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# Applying the Prototype Model into the Electronic Reporting System for the Elementary School Student Base on Android

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**Abstract— Teaching and learning is an activity that is bound by goal directed and carried out specifically to achieve that goal. Because it is very important to seek knowledge for a bright future. Supervision of students by the guardians of the students made the results of their children's achievements not improving. As well as student assessment by the teacher is still not well managed because it is still in the form of a note report. The system method used is the Prototype model. With observation and direct interviews with the student section regarding the assessment system in the school where the author researched. The results of this study are applications that can be operated on an Android Smartphone. This application can provide fast information and update automatically in obtaining information on student learning outcomes.**

**Keywords: Student assessment, E-Report Card, Prototype Method, Application.**

***Abstrak— Proses belajar mengajar merupakan suatu kegiatan yang terikat dengan tujuan yang diarahkan dan dilaksanakan secara khusus untuk mencapai tujuan tersebut. Karena sangat penting mencari ilmu demi masa depan yang cerah. Pengawasan siswa oleh wali siswa membuat hasil prestasi anak tidak kunjung membaik. Serta penilaian siswa oleh guru masih belum terkelola dengan baik karena masih berupa laporan catatan. Metode sistem yang digunakan adalah model Prototype. Dengan observasi dan wawancara langsung dengan bagian siswa mengenai sistem penilaian di sekolah tempat penulis melakukan penelitian. Hasil dari penelitian ini adalah aplikasi yang dapat dioperasikan pada Smartphone Android. Aplikasi ini dapat memberikan informasi yang cepat dan terupdate secara otomatis dalam memperoleh informasi hasil belajar siswa.***

***Kata Kunci: Penilaian Siswa, E-Report Card, Metode Prototipe, Aplikasi.***

## I. INTRODUCTION

Education is one aspect that cannot be ruled out in life, the contribution of education to date is still expected to be improved, because this field can elevate the dignity of the nation and state, namely by producing human resources who can respond to world challenges. Therefore, education will continue to be the government's main focus in realizing the intellectual life of the nation and [1].

The demands in today's millennial era require us to be able to keep up with increasingly rapid technological developments, especially with the presence of operating systems. Android on Smartphones is expected to be able to provide alternative solutions to solve the problems at hand.

As the authority to supervise the learning process and results, the teacher provides reporting to students in the form of exams and student learning outcomes to the student's guardians to be evaluated by each student's guardian [2]. So that the child's learning outcomes and behavior can be monitored intensively by the student's guardian.

One of the problems that arise from the case above is that there are still many parents who do not pay attention to their children's learning so that sometimes the learning process of their children is not closely supervised which results in a lack of motivation for children in learning because they feel less attention by their parents [3]. One of the reasons for the lack of parental attention to their children in learning.

Based on the problems stated above, the authors propose a medium and a solution to the problems that arise above, namely by making the application "E-Reporting Learning Learners Based on Android (Case Study SD Negeri Cimahi II)."

## II. METHODS

The system development method used in the preparation of this final project is to use the prototype method [4]. This method consists of several stages. The following are the stages of the prototype method in Figure 1:

