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RESEARCH ARTICLE

DATABASE DESIGN FOR PRIVATE HIGH SCHOOL ACADEMIC INFORMATION SYSTEM

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Database, Design, Academic Information System

Abstract

This study aims to design a database for a private high school academic information system. This type of research is action research. The development of Information Technology, can support the creation of good management in high school. Information technology is useful so that management in the organization can run and work well. At this time, private high schools do not yet have a database that is able to provide information on student and teacher services, where the database is needed for the academic information system. Therefore, it is necessary to design a database for private high school academic information systems so that the table design is as follows: Student Tables, Teacher Tables, Room Tables, Schedule Tables, Class Tables, Subject Tables, Grades Tables, and Admin Tables and also designed Also the Teacher Login menu, Student Login, Administrator Login, and Student value input menu, Teacher data input menu, Student data input menu, teaching schedule menu, and news management menu. The results of this database design are very useful for private high schools.

Introduction:-

The application of information technology has now spread almost in various fields without exception in the school environment. Information technology that is growing is very supportive for the smooth teaching and learning process and school administration management.

The process of teaching and learning activities carried out between students and teachers. The results of these activities are usually evaluated by the teacher by giving exam questions to students.

The student's test results are usually in the form of academic scores which are then reported on a student learning progress report book or report card every semester. Then the report card is used to report the results of student progress during teaching and learning activities. The report card is usually given to the student's guardian by the school where the teaching and learning is being held, in this case the school where the teaching and learning is done is a private high school. These problems, for example, take a long time to find, manage grades and present student grades and data in the form of a ready-to-print report.

The application of student grade data is an alternative method in overcoming the problems mentioned above. By utilizing current information technology, efficiency in the process of presenting a student's academic data will be fulfilled.

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Research Problem
In accordance with the background described above, the formulation of the problem is as follows:

How to design a database for academic information systems in private high schools well?

Research Objective:-
Designing a database for a private high school academic information system.

Literature Study:-
System
According to Davis, G. B (1991), the system is a collection of elements that operate together to complete a goal.

According to Indrajit (2001), the system is a collection of components that have elements of interrelationships with one another.

According to Jogiyanto (2005), the system is a network of interconnected procedures that gather together to carry out an activity or complete a particular target.

According to LaniSidharta (1999), the system is a set of interrelated parts, which together achieve the same goals.

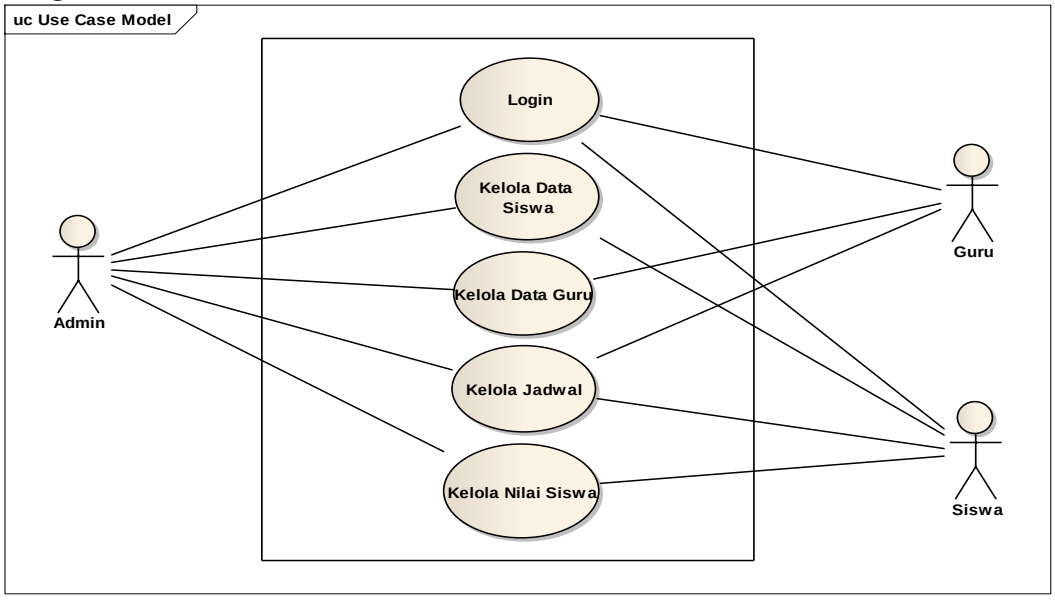
According to Raymond McLeod and Schell (2001), the system is a group of elements that are integrated with the same intent to achieve a goal. Not all systems have the same combination of elements.

