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Android-Based Student Assessment Information System For Sds Setia Bakti

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Abstract

The Indonesian government implements a 9-year compulsory education program for all Indonesian citizens, so its implementation requires the participation of various government & private institutions and institutions. Yayasan Setia Bakti is a non-governmental educational institution that plays an active role in education, especially basic education, namely SDS Setia Bakti, which was founded in 1970. Currently under the leadership of Mr. H.M.Muchaeri as chairman of the foundation wants to improve the student data processing system in order to improve the quality of the school because SDS Setia Bakti is still implementing manual processing and storage and paper media as storage so that it takes longer which can make it difficult to store & make reports to the basic education office and parents of students. This research is a solution to overcome these problems where the student value data processing system is made using a system development model, namely Prototyping and tools in system development with UML and mobile-based programs, namely android. This system is expected to provide better services so that schools get more benefits that increase the trust of parents of students.

Keywords: *Education, Prototyping, UML, Android*

Introduction

Learner assessment is an activity in the learning process that is very important in the world of education. The goal is to as a tool to measure how effective learning activities and the success of learning carried out by teachers for students. (Saefudin & Andriani, 2020).
Educational institutions implement a system, especially a computerized student academic assessment system in data processing. The reason why the application of a computerized assessment system is data is a resource that must be processed properly so that it facilitates searching, reporting and storing it.(M Teguh Prihandoyo, 2018)
SDS Setia Budi is a private elementary school that was founded in 1970 has problems in processing and storing data that is still manual, especially in the value processing system which has a function as a tool to evaluate student learning outcomes. Currently, the assessment system is carried out by subject teachers which are then processed by homeroom teachers using paper storage media so that it still has obstacles in the process of calculating and processing assessments, namely requiring a long time in recapitulating assignment grades, daily test scores, midterm exams, and semester final exams which are material for processing report cards by homeroom teachers. So that the processing of value data is still time-consuming and prone to calculation errors. From an economic point of view, paper costs are required. In terms of control, data is vulnerable to damage and easily lost due to the absence of backup data, while in terms of efficiency, the process of calculating grades by teachers. Based on the description above, a study was made with the title

"MOBILE-BASED STUDENT ASSESSMENT INFORMATION SYSTEM FOR LOYAL BAKTI SDS".

Methodology

The research methods and techniques in developing this software use a prototype model that can be used to connect customer misunderstandings about technical issues and clarify customer requirements specifications for effective software development (Sukamto & Shalahuddin, 2018), this prototype method has 3 stages, namely:
First. Requirement Collection
In this phase, the prototyping model starts from collecting customer requirements for the software to be created. The techniques used are as follows: a) Observation: exclusive observation & investigation of the workings and process of evaluating report cards in order to obtain a clear picture of the problems that occur at SDS Setia Bakti. B) Interview: exclusive question and answer regarding the data expected from the mobile-based report card assessment information system at the school management, namely with Mrs. Nusrah as the Principal of SDS Setia Bakti, and the school operator named Mrs. Rara and Mrs. Ani as teaching representatives.
Second. Building Prototype/Prototyping
Customers will get a better idea of what they really want from this prototype program that will be created. the program presented is usually an unfinished program and provides a simulated view of the software flow so that it looks like a finished program.
Third. Prototyping Evaluation
Prototypes will be evaluated by customers or users until specifications are found that match the wishes of customers or users..

Result

Needs Analysis
Analysis of system requirements needed and used in making this mobile-based report card assessment information system, there are three users who interact with each other, namely Admin, Teachers and Students and have different interaction characteristics and information needs, as follows:
First. Admin Needs
Admins can log in using only their name and password and admins can manage teacher, student and subject data such as inputting, editing, and deleting data that can be managed by the admin.
Second. Teacher Needs
Teachers can login using the teacher ID and password. Teachers can also manage student grades such as inputting, editing, deleting, and printing student grades that have been managed by the teacher.
Third. Student Needs
Students get access to login using student ID and password. Students can only view student grade data and print student grades.

