



DESIGNING A WEB-BASED ACHIEVEMENT MANAGEMENT INFORMATION SYSTEM

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Abstract

The development of technology is increasingly advanced, and increasingly entering the digital era, everything we need is made easier with technology. One is in the achievement management of each student by using the achievement management information system. This information system uses a development research method consisting of analysis, design, flow and factor design, implementation (coding) and trials. The purpose of creating this information system is to design and build an achievement management information system at SMA Negeri 1 Wonosari Klaten. This system begins with analyzing system needs, creating business processes, designing ERD, making system designs, and designing user interfaces. In conducting the test, this system uses the BlackBox method. The result of this system is that it runs well and corresponds to its functionality.

Keywords: achievement management, information system

INTRODUCTION

The development of technology is increasingly advanced, and increasingly entering the digital era, everything we need is made easier with technology. One of these is to manage our data has been facilitated with applications so that it is more effective and well organized.

In state high schools in Central Java, the management of students' academic and non-academic achievements is still carried out manually to select students for representatives of an academic competition (OSN) and Non-Academic teachers in the field of study and extracurricular supervisors must test students' abilities one by one by giving questions and then given a deadline for work and then the final results are used as the weight of the scores of the student recommendation provisions to become representatives of the competition participants. After that, in managing student scores to be used as a report card in paper form, the teacher in the field of study provides data to the homeroom teacher and the data is accumulated from the overall score and student activities during the final semester or report card scores which the homeroom teacher then gives to the curriculum to be input to a computer using Microsoft Excel then the results are in the form of outputs and then given to the principal. The principal's task is only to receive or control the data Assessment of student scores, which still needs to be more accurate and effective in data storage. The facilities owned by Microsoft Excel cannot check data automatically, causing a lack of data accuracy. The process is always repetitive, so it feels slow and ineffective.

From the problems described above, a system in the form of a web is needed that will use to solve the problem. The newly implemented system can make it easier for users, namely teachers, homeroom teachers, and principals, to manage accurate data storage and make it easier for homeroom teachers and principals to control the system that is already running. Furthermore, agencies also make it easier to manage student achievement and can display academic and non-academic student scores that must prepare to increase productivity. This system also facilitates agencies in selecting students to be submitted as school representatives for academic (OSN) and Non-Academic competitions.

This research aims to design and build an achievement management information system at state high schools in Central Java. This research is supported by several studies, including those carried out by (Irfan Sidni, 2018) with the title "Designing Monitoring Academic Achievement and Student Activities Using a Key Performance Indicator Approach (Case Study of SMA N 1 Kalirejo)". The method used in solving the problem in this study is the system development method using the Waterfall

method and system design using UML (Unified Modelling Language): Usecase Diagram, Activity Diagram, Class Diagram, and Sequence Diagram, while for programming languages using PHP, the application is DreamWeaver and MySQL as a Monitoring database. Designing web-based monitoring of academic achievement and student activities can make it easier for teachers and parents to find out information on their child's grades by opening the website Designing Monitoring Academic Achievement and Student Activities.

Furthermore, what was done by (Hartatik and Elvina, 2020) was titled "Optimization of Student Graduation Prediction Models Using the Naive Bayes Algorithm". In his discussion, Hartatik wrote that several factors affect student achievement in studying. Based on the two previous studies, in this study, a website-based student management information system design will be developed so that it can be used to monitor and provide decisions on student achievement management.

METHOD

In this study, the authors used a development research methodology. Development research methodology is research used to produce a particular product and test the effectiveness of that product. There are several stages in carrying out the development research methodology, including:

1. Analysis

The analysis stage is the stage of analyzing what the system needs, both from teacher data, student data, class data, subject data, grade data and student grade recapitulation.

2. Design

This design stage designed and designed a "Web-Based Achievement Management Information System with a case study at one of the state high schools in Central Java".

3. Flow and factor design

Designing pipelines, determining factors, and designs used to create the system.

4. Implementation (coding)

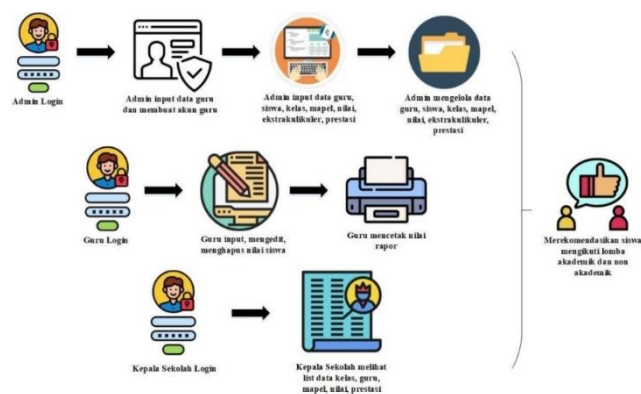
The coding method is a way of making a website application using a script editor, such as processing and creating an effective, efficient, and attractive design to create an application.

