Design and Simulation of Indonesian Language Application Exam with Mobile-based End User Development Method

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ABSTRACT

This paper is a descriptive study with a qualitative approach. The method of data collection is the documentation study. The results of the study show that as follows, examinations using computer-based systems have technical obstacles including the occurrence of power outages or power outages, computer specifications used on computers must be in accordance with the criteria of application requirements, examinations using computers can save the budget in financing the means of examinations , tests using a computer can be categorized as environmentally friendly because they no longer use paper, where paper-making materials come from wood. Some of the remedial actions that can be taken are as follows, solving problems regarding power outages can be overcome by having a backup power supply coming from the UPS, procuring and repairing server computer hardware that is not in accordance with the requirements criteria..

Keywords: Simulation, Mobile, Exam, End User Development.

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1. INTRODUCTION

The Theory test is an effort to increase student competency to be better prepared to use in the workforce. Theory Exams are intended to improve student quality [1][2]. Without an exam students will not recognize the learning objectives. In preparing students for the theory test, the teacher must be able to provide material and broad insights about the theory of productive subjects and deliver all material based on existing competency standards and provide accurate and up-to-date references. Mastery of the material by students is largely determined by the teacher's share. On the other hand, from the factor students must also be prepared. Mastery of the material is very important for students in facing the theory test [3]4].

The test is a measurement and assessment of students' competency activities.5] The exam is a very important agenda for a school, the exam is an activity carried out by a student in order to be able to measure his ability to do the questions during the exam. In learning activities using instructional media such as listening, taking notes, and for school training uses a paper system that can only be used once and for the costs incurred by the school very much [6] [7] [8].

Android is a mobile operating system that is open source. Open source allows source code (source code) on Android to be read by developers to customize various application features according to the needs of users [9]. Android is an operating system that is widely used on smartphones and tablets [10]. Compared to mobile phones that use the Java operating system, the Android operating system has advantages in terms of software and hardware. The application will be built using the end user development approach development method [11]. This method is considered appropriate because it has several advantages, including applications that can be completed more quickly because it is developed by the user, user needs can be more fulfilled, users will better understand their own information needs when compared to developed by other parties, increasing the active participation of users in the development process so that there will be its own satisfaction from users, and increase the quality of

user understanding of the application being developed and the technology used in the system [12][13][14].

2. METHODOLOGY

In this study using a qualitative interpretive approach. Where researchers directly observe the object to be examined. Qualitative research is meant as a type of research where the findings are not obtained through statistical procedures or other forms of calculation. Therefore, in this study using a qualitative interpretive approach because the problems to be discussed do not relate to numbers but describe and describe the computer-based examination system.

The development of the android theory test simulation is created using the end user development method. In order to collect data and valid information on curat funds, the main data collection (to get primary data) researchers will conduct Observations, Library Studies, Documentation Studies.

The design of the application describes the steps of each process, usually described using a system flow chart. It functions to describe the procedures and methods of processing data from a data system. Application design in general on the Use Case Diagram system illustrates the activities carried out on a system with events that occur when someone or something interacts with the system.

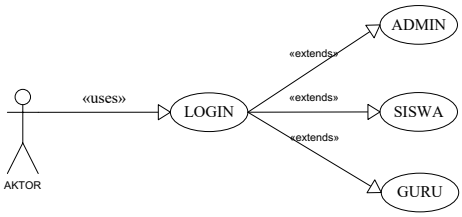

Figure 1. Use Case Simulation Diagram for Android Theory Test

In Figure 1 above, there are 3 types of views that can be accessed by users be it admin, students or teachers. And each display has its own function. Activity diagrams are used to model behavior in a system. Activity diagrams focus more on describing business processes and the order of activities in a process, activity diagrams have the benefit of making this diagram first in modelling a process to help understand the process as a whole.