A. *Usecase*
An interaction between one or more actors with the information system created and can show a main process for compiling the entire system (Sumbaryadi & Christo, 2019). From the needs analysis above, it is described the user's needs on the system using Usecase, the following is the depiction:

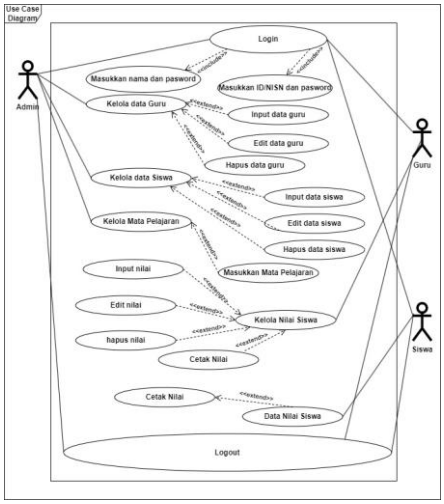


Fig 1. Use Case of Student Assessment System SDS Setia Bakti

B. *Activity Diagram*

Activity Diagram is a diagram that can model various processes that are running in a system that is described vertically (Sumbaryadi & Christo, 2019).

The following activity diagram of the SDS Setia Bakti learner assessment system consists of

Activity Diagram of Grade Input

In the value input activity diagram is a depiction of the teacher actor in inputting student grades on the *system.*

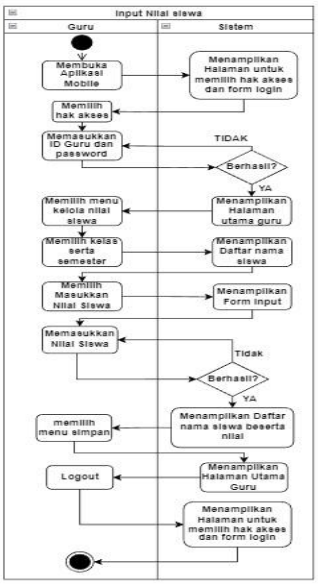


Fig 2. *Activity Diagram of Value Input Teacher Actor*

Activity Diagram Print Grades by Teacher

The activity diagram for printing grades is a depiction of teacher actors in printing grades which are the result of system processing.

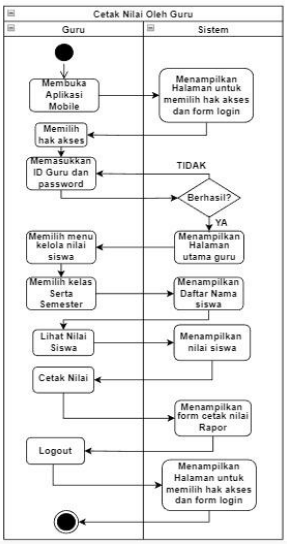


Fig 3. *Activity Diagram of Print Value of Teacher Actor*

C. *Entity Relation Diagram (ERD)*

ERD is a diagram-shaped depiction that has a more structured nature and can show information on objects / entities that are related or related in a database system so that this information can be used in decision support (Trisyanto, 2018). The following is the ERD of the SDS Setia Bakti student assessment system

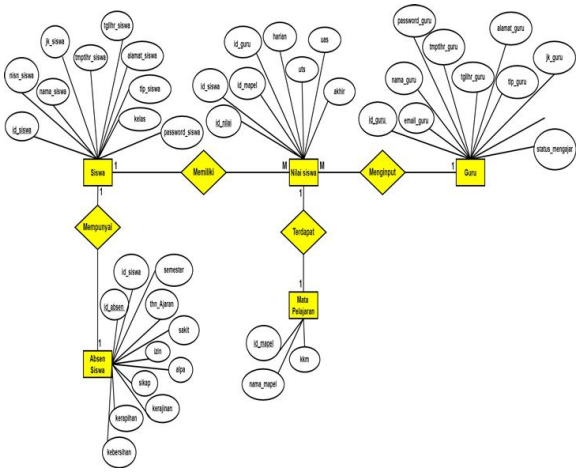


Fig 5. *ERD of SDS Setia Bakti Learner Assessment System*

D. *Class Diagram*

Class Diagram is a diagram used to display the classes that will be used to create the system (Sumbaryadi & Christo, 2019). The following is the Class Diagram of the SDS Setia Bakti learner assessment system