5. Test drive

After all the stages are completed, the last stage is the trial stage. The Author conducted a trial of the results of designing and creating a web-based achievement management information system (case study: at one of the state high schools in Central Java).

RESULTS AND DISCUSSION

The business process of this information system starts from the admin login and inputs teacher data. It creates an account for the login, namely username and password, students, classes, subjects, extracurriculars and achievements. After that, the teacher can log in. The teacher of the field of study deposits grades with the homeroom teacher to input grades, including daily test scores of 1-3, UTS, and UAS. After the input process has been completed at the end of the semester, each homeroom teacher prints the report card score to be used as a learning report that will be given to the parents/guardians of the students. The principal can only see the list of class data, teachers, subjects, grades and recommendations of outstanding student representatives. After the scores of all the students' subjects have been inputted by the homeroom teacher automatically, the system will recommend outstanding



students to represent the school in a competition held by the district or province. The business process of the achievement management information system can be seen in figure 1.

Figure 1. Business Process

The Usecase Diagram shows the relationship of functions in the system as described by functional needs. The Usecase Diagram of the Web-Free Achievement Management Information System (with a case study at one of the state high schools in Central Java) can be seen in figure 2.

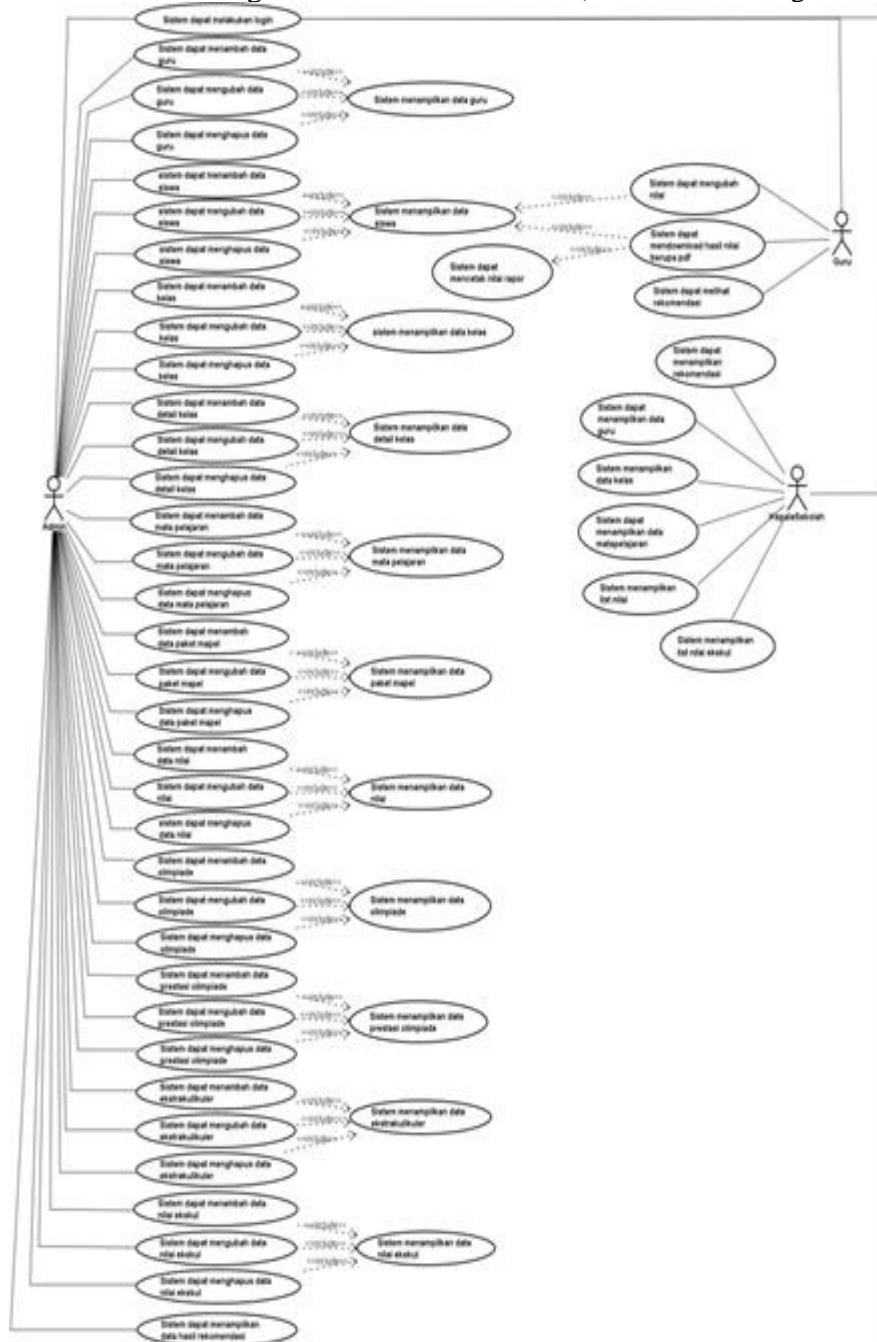


Figure 2. use case diagram

In designing this web-free performance management information system, there is an activity diagram to describe the workflow or activity of a system or business process in the software. This activity diagram illustrates activities for both business processes and use cases. The following are some of the activity diagrams that exist in the role of a web-based achievement management information system.

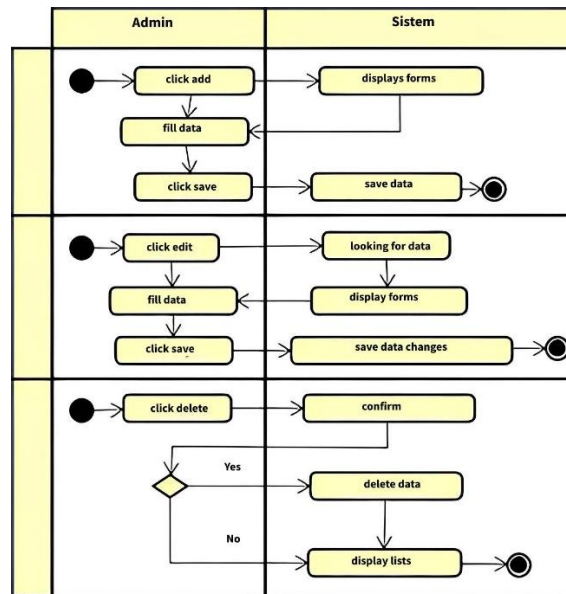


Figure 3. student data management activity diagram

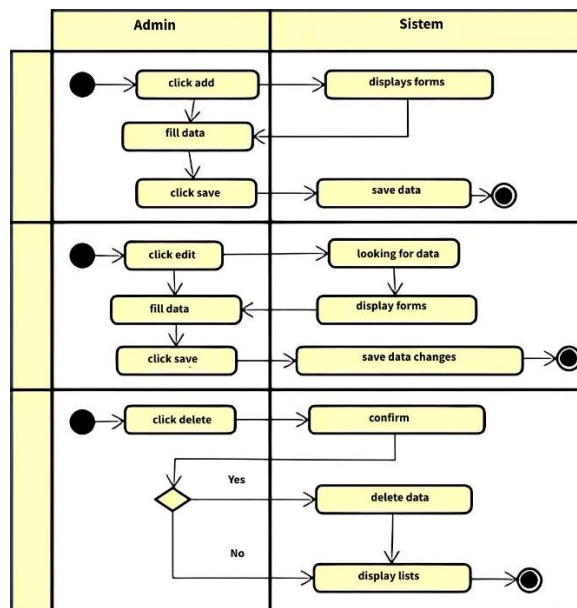


Figure 4. value data management diagram activity

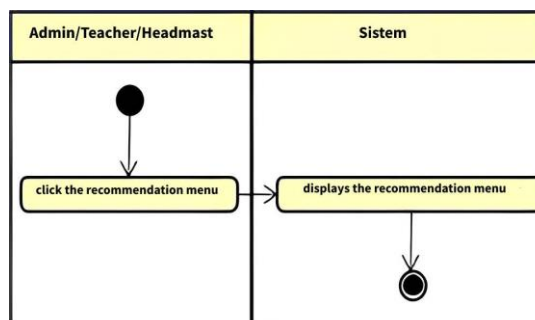


Figure 5. activity diagram looking at recommendations of outstanding students

Figure 6. It is an image of an entity relationship diagram used in database design to explain the relationship between data in a database system based on a perception that the real world of basic objects has a relationship between them. The following is an image of the entity relationship diagram of a web-based achievement management information system.

