

Designing Student's Registration Book and Student's Report Card Processing Application For Pangudi Luhur Don Bosko Elementary School Semarang

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Abstract— The development of information and communication technology continues to run over time in various fields, without exception in the field of education. Master data management of students has now started using electronic media. At Pangudi Luhur Don Bosko Elementary School also used electronic media in its management, but the application has limitations in storing data, therefore the authors designed the "Student's Registration Book and Student's Report Card Processing Application for Pangudi Luhur Don Bosko Elementary School". The purpose of this research is to design and build student's registration book and student's report card processing so that it can facilitate data processing, and determine the factors that influence users to adopt this application. This writing method starts with a literature study followed by the design and construction of the application, the next step is testing the application to making report card. This application is able to store data with a much larger capacity, so it can continue to be used for years. This application can process student data and be a good student data archive. The factor that can influence the user to adopt this application is the student report card archiving feature with a very complex K13 model.

Keywords— Main Book, Report Card, Data, Application

I. INTRODUCTION

Over time the development of technology continues to increase even in the field of education[1]. From its inception, the educational institution was in dire need of data storage media that would be used to record all student data of the media was the student's registration book[1].

Student registration book that still use the manual writing method have a great risk of error in the writing process, besides the manual student's registration book also has a size that is so large that it requires a fairly large storage area[2]. The student's registration book is an archive that stores student data including the report card grades of each student[3].

At the moment Pangudi Luhur Don Bosko Elementary School has used an electronic-based student's registration book that uses the Microsoft Access Database application, but this application has limitations in data storage, so that every year it must be replaced with a new application, because the application can no longer hold new data the following year.

Based on the description above it is known that applications owned by Pangudi Luhur Don Bosko Elementary School currently have deficiency, especially in the management of student's registration book from previous years, because it will take up a lot of storage memory and there will be a lot of these applications in school computers and will continue increase

from year to year. Therefore, the authors conducted research under the title of Student's Registration Book and Student's Report Card Processing Application for Pangudi Luhur Don Bosko Elementary School which will be web-based so that data can be stored online and will facilitate its management.

II. LITERATURE REVIEW

A. Definition of Application

Application is something that can store things, data, work problems into a media that is used to implement things or problems so that it changes into a new form without eliminating the basic values of these things (Jogiyanto, 2005:112)"[4].

B. Website

Website is the whole web pages contained in a domain that contains information and are interconnected[5].

A website will be displayed in a language called HTML (Hyper Text Markup Language)[6].

C. Database

The database is a collection of files that are interrelated and interact, the relationship is connected with the key of each file that exists[5].

While the database system is an information system that integrates data sets that are interconnected with one another and makes it available for several applications in an organization (Kusumadewi, 2004)[7].

D. Student's Registration Book

The student's registration book comes from a combination of two main words namely the registration book and students. According to the KBBI, the master book is a book that contains the biodata of people registered in an organization, residents of an area, and school students[8].

At the moment Pangudi Luhur Don Bosko Elementary School uses an electronic based student handbook application that is using the Microsoft

Access Database application. The application has the disadvantage of having a data storage limit that can only be used in one school year.

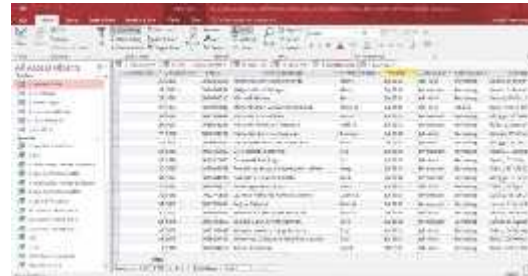


Figure 1. Current Don Bosko PL SD application



Figure 2. Current Don Bosko PL SD application

In this study the authors will make a web-based application so that data can be stored online and will facilitate its management.

E. Report Card

Report cards are reports of student learning values and intelligence at school that are used as reports from schools to parents or guardians of students[9].

F. Archives

Archive is everything that is written, illustrated and recorded which contains an explanation of a matter or information from an event that is used to help memories and / or can be used as guidelines[10].

G. Bootstrap

Bootstrap is a framework used for creating website pages that provide features that are ready to use and easy to develop [11]. Bootstrap has a responsive nature, which is flexible for all devices used to access website pages[11].

According to Spurlock (2013: 1) states that Bootstrap is a framework for CSS and is an

open source product made by Mark Otto and Jacob Thornton[12].