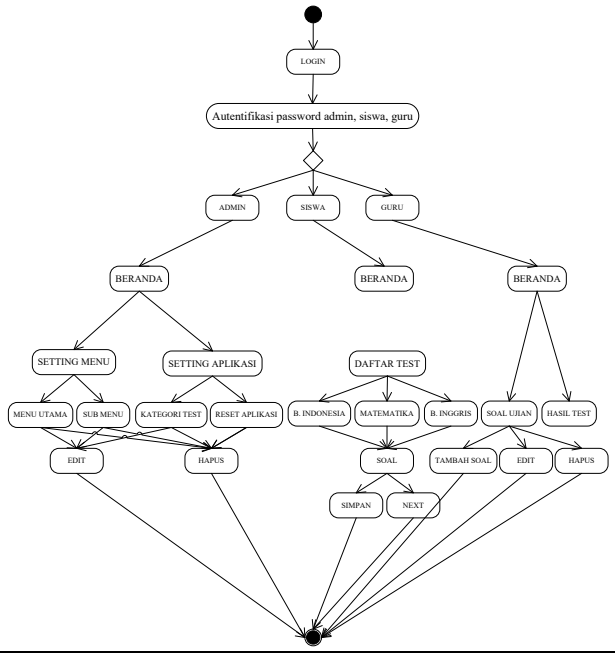

Figure 2 Activity Diagram Simulation Android Theory Test

After the user opens the application, the initial display that will appear is login. The username and password entered by the user in the login form will affect where the application will be displayed. After that, the user will be directed to each of the homepage views of the administrator, student, and teacher views. In each display, there are different main menus and sub menus, depending on the current display requirements.

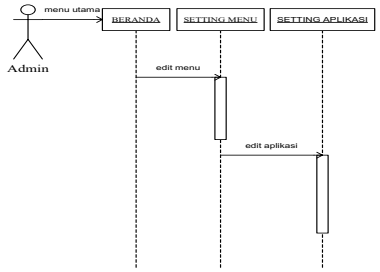

Figure 3. Admin Sequence Diagram

The sequence diagram above is a translation of the menu in the administrator view. In the admin view, there are features to edit the main menu, sub menu and test categories contained in the application.

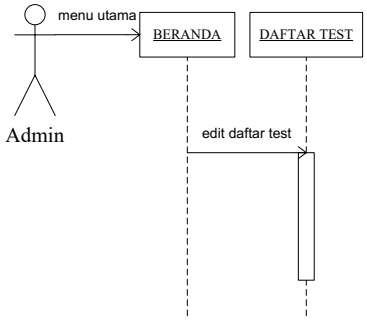

Figure 4 Student Sequence Diagram

In the student sequence picture above, students can only do the work on questions and questions without being able to make changes to the application.

3. RESULTS AND DISCUSSION

Here are the results of the implementation of the theory simulation android simulation application designed. The design displays applications that start from the initial display to the final display application. Following the implementation of the design. The login interface is the initial display of the application when it starts. This design contains a username and password form to access the application. After entering a valid username and password, the application will automatically enter the application homepage. On the homepage display, there are several main menu and main sub menu.

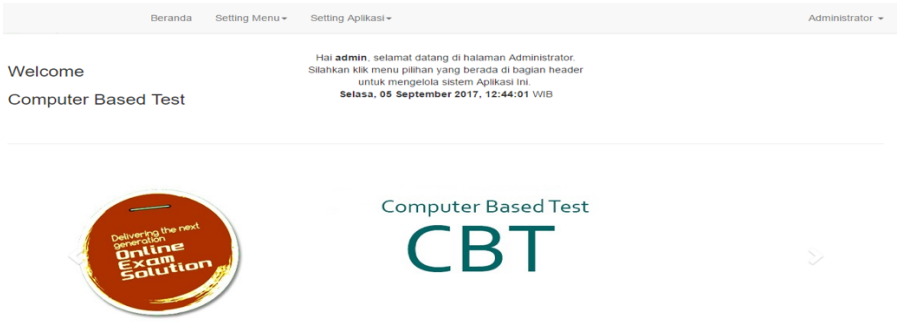

Figure 5 Display Interface Home

Display interface display settings menu - the main menu is a sub menu of the main menu settings menu found on the home screen of the application. In this sub menu, there are features that can be used to change, delete or add to the main menu of the application.

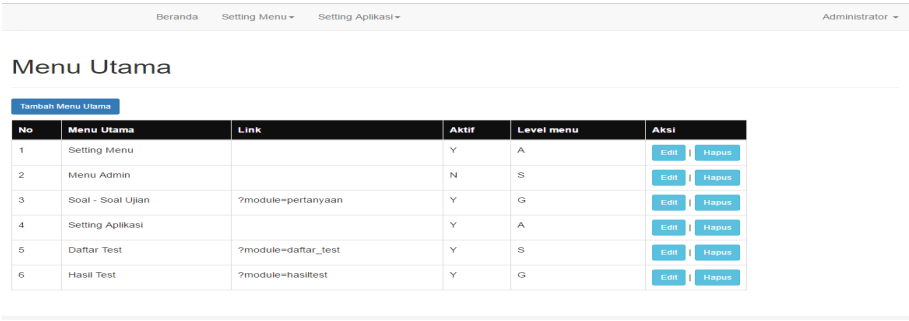

Figure 6 Display Interface Settings Menu - Main Menu

Display interface settings menu - sub menu is a sub menu from the main menu setting menu found on the home screen of the application. In this sub menu, there are features that can be used to change, delete or add sub application menus.