Web Application
A web application is a method for displaying information on the internet, whether in the form of interactive text, images, sound or video and has the advantage of linking (link) one document to another (hypertext) that can be accessed through a browser.

web applications are the most visible part of the world's largest network, namely the internet.

Web applications are collections of graphically rich information resources that are interconnected with each other in the larger internet.

Research Method:-
Use Case Diagram

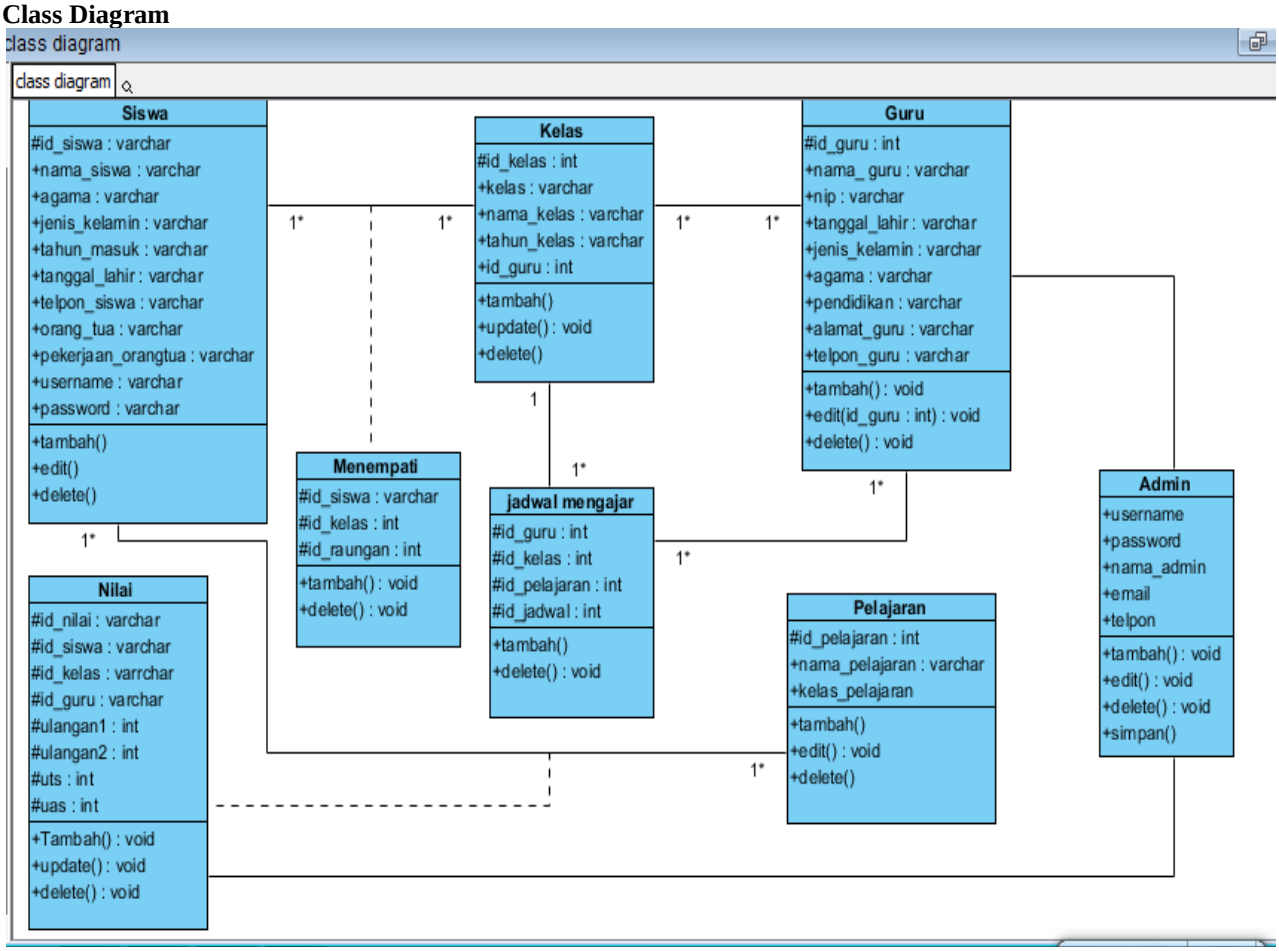


Picture1:- Use Case Diagram.