H. PHP dan MySQL

PHP (Perl Hypertext Preprocessor) which is a code or script that will be run on the server side (Deni Sutaji, 2012: 2). PHP is sever side, which means skip work is done on the server, which later the results will be sent to the browser (MADCOMS, 2008: 1)[13].

MySQL is a database management system that is open source. This database system is the brainchild of Michael "Monty" Widenius, David Axmark, and Allan Larson in 1995[14].

III. RESEARCH METHODOLOGY

The application development method applied in this study is the waterfall method. The waterfall method is a systematic and sequential information system development method[15]. The stages begin with requirements analysis, application design, program coding, testing and implementation.

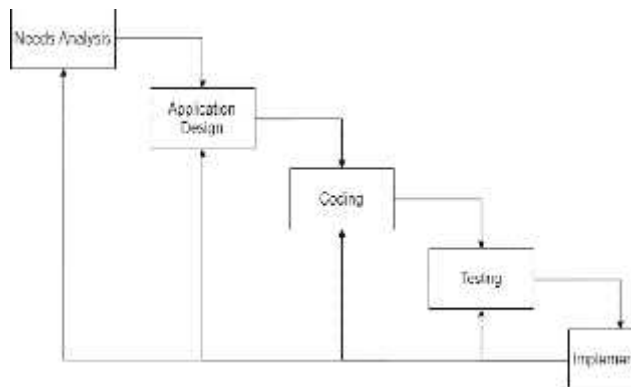


Figure 3. The waterfall method

IV. RESULT AND DISSCUSSION

The application of the Student's Registration Book and Student's Report Card for Pangudi Luhur Don Bosko Elementary School is designed based on a flowchart that will be used by 4 users, namely the principal, administration, homeroom teacher, and teacher.

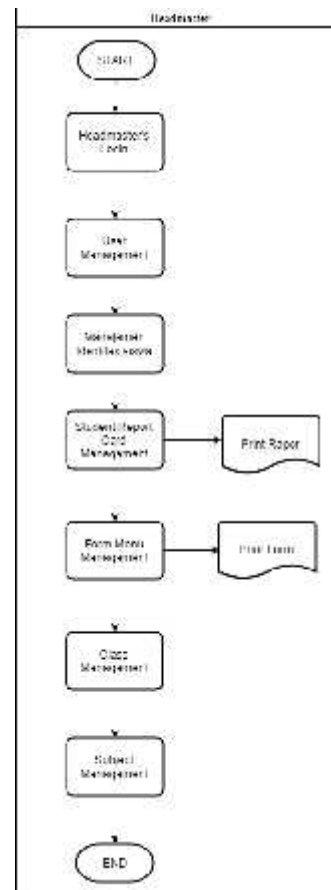


Figure 4. Headmaster User flowchart

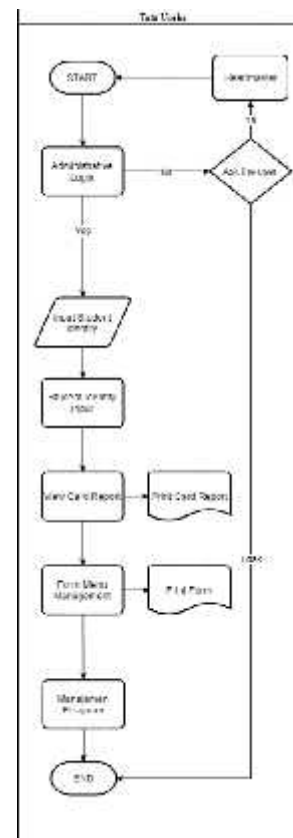


Figure 5. Administration User flowchart

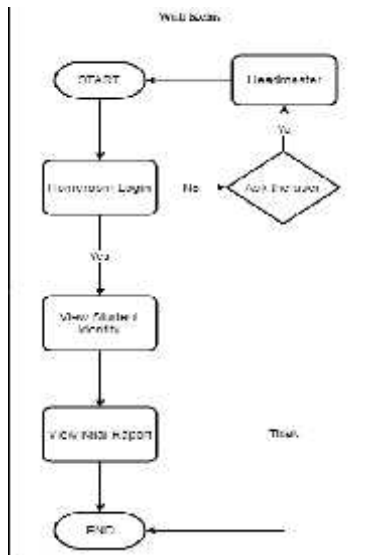


Figure 6. Homeroom teacher User flowchart

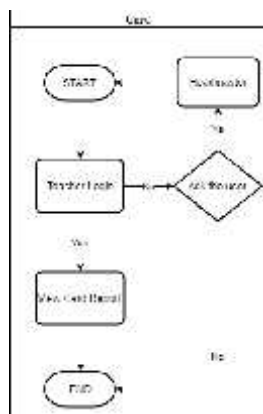


Figure 7. Teacher User flowchart

Making use case diagrams is useful for knowing the number of users and features that can be accessed by each user.