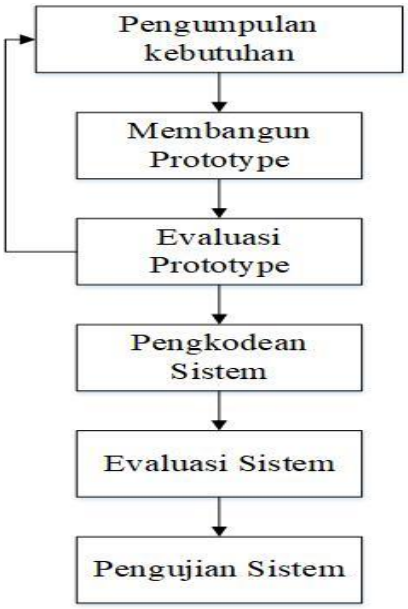


*Figure 1 Prototype Stages*

1. Collection of Needs
   At this stage, it is the stage that is carried out to collect data from various sources, namely by coming to the Dinas to seek information about mutations [5]. Then conduct interviews with transfer officers in the Dinas.
2. Build a Prototype
   At this stage, it is a prototype application that will be made.
3. Prototype Evaluation
   At this stage, it is carried out by the teacher which evaluates the results of making sketches about student assessments.
4. System Coding
   At this stage, the prototype is made using the PHP programming language with the concept of a code igniter framework [8].
5. System Testing
   After the system has become software, it must be tested before use. In testing this system, the black box testing method is used, in which the testing method is carried out on a program display that can run properly as desired, and white box testing which focuses on coding testing [9].

## III. RESULTS AND DISCUSSION

The process carried out at Cimahi II Elementary School is not completely computerized and still uses bookkeeping [10]. Therefore, the authors propose that the student assessment process can switch through the system. What is proposed by the author is based on android for users and based on websites for admins and teachers. The proposal aims to facilitate the transfer process that will be carried out at the Dinas. Below is a system design made by the author using Astah [11]:

A. Use case Diagram

Use Case Diagram Describes some external actors and their relationship to the use case provided by the system [12]. The following is the use case diagram design:

1. Usecase Diagram
   Below is a picture of a use case diagram for students. What is shown in Figure 2:

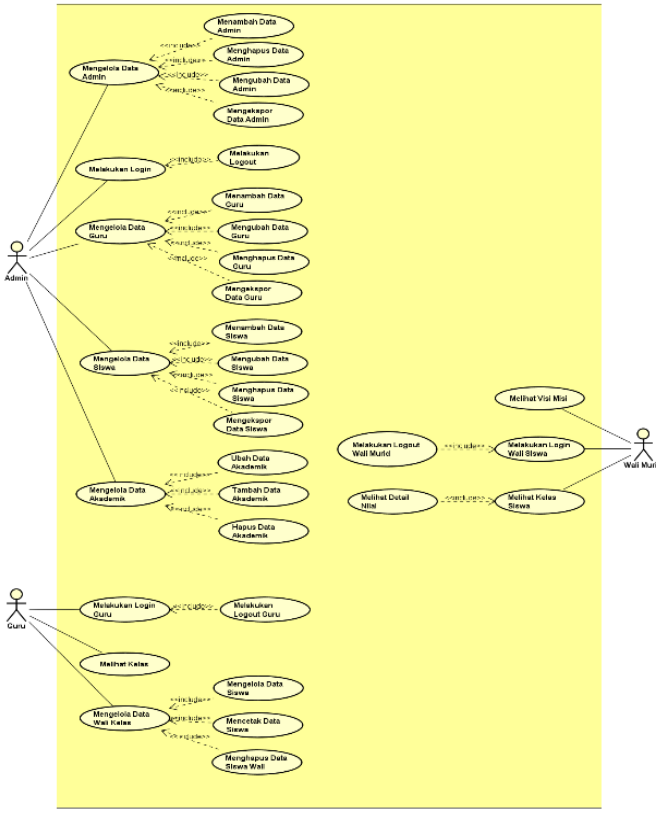


*Figure 2 Usecase Admin Login Diagram*

A. Activity Diagram

Activity Diagrams describe a series of flow from activities, used to describe activities that are formed in an operation so that it can also be used for other activities such as use cases or interactions. The following is the activity diagram design:

1. Admin Login Activity Diagram

Admin login activity diagram is a description of the admin actor in accessing the system, where the admin fills in the username and password into the login menu, then the system will validate.