Picture description :

1) Use Case : Login
   Actor : Admin
   Goal : authentication to enter admin page
   Description : The admin enters the username and password in the input field. If the username and password are correct, the admin will enter the admin menu page. If the username and password are incorrect, the admin will remain on the login page with failed login status.
2) Use Case : Siswa
   Actor : Admin
   Goal : insert Siswa data
   Description : Admin enters the student data page, press the plus button to add student data, input student data then press the save button to save the data, if you want to change student data, press the edit icon on the student data page, if you want to delete student data, the admin just presses the delete button on the page student data.
3) Use case: Guru
   Actor : Admin
   Goal : insert Guru data
   Description : Admin enters the teacher data page, press the add button to add teacher data. Input teacher data then press the save button to save the data. if you want to change teacher data, press the edit icon on the teacher data page. If you want to delete teacher data, the admin just presses the delete icon.
4) Use case :Jadwal
   Actor : Admin
   Goal : insert JadwalPelajaran and JadwalMengajar data
   Description : Admin enters the lesson data page or teaches press the add button to add lesson data or teach input lesson data then press the save button to save the data if you want to change the lesson data press the edit icon on the lesson and teaching data page, if you want to delete lesson data, admin just press the delete icon on the lesson data page.
5) Use case: manageNilaiSiswa
   Actor : Admin
   Goal : insertNilai
   Description : Admin enters the grades page, a list of teachers will appear, select a teacher who will display a list of lessons, select a lesson then the students will appear flat along with the column to input the value, input the value then press the input button.
6) Use case: Login
   Actor : Siswa
   Goal : Siswa page authentication
   Description : The student enters the login page. Then the student enters the username and password in the input column. If the username and password are correct, then the student will enter the student menu page. If the username and password are incorrect, the student will remain on the login page with failed login status.
7) Use case: NilaiSiswa
   Actor : Siswa
   Goal : viewnilai
   Description :Students enter the odd semester academic page, determine the class choice, a list of odd semester scores will appear according to the selected class.

Class Diagram



Picture2:- Class Diagram

Result And Discussion:-

Database Design

The database specifications that provide a detailed explanation of each database used in the Private High School Web-Based Student Assessment information system are as follows:

a. Nama field :data_siswa
Media :Hard disk
Content :Data_dataSiswa
Primary key :id_siswa
File structure :

Table1:- Siswa Database Specification.

No	Field Name	Type	Width	Description
1	Id_siswa	Varchar	8	Id_Siswa/NIS
2	Nama_siswa	Varchar	20	Nama siswa
3	Tanggal_lahir	Varchar	10	Tanggal lahir
4	Tahun_masuk	Varchar	4	Tahun masuk
5	Jenis_kelamin	Varchar	10	Jenis kelamin
6	Agama	Varchar	12	Agama
7	Alamat_siswa	Text	25	Alamat siswa
8	Telpon_siswa	Varchar	12	Telpon siswa
9	Orangtua	Varchar	25	Orang tua
10	Pekerjaan_orangtua	Varchar	25	Pekerjaan orangtua

11	Username	Varchar	15	Username
12	Password	Varchar	15	Password

b. Nama field : data_guru
Media : Hard disk
Content: Data-data Guru
Primary Key : id_guru
File structure :

Table2:- Guru Database Specification.