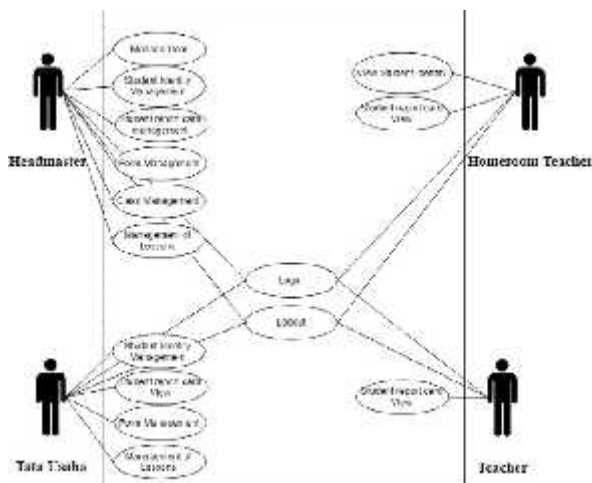


Figure 8. Use Case Diagram

The database in this application is

designed based on ERD in Figure 9-11

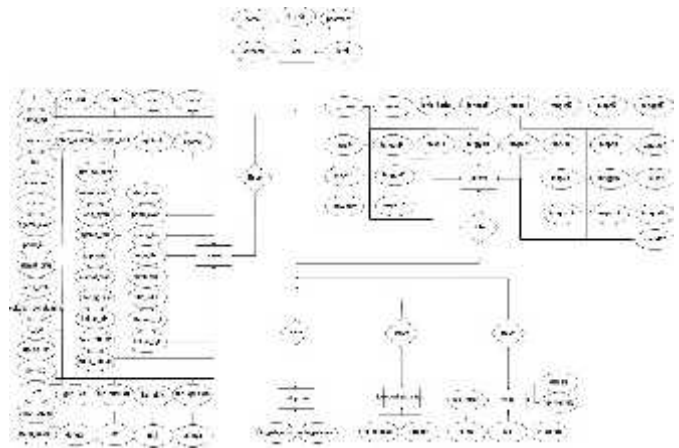


Figure 9. Entity Relationship Diagram Part 1

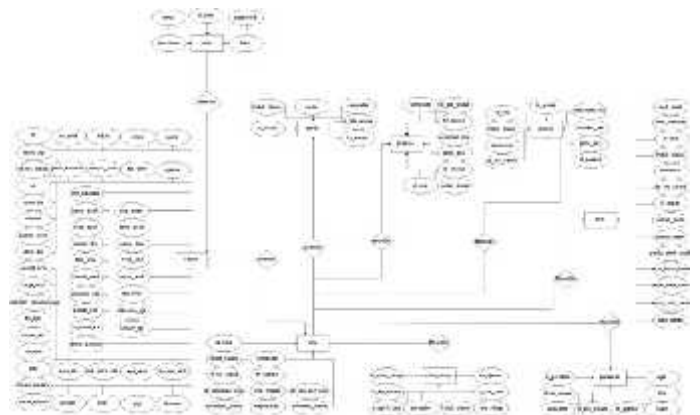


Figure 10. Entity Relationship Diagram Part 2

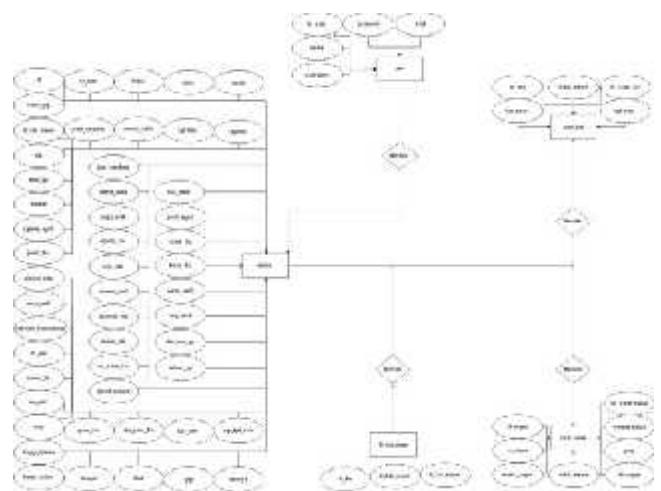


Figure 11. Entity Relationship Diagram Part 3

In the login process is determined by 4 roles to determine what pages can be accessed by that user. The four roles are the principal, administration, homeroom teacher, and teacher.