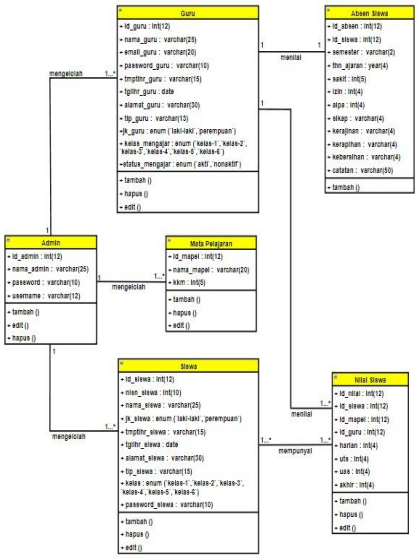


Fig 6. *Class Diagram of Student Assessment System SDS Setia Bakti*

E. *Sequence Diagram*

A diagram that demonstrates the way items interact over time and outlines the steps that must be taken to produce something (Sumbaryadi & Christo, 2019). A sequence diagram for the SDS Setia Bakti student evaluation system is shown below. It includes:

1. Input Sequence Diagram and Print Grades By Teacher

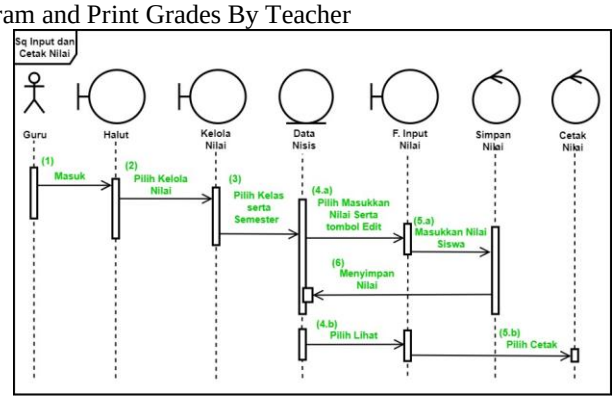
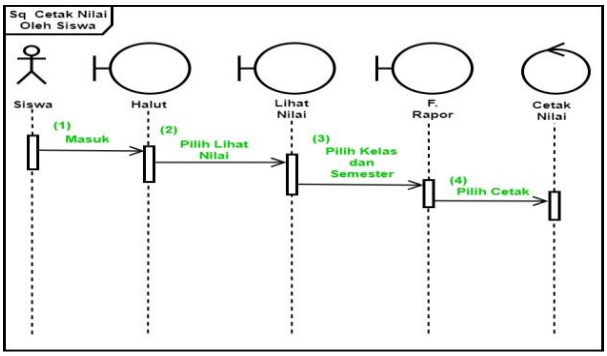


Fig 10. Sequence Diagram Input and Print Scores by the Teacher on the SDS Setia Bakti Student Assessment System

1. Sequence Diagram Print Scores By Students



Gambar 11. Sequence Diagram of Scores by Students in the SDS Setia Bakti Student Assessment System

Implementasi Sistem

According to Sutanta in (Reni Widyastuti, Wahyu Indrarti, Masyitha Novaliza, 2020) Implementation is the final activity of the stages in the process of implementing a new system where this new system will be operated as a whole. The SDS Setia Bakti Student Assessment System has the following pages:

1. Admin. The admin user consists of several page views, namely
   a. Login Page

Figure 12. Login Display

   b. Admin Main Page

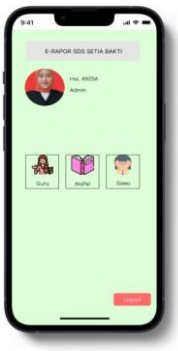


Figure 13. Admin main page display

   c. Admin Main Page There is a Sub Page List of Teacher Names and Manage Teacher Data