No	Field Name	Type	Lebar	Description
1	Id_guru	Int	4	Id_guru
2	Nama_guru	Varchar	30	Nama guru
3	Nip	Varchar	15	NIP guru
4	Tanggal_lahir	Varchar	10	Tanggal lahir
5	Jenis_kelamin	Varchar	12	Jenis kelamin
6	Agama	Varchar	10	Agama
7	Pendidikan	Varchar	5	Pendidikan
8	Alamat_guru	Varchar	25	Alamat guru
9	Telpon_guru	Varchar	12	Telpon guru

c. Nama Field : setup_pelajaran
Media : Hard disk
Content: Data-data pelajaran
Primary Key : id_pelajaran
File structure :

Table3:- Pelajaran Database Specification.

No	Field Name	Type	Width	Description
1	Id_pelajaran	Int	4	Id pelajaran
2	Nama_pelajaran	Varchar	25	Nama pelajaran
3	Id_kelas	Cahr	1	Id_kelas

d. Nama Field : setup_kelas
Media : Hard disk
Content: Data-data kelas
Primary Key : id_kelas
File structure :

Table4:- Kelas Database Specification.

No	Field Name	Type	Width	Description
1	Id_kelas	Int	4	id kelas
2	Kelas	Char	1	Kelas Pelajaran
3	Nama_kelas	Varchar	2	Nama kelas
4	Tahun_kelas	Varchar	4	Tahun kelas
5	Wali_kelas	Varchar	4	Wali kelas

e. Nama Field : tbl_kelas
Media : Hard disk
Content: Data-data kelas
Primary Key : id_kelas + id_siswa
File structure :

Table5:- Ruangan Database Specfication.

No	Field name	Type	Width	Description
1	Id_ruangan	Int	4	Id Ruangan
2	Id_kelas	Int	4	Id Kelas
3	Id_siswa	Varchar	8	Id Siswa
4	Tahun	Varchar	4	Tahun Raungan

f. Nama Field : tbl_jadwal
Media : Hard disk
Content: Data-data jadwalpengajaran
Primary Key : id_kelas + id_siswa+id_pelajaran
File structure :

Table6:- Jadwal Database Specification.

No	Field Name	Type	Width	Description
1	Id_jadwal	Int	4	Id Jadwal
2	Id_kelas	Int	4	Id kelas
3	Id_guru	Int	4	Id guru
4	Id_pelajaran	Int	4	Id pelajaran
5	Ket	Varchar	15	Keterangan

g. Nama Field Nilai : tbl_nilai
Media : Hard disk
Content : Data-data jadwalpengajaran
Primary Key : id_kelas + id_siswa+id_pelajaran
File structue :

Table7:- Nilai Database Specification.

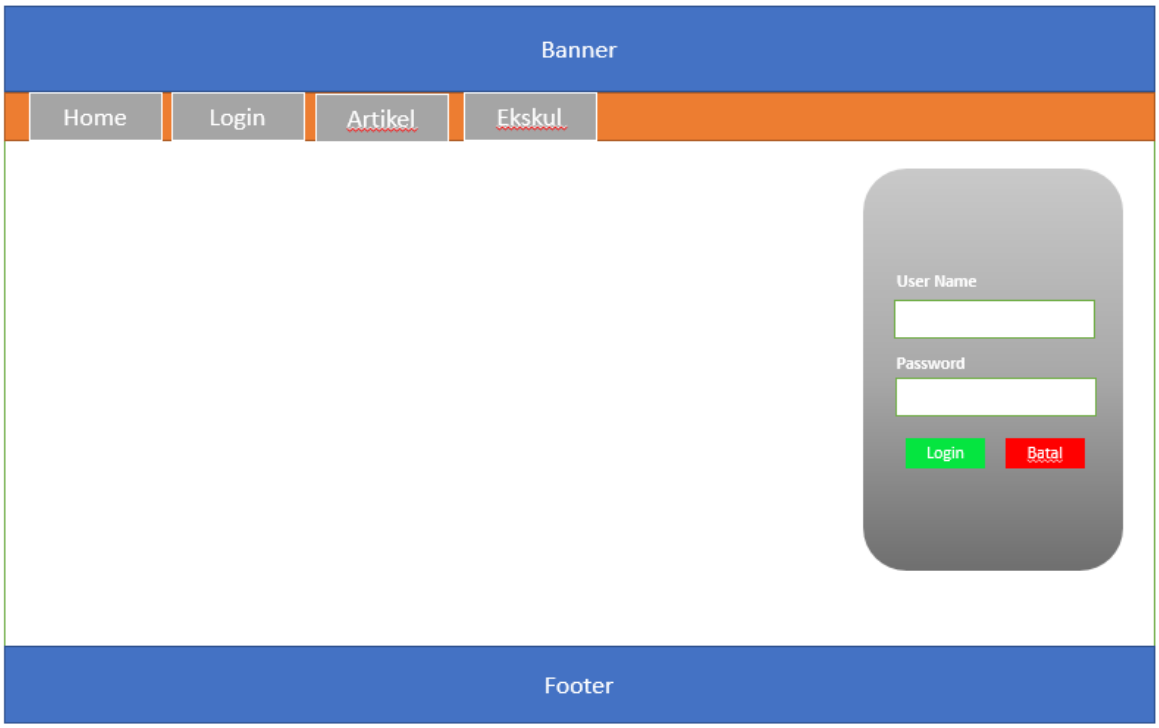
No	Field Name	Type	Width	Description
1	Id_kelas	Int	4	Id kelas
2	Id_guru	Int	4	Id guru
3	Id_pelajaran	Int	4	Id pelajaran
4	Id_siswa	Varchar	8	Id siswa
5	Ulangan 1	Int	3	Nilai ulangan pertama
6	Ulangan 2	Int	3	Nilai ulangan kedua
7	Nilai_uts	Int	3	Nilai ujian tengah semester
8	Nilai_uas	Int	3	Nilai ujian akhir semester