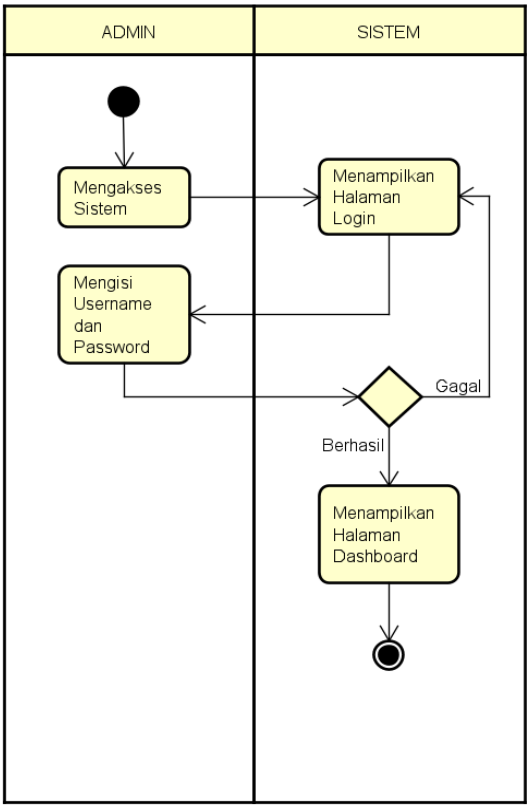


*Figure 3 Admin Login Activity Diagram*

B. Sequence Diagram

Sequence Diagram Describes dynamic collaboration between some objects. Its use is to show a series of messages sent between objects as well as interactions between objects. The following is the sequence diagram design:

1. Sequence Diagram Perform Admin Login

The sequence diagram for logging in is a picture of the interaction between menus, where the admin can log in.

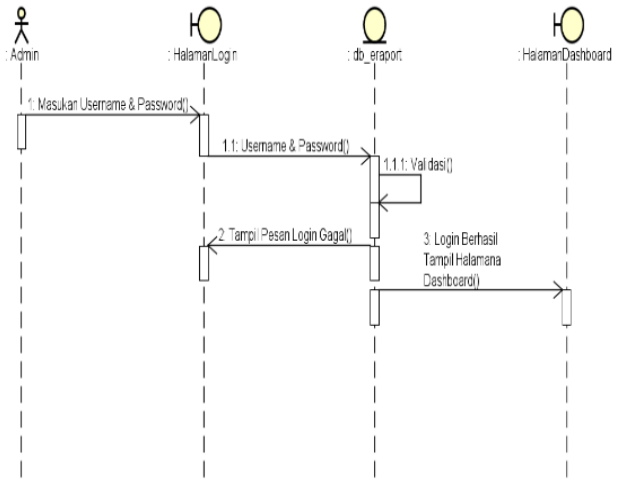


*Figure 4 Admin Login Sequence Diagram*

C. Class Diagram

Class Diagram Describes the static class structure in the system. The class represents something that is handled by the system. The following is the class diagram design shown in Figure 5.

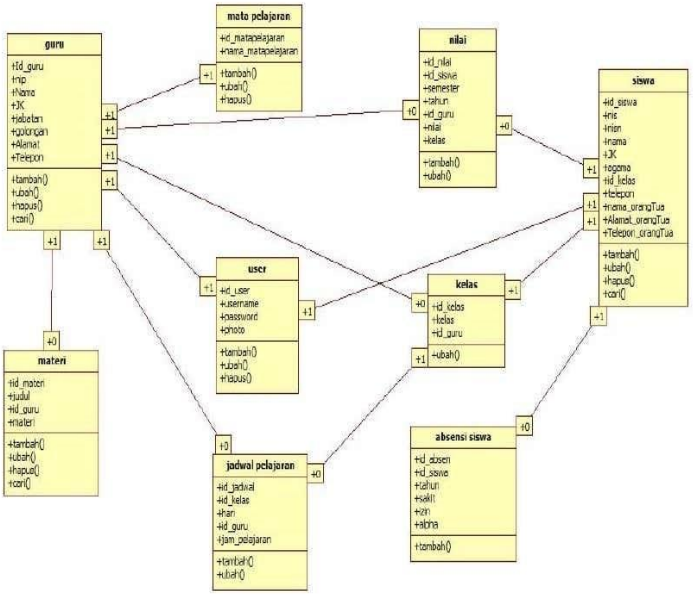


*Figure 5 Class diagram of student assessment*

D. System Implementation

System implementation is an explanation of how a program that has been made is run into a piece of hardware [13]. In the implementation process, software, namely the Chrome browser, Native, and the XAMPP application are used as virtual servers with Apache and Mysql Server services installed [14]. The hardware used is a laptop with an Intel Core i3 processor with 4GB of RAM.