Figure 14. View of Teacher Name List Page and Manage Teacher Data

d. Subject List Page

Figure 14. Display of the Subject List Page

e. Student Name List Page and Manage Student Data

Figure 15. Display of the Student Name List Page and Manage Student Data

2. Figure 15. Display of the Student Name List Page and Manage Student Data

a. Teacher Login Page

Figure 16. Display of the Teacher Login Page

b. Master Homepage

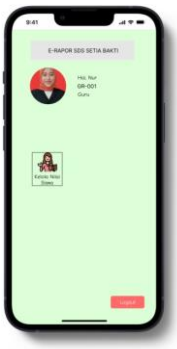


Figure 17. Display of the Teacher's Main Page

c. On the main page of the teacher there are sub pages namely

i. Manage Student Grades in which there are pages for selecting classes, semesters

Figure 18. Display of the Manage Student Grades by Teacher Page

ii. After selecting the semester, a list of student names will appear

Figure 19. Display of the Student Name List Page on the Teacher actor

iii. Then select the enter student value button then the page will appear as follows

Figure 20. Page Display of Report Card Value Form for Teacher Actors

3. Students. The student user consists of several page views, namely

c. Login

Figure 21. Display of the Student Login Page

d. Student Main Page

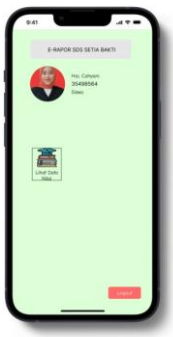


Figure 22. Display of the Student Main Page

e. On the main page there are sub pages, namely:

i. Student value data in which there are pages for selecting classes, semesters

Figure 23. Display of Student Value Data Pages

ii. After selecting the semester, student grade data will be displayed. If you select the Print button, the system will display information that the report card has been successfully downloaded

Figure 24. Display of Student Score Data Pages

iii. The printed report card will be as follows

Figure 25. Display of Student Value Data Pages

Testing

The following are the results of testing from several users, among others

1. Admin

Table 1 Admin interface testing

Partisipan	Login	Masuk Halaman Utama	Kelola Data Guru	Kelola Mapel	Kelola Data Siswa	Logout
Admin 1	√	√	√	√	√	√
Admin 2	√	√	√	√	√	√
Admin 3	√	√	√	√	√	√
Admin 4	√	√	√	√	√	√
Admin 5	√	√	√	√	√	√

Sukses	√	√	√	√	√	√
Nilai Kesuksesan	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

2. Teacher

Table 2. Teacher interface testing

Partisipan	Login	Masuk Halaman Utama	Kelola Nilai	Pilih Kelas	Pilih Semester	Daftar Nama siswa	Masukkan Nilai Rapor	Logout
Guru 1	√	√	√	√	√	√	√	√
Guru 2	√	√	√	√	√	√	√	√
Guru 3	√	√	√	√	√	√	√	√
Guru 4	√	√	√	√	√	√	√	√
Guru 5	√	√	√	√	√	√	√	√
Sukses	5	5	5	5	5	5	5	5
Nilai Kesuksesan	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

3. Student

Table 3 Student interface testing

Partisipan	Login	Masuk Halaman Utama	Lihat Nilai Siswa	Pilih Kelas	Pilih Semester	Data Nilai Rapor	Cetak	Logout
Siswa 1	√	√	√	√	√	√	√	√
Siswa 2	√	√	√	√	√	√	√	√
Siswa 3	√	√	√	√	√	√	√	√
Siswa 4	√	√	√	√	√	√	√	√
Siswa 5	√	√	√	√	√	√	√	√
Sukses	5	5	5	5	5	5	5	5
Nilai Kesuksesan	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Conclusion

The application of the Android-based Dididk Participant Assessment System is a solution to problems at SDS Setia Bakti where this system functions to facilitate school staff such as school operators, teachers, in assessing learning activities that can inform all school stakeholders.

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