h. Nama Field : tbl_Admin
Media : Hard disk
Content: Data Admin
Primary Key : Username + Password
File structure :

Table8:- Admin Database Specification.

No	Field Name	Type	Width	Description
1	Username	Varchar	4	Username
2	Password	Varchar	20	Password

Login Guru Design

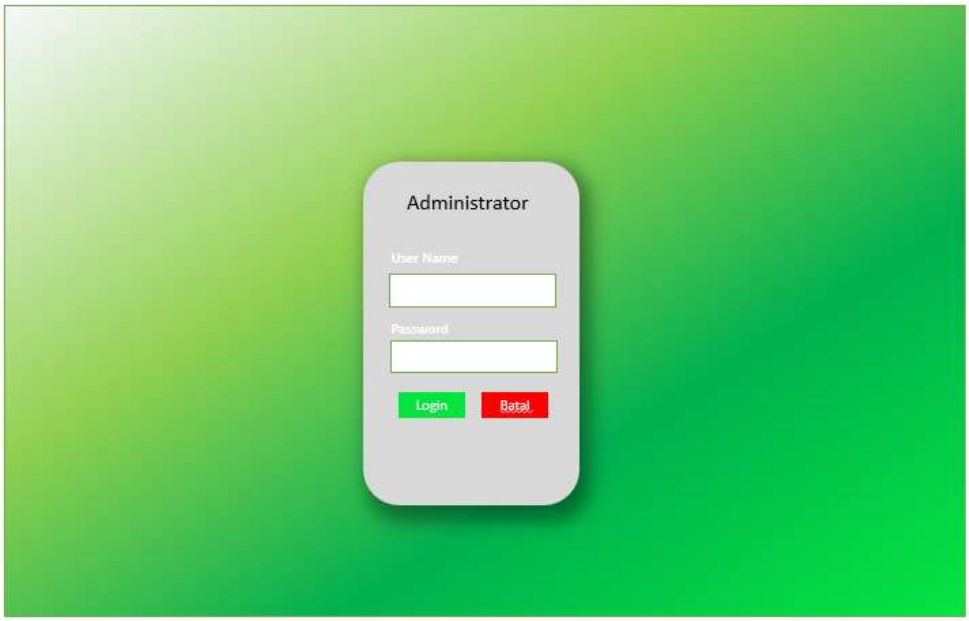


Picture3:- Login Guru Design.

Login Siswa Design

Picture4:- Login Siswa Design.

Login Admin Design



Picture5:- Login Admin Design.

Conclusion:-

Has successfully designed a database for academic information systems in private high schools well.

Suggestion:-

Some suggestions that can be expected to be useful input are:

1. There is an assessment database design to be more specific and more user friendly.
2. The new database design needs to be supported by good maintenance so that it can run as expected.

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