Figure 12. Login display

The Student identity page has features including adding, updating and deleting data. In addition to these common features, there are also features that add student data by importing through Excel files, then export the data displayed by the table into an excel file, and can select the columns you want to display using the column visibility feature.

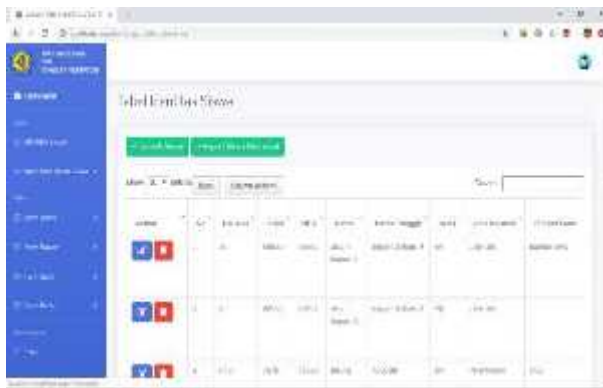


Figure 13. Students' identity page views



Figure 14. The student identity import page display

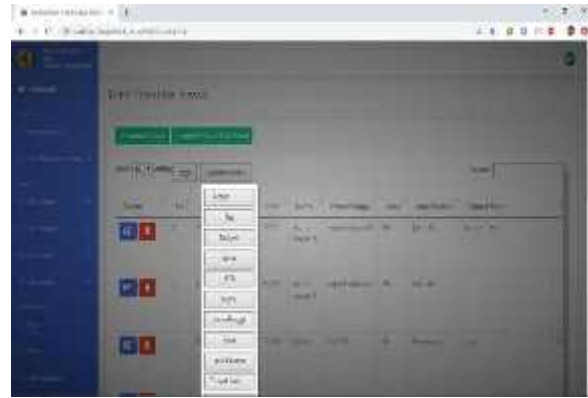


Figure 15. Display column visibility of student identity

The student report card page serves to display the student report card value data which is divided into semester 1 and semester 2 grades. Values that have been inputted can then be updated and printed. The value input process can also be done by importing data from an excel file.

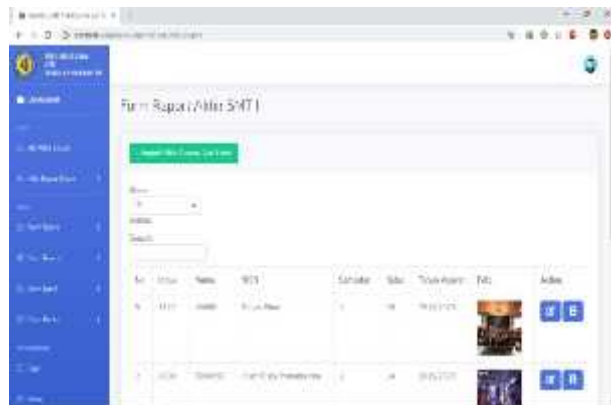


Figure 16. Display of student report card grades



Figure 17. Display page import report card value

The screenshot shows a detailed student report card form. It includes fields for student name, class, and semester. The main body contains a table for 'REKOR PRESTASI BELAJAR' (Learning Achievement Record) with columns for subject, score, and grade. Below this is a section for 'REKOR KEMUNDURAN BELAJAR' (Learning Lag Record) and a section for 'REKOR KEMUNDURAN BELAJAR' (Learning Lag Record).

Figure 18. Display print of student report card on page 1

This screenshot displays the personal data and academic performance section of the report card. It includes fields for name, address, and contact information. Below this is a table for 'REKOR PRESTASI BELAJAR' (Learning Achievement Record) with columns for subject, score, and grade. The table shows scores for subjects like Bahasa Indonesia, Matematika, and Ilmu Pengetahuan Alam.

Figure 19. Display print of student report card on page 2

The student master form page functions to display student data, which can later be printed and can display all student identities in the student master book.