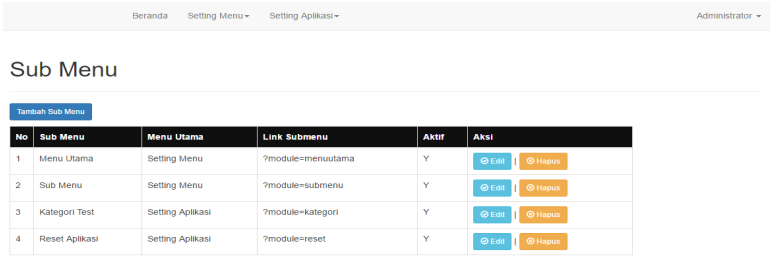

Figure 7 Display Interface Settings Menu - Sub Menu

Display the application settings interface - the test category is a sub menu from the main menu of application settings found on the application homepage display. In this sub menu, there are features that can be used to change, delete or add sub application menus.

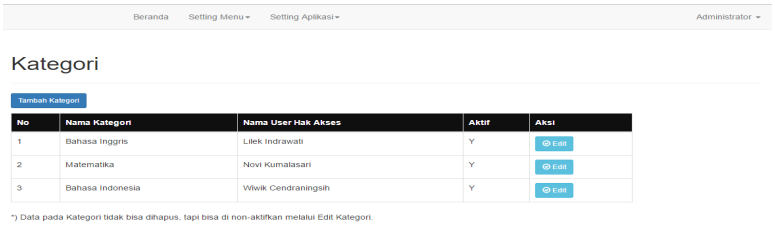

Figure 8 Display Interface Application Settings - Test Category

Display the application settings interface - reset the application is a sub menu from the main menu of application settings found on the application homepage display. In this sub menu, there are features that can be used to change, delete or add sub application menus.

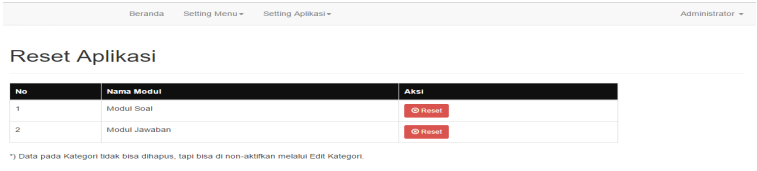

Figure 9 Display Interface Application Settings - Reset Application

The login interface is the initial display of the application when it starts. This design contains a username and password form to access the application.

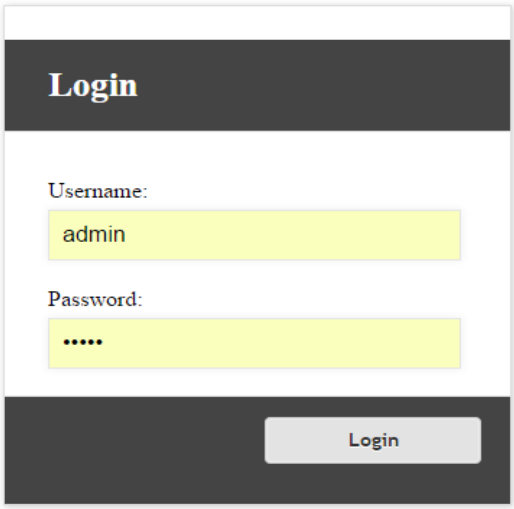

Figure 10 Display the Login Interface

After entering a valid username and password, the application will automatically enter the application homepage. On the homepage display, there are several main menus and main sub menus.

Figure 11 Display Interface Home

The test list interface display is the main menu of the interface display for students. In this main menu, students can choose the subjects they want or will be tested on. There are 3 subjects namely Indonesian, Mathematics, and English.

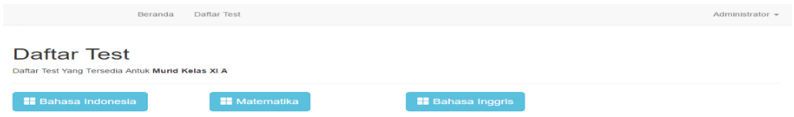

Figure 12 Display List Test Interface

The test interface display is one of the main menus on the display for students. On the Test interface display contains material questions from the subjects that have been selected on the test list menu.

Figure 13 Display List Test Interface

4. CONCLUSION

After conducting research, several conclusions can be drawn about the application being designed, namely that the exam using a computer-based system has technical obstacles including the occurrence of power cuts or power outages. The computer specifications used on the computer must comply with the requirements criteria. Exams using a computer can save a budget in the financing of exam facilities. Tests using computers can be categorized as environmentally friendly because they no longer use paper, where paper-making materials come from wood.

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