1. Implementation of the Admin Interface

In this implementation, it displays the display of programs that have been run using a browser. The following are the results of the interface implementation:


*Figure 6 Admin Login Page*

Figure 6 above is the admin login display image. Where that page is the admin's first page to be able to enter the system by entering a username and password.

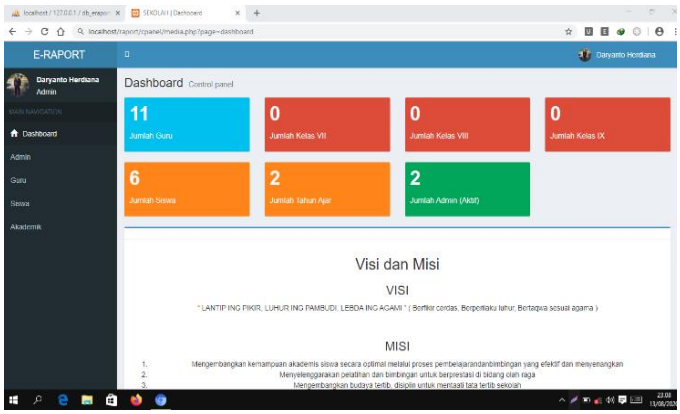


*Figure 7 Admin Main Page*

Figure 7 above is the admin main page display. Displays a list of menus for teachers, a list of students

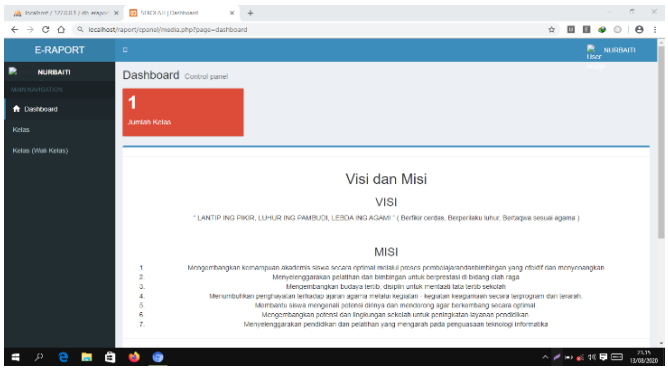


*Figure 8 Teacher Main Page*

Figure 8 above is the main display of the teacher's web which displays menus for inputting student scores.

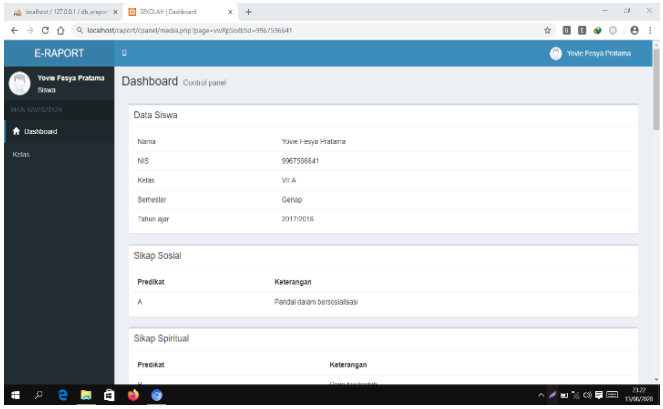


*Figure 9 Display of Student Values*

Figure 9 above is a display of the student scores input by the teacher.

## IV. CONCLUSION

In this final section, the writer will describe some conclusions that can be drawn and suggestions based on the findings of the research. In general, the authors conclude that:

1. With this application, teachers can enter student grades periodically through the e-reporting system for student assessments that can help teachers for assessment and archiving.
2. This student assessment e-reporting application is connected directly to a Smartphone which is accessed by the student's guardian and can see the child's learning progress.
3. Creating applications that can manage student grades and supervise student learning outcomes using the programming language PHP, Javascript.

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