The screenshot shows a student master form titled 'BUKU INDIK SISWA SD PANGUDI LUHUR DON BOSKO'. It contains a list of student data with columns for name, class, and other identifying information. There is a small image of a student on the right side of the form.

Figure 20. Display print form student master

Student report card pages function to display student data, which can later be printed and can display student identity, which will be used as student identity on student report cards.

The screenshot shows a student report card cover form titled 'IDENTITAS SISWA'. It contains a list of student data with columns for name, class, and other identifying information. There is a small image of a student on the left side of the form.

Figure 21. Display print form student report cards

The report card cover form page serves to display student data which can later be printed later used as a cover label on the student report card.

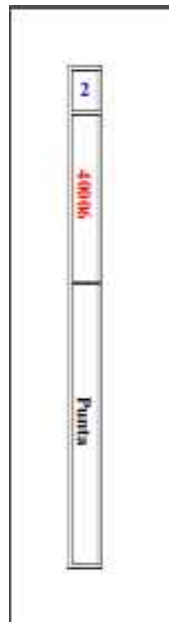


Figure 22. Display of printed report card cover sheet

The report card cover form page serves to display student data which can later be printed and can display student data needed, in the student report card cover.

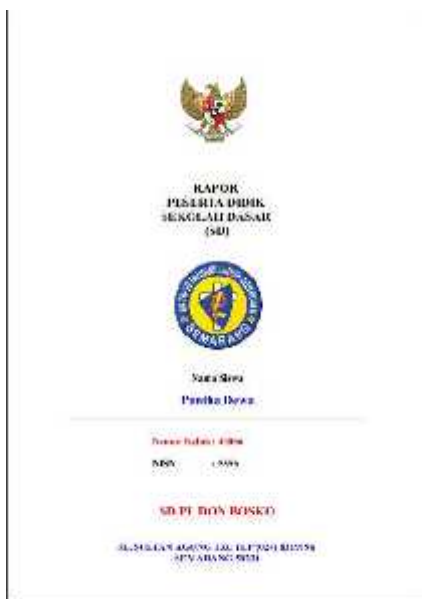


Figure 23. Display report card cover print

The school transfer report form page serves to display student data which can later be printed and can display the student data needed, in the school transfer report card.

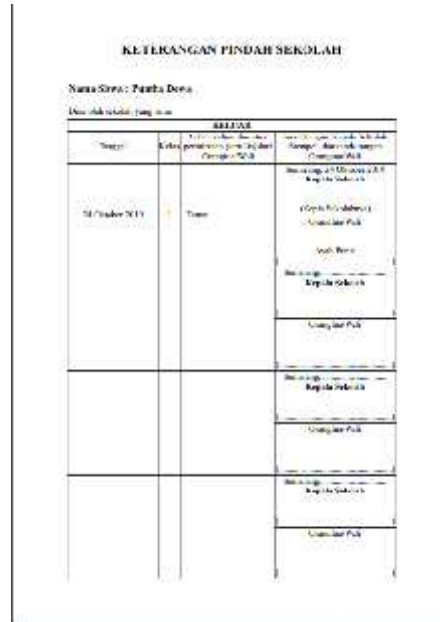


Figure 24. Display report card transfer school

The school entrance report form page serves to display student data which can later be printed and can display student data needed, in the school entry report card.



Figure 25. Display report card entry to school

The school transfer request page serves to display student data which can later be printed and can display student data needed, in the application letter for transferring schools.



Figure 26. Display print of transfer request letter

The transfer page form page serves to display student data which can later be printed and can display the student data needed, in the transfer letter.



Figure 28. Display print certificate of transfer to school page 2

The certificate form page functions to display student data which can later be printed and can display the required student data, in a certificate.



Figure 27. Display print certificate of transfer to school page 1

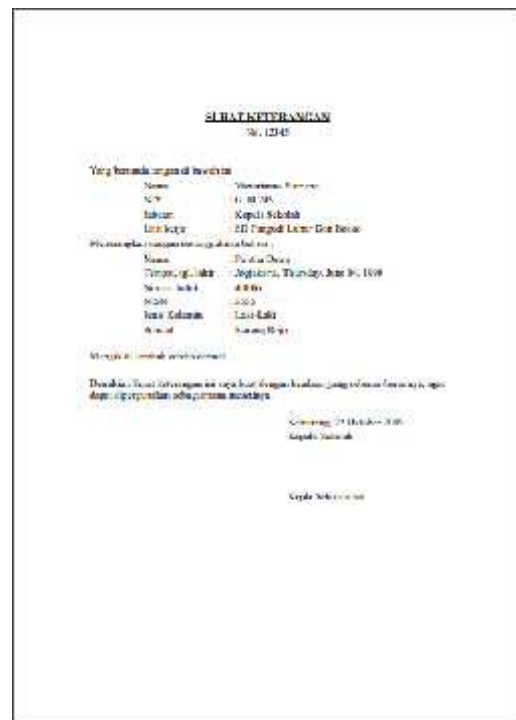


Figure 29. Display page print certificate

The assignment form page serves to display student data which can later be printed and can display student data as needed, in the assignment letter.