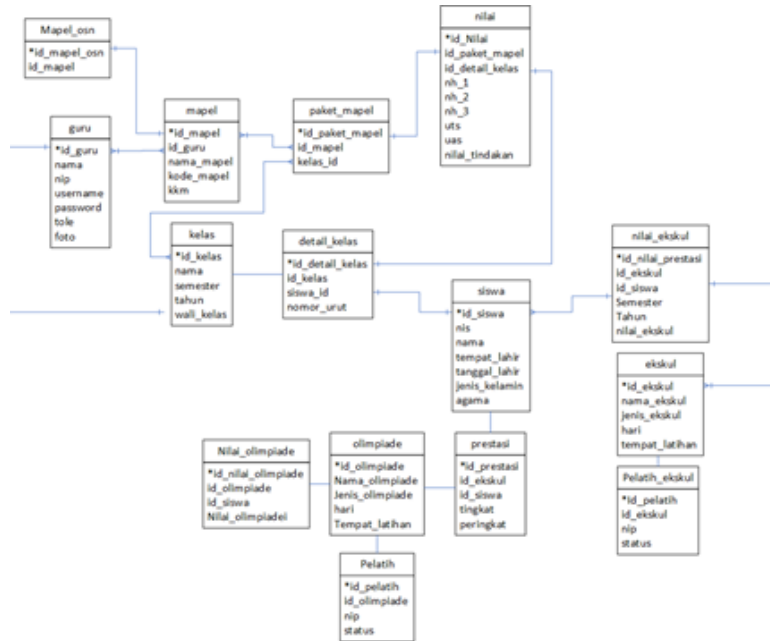


Figure 4. Entity relationship diagram

Before implementing a web, it is necessary to compound the user interface so that the display results displayed are implemented in the product as desired. The following are some of the user interface designs of the web-based performance management information system shown in Figure 5.6.

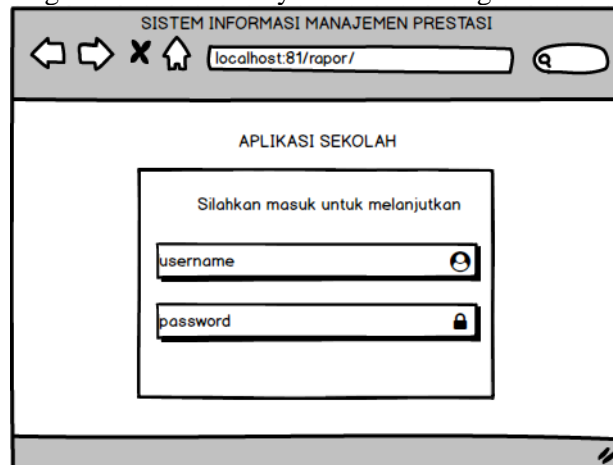


Figure 5. login page layout

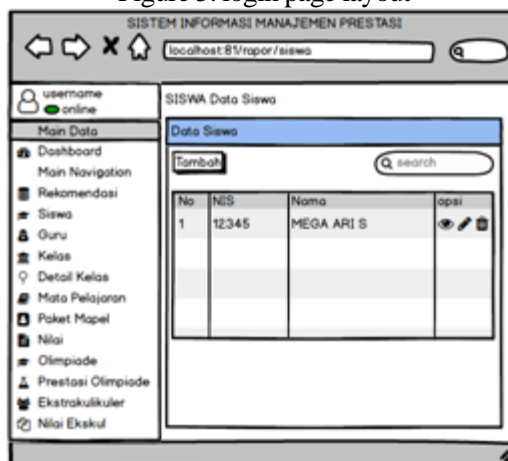


Figure 6. designing a student data list page

The method used to determine the ranking in this information system is to use the highest ranking weighting. In the design of student achievement recommendations, data collection and preparation are carried out to produce a score based on the weighting carried out, Shown in Figure 7-Figure 9.



