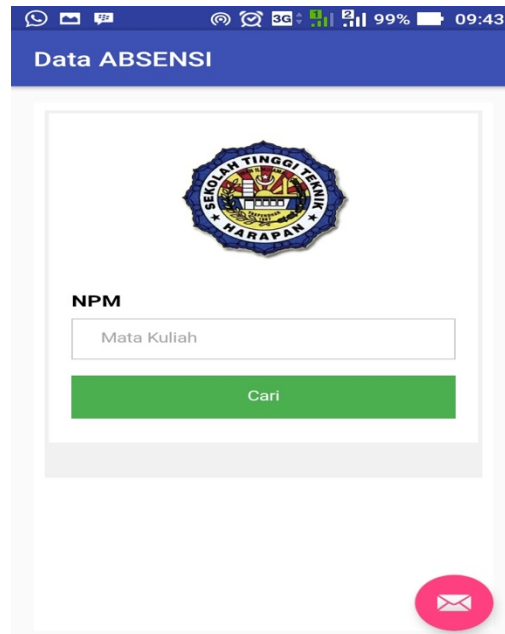


Figure 6 Display the absent data menu and values

The menu display results in absent data and grades will display data from a student, so that with the data menu or parents students can monitor grades and attendance, as shown in Figure 7 below:



NPM :	
M.KULIAH	Agama
NILAI	D
HADIR	12
TIDAK HADIR	4
M.KULIAH	Kalkulus
NILAI	E
HADIR	2
TIDAK HADIR	14
M.KULIAH	PBO
NILAI	A
HADIR	15
TIDAK HADIR	

Figure 7 Display menu results in absent data and values

Alumni menu display will display data from alumni so that in an alumni data institution can be seen by students and fellow alumni, alumni data is very useful as data that will be needed on campus, as shown in Figure 8 below:

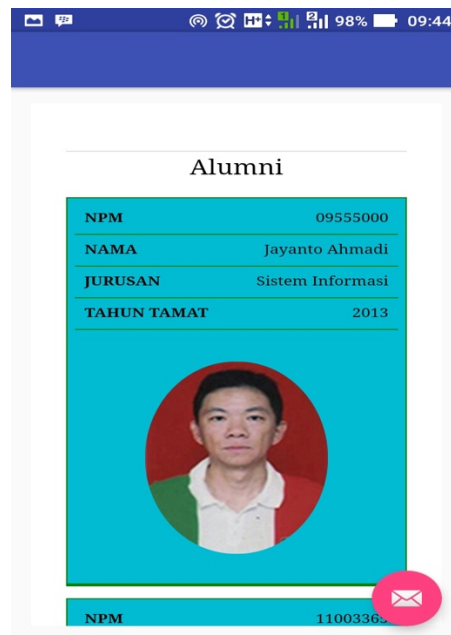


Figure 8 Alumni Menu Display

This student menu display is very useful and very vital role in the student behavior data collection system because student data will display a student's profile data, along with photos, as in Figure 9 below:

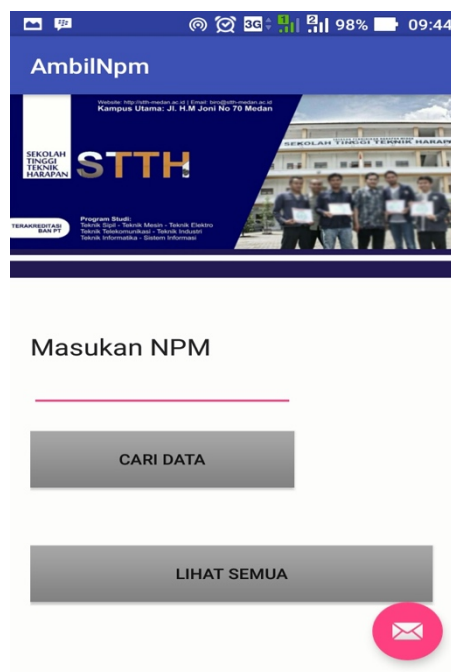


Figure 9 Display the student menu

From the research that the author has done certainly will not be separated from deficiencies, therefore there is a need for further improvement and development of the system in

the future, it is necessary and some attention must be given that in the next development phase, it is recommended for anyone who will continue the data collection system based on student behavior. This android can add facilities or a device that if possible to support the smooth process of information, such as the addition of adequate program facilities. Need for better implementation and maintenance of the system that has been made, so that the system can be used as needed.

4. CONCLUSION

In the description of the series starting from the process of making an Android-based student behavior data collection system, it can be drawn some important conclusions that the design of an Android-based student data collection system is expected to minimize the effectiveness in finding student data along with grades and absences. The design of the Android-based student behavioral data collection system can help lecture institution staff operators in data collection of student data, assist student parents in monitoring grades and absences.

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