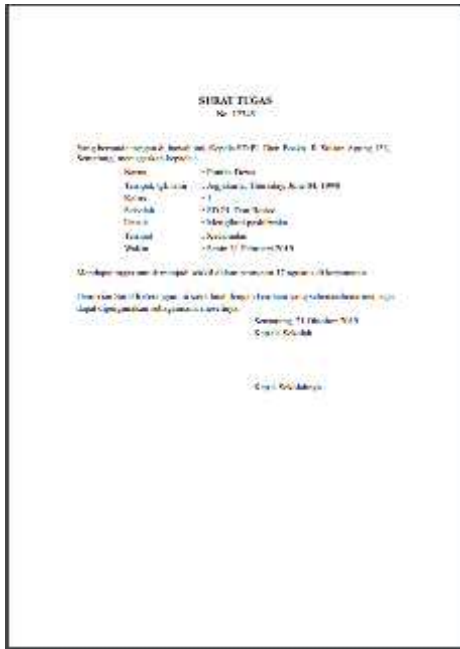


Figure 30. Print job page views

The card form page functions to create exam cards for students. The exam card can be in the form of midterm 1, final exam semester 1, midterm exam 2, and final exam semester 2.



Figure 31. Test card printout results

The user page is for the principal, on this page the principal can add new users, and determine in what level the user is included. In addition, the principal can also do the update and delete process.



Figure 32. User page views

The class page is for the principal, on this page the principal can add new classes and can also do the update or delete process. Classes also contain homeroom data and the school year.



Figure 33. Class page views

The subject page is for the principal, on this page the principal can add new subjects and can also do the update or delete process.

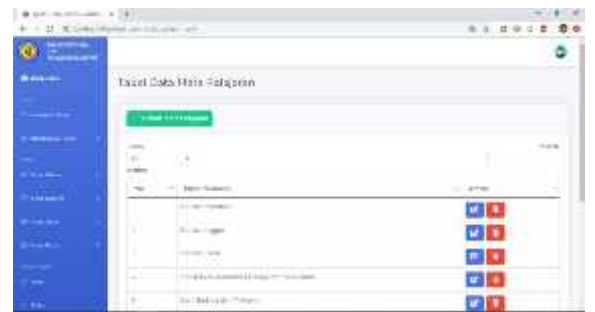


Figure 34. Subject page views

Interview result

Interviews were conducted at Pangudi Luhur Don Bosko Elementary School with the school principal. The following are the results of the interview.

This application is very good and very needed for SD Pangudi Luhur Don Bosko, this application is very helpful in processing

student master books because it can accommodate student data, and manage data so that it can display the data needed for administrative purposes such as letters correspond.

With the import of data from excel archiving values becomes very easy, and can be done in seconds. The correspondence forms are very helpful because the features are made according to the request of the school, which is made similar to the application that the school has today, so that its use is very easy.

The best feature is the filing of report cards because the report card model K13 is very complex at this time with so many values especially with the long description-shaped value, so it is greatly helped by the data storage feature that is so long in this application.

V. CONCLUSION

The design of the Student's Registration Book and Student's Report Card Processing Application for Pangudi Luhur Don Bosko Elementary School begins with designing the initial display framework, followed by designing the database, so that it knows what entities should be related and easy to develop.

Strategies so that the Student Registration Book Application and student report card processor for Pangudi Luhur Don Bosko elementary school are applications that can simplify student data processing and be a good student data archive and provides data import features through Excel files, so that the input process becomes easy and fast.

Factors affecting prospective users of the Student Registration Book Application and student report card processor for Pangudi Luhur Don Bosko elementary school to adopt this application are the report archive features, because the current K13 model report card is very complex with many grades, especially with old grades, values in the form of descriptions, so it is greatly helped by the large data storage feature in this application.

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