Figure 7. designing a recommendation page

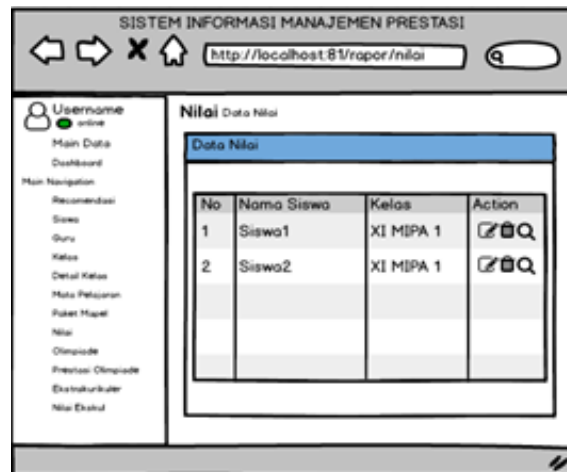


Figure 8. designing a score page

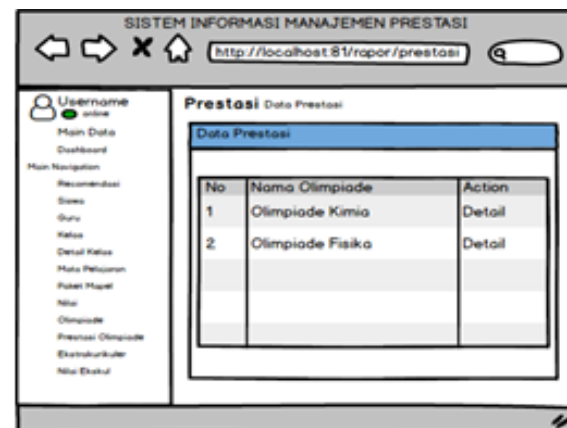


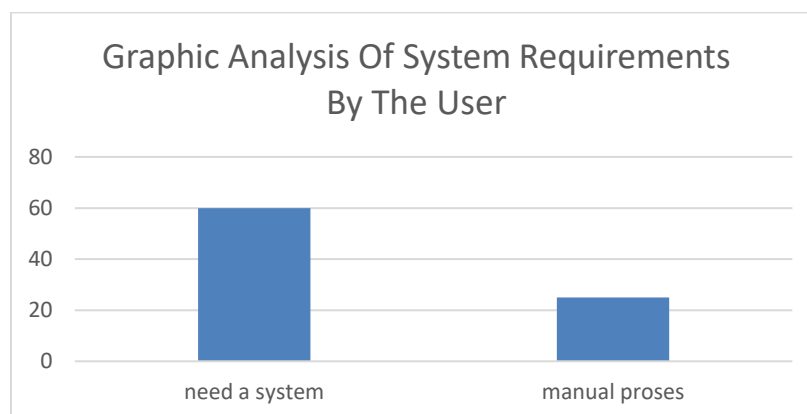
Figure 9. Designing an Olympic achievement page

Test design is the design of what will be tested on the system. If the system can pass this test, then the system is declared successful. The table of test designs with the BlackBox method for performance management information systems can be seen in table 1.

Table 1. System Testing Design

No	Tested functionality	Scenario	Indicators
1	Login	Access the login page and enter your username, password and role.	The system will successfully enter the dashboard according to the role user
2	View student data	Admin presses Student menu	The system will successfully enter the student data list page
3	Add student data	Admins press the add student data button, fill in student data, and press the Submit button	The system will successfully enter the add student data page. After pressing submit, the system can enter data into the database
4	Change student data	Admin presses the change student data button, change student data, and presses submit button.	The system will successfully enter the change student data page. After pressing submit, the system can change the data and return to the data page student.
5	Delete student data	The admin presses the delete student data button and the delete confirmation button.	The system will Brings up the Delete Student Data confirmation pop-up. After pressing the confirmation button, the data will be Erased
6	View details student data	Admin pressing the button Student data details	The system will View the Student Data Detail page
7	View teacher data	Admin presses Teacher Menu	The system will successfully log in to Teacher Data List Page
8	Add teacher data	The admin presses the add teacher data button, fills in the teacher data, and presses the submit button	The system will successfully enter the add teacher data page. After pressing submit, the system can enter data into the Database
9	Change teacher data	Admin pressing the button Change teacher data, change teacher data and press submit button	The system will successfully log in to Change the Teacher Data page. After pressing submit, the system can change the data on the database and return to Teacher Data Page
10	Delete teacher data	Data	The admin pressed the teacher's data delete button and pressed the delete confirmation button
11	View teacher data	Detail	Admin pressing the button Teacher data details
12	View student recommendations	Admin presses the recommendations menu	The system will display a list of student recommendations according to predetermined criteria.

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|----|--|---|--|
| 13 | Print the results of the report card value | Admin presses the download button of the report card value result | The system will display a pdf preview of the results of the report card value and print the data |
|----|--|---|--|



Gambar 10. Graphic analysis of system requirements by the user

The planning of a website-based information system in this study was based on academic needs in high schools, and this refers to a survey that researchers have conducted; that is, out of 100 student and teacher respondents, it is necessary to have a system that can provide recommendations for student achievement ratings as shown in Figure 10. An achievement management system is needed and can help facilitate and speed up academic services.

CONCLUSION

The design of a web-based achievement management information system is a design that is used to create a system that aims to make it easier for users to manage achievement data so that it is easy to use data. Furthermore, this system planning is further developed so that it can be implemented for the advancement of school achievement.

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