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Design of Student Values Information System At Stmik Methodist College Binjai

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ABSTRACT

Information technology in this modern era has developed so fast and sophisticated. Every education sector is expected to be able to utilize information technology as a support for operational activities in producing information. STMIK Methodist Binjai is one of the institutions that uses computerization in its data processing, such as processing academic grades and making final grades in the form of Study Result Cards (KHS). The problems that occur today are related to the procedures carried out in the process of processing academic grades. Such as when filling out the KRS which still uses handwriting, and the printing of the KHS which is not updated because it is not well organized between lecturers and the study program.

Keyword: E *Value Information System, Students, Values*.

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1. INTRODUCTION

Information systems (IS) are a combination of information technology and the activities of people who use that technology to support operations and management (Laisina, Haurissa and Hatala, 2018). Meanwhile, according to (Nugroho, 2015) Information system is a collection of elements or sub-systems that are put together that are interrelated or related to manage data so that it is useful for decision making at this time or in the future. Meanwhile, according to (Nataniel, 2009) Information system is a man-made system which generally consists of a set of computer-based components and manuals made to collect, store, and process data and provide output information to users.

The conclusion that the information system includes a number of components (humans, computers, information technology and work procedures), there is something that is processed and intended to achieve a certain goal or goal.

The student academic information system is a system specifically designed for the purposes of managing student and university academic data. The data is designed with the application of computer technology that is tailored to the needs of the university so that overall academic activities can be managed properly and can be used in university decision making.

STMIK Methodist Binjai is one of the institutions that uses computerization in its data processing, such as processing academic grades and making final grades in the form of Study Results Cards (KHS). The problems that occur at this time are related to the procedures carried out in the processing of academic grades, where the process of delivering the information is still using a notification board as a means of value information in paper form, and also like when filling out the KRS which still uses handwriting while for value information and printing of KHS only when the current semester has been completed or the value is not yet known, even though the semester is over, students also do not know the value.

The supervision process will be carried out on students who are actively participating in lecture academic activities or activities such as knowing information on student grades, so that academic information on lectures is only known by the student. At the STMIK Methodist Binjai campus, some

parents find it difficult to find information related to academic activities on campus, such as grades information, so this becomes parental anxiety when students cannot complete lectures on time, because all parents hope that their children can take part in activities academics and make maximum use of them to complete their studies. Because not all students can explain in detail the information about the academic value of lectures.

Based on the existing problems, it is necessary to have a system that can overcome these problems so that the processing and value data and services to students become more optimal and effective. The student value information system is a system used by educational institutions that is used to improve services to students.

2. RESEARCH METHOD

2.1 PHP (Perl Hypertext Preprocessor)

PHP is a programming language to run through web pages, generally used to process information on the internet. Meanwhile, in another sense, PHP stands for Hypertext Preprocessor, which is a web server-side programming language that is open source or free. PHP is a script that integrates with HTML and resides on the server(Pahlavi, Mulyani and Khoir, 2018). Meanwhile, according to (Fahrozi, 2018) PHP is a scripting language like HTML, in web development on HTML which allows the creation of dynamic applications that allow data processing and data processing.

Supono and Putratama (2016) suggest that Perl Hypertext Preprocessor (PHP) is a programming language used to translate lines of program code into machine code that can be understood by a server-side-based computer that can be added to HTML. Meanwhile, according to (Solichin, 2016) suggests that PHP is one of the web-based programming languages written by and for web developers. Meanwhile, according to (Wahana Computer, 2010) PHP is a programming language (script) that is often used on the server side of a web.

2.2 MySQL

*MySQL*is one type of database that is widely used to create dynamic web-based applications. MySQL is a type of RDBMS (Relational Database Management System)(Pahlavi, Mulyani and Khoir, 2018). Meanwhile, according to (Sutikno, 2018) MySQL is a Relational Database Management System (RDMS). This program acts as a server that allows more than one user to access multiple databases.

My SQL (My Structure Query Language) is an application or system for managing databases or data management (Hasugian, 2018). Meanwhile, according to Ahmar (2013) suggests that MySQL is a useful system to carry out the process of managing collections of data structures (databases) both including the process of creating or managing databases. Meanwhile, according to Winarno, (2014) MySQL is a relational data type, which means that MySQL stores its data in the form of interconnected tables. The advantages of MySQL compared to other database servers are:

1. Able to handle millions of users at the same time.
2. Able to accommodate more than 50 million records.
3. Very fast in executing commands.

2.2.1 Data Manipulation Language in MySQL

*MySQL*is a set of syntaxes or statements to access data in a database, but MySQL itself can also be used to perform insert, update or delete processes into a database. These syntaxes are called Data Manipulation Language (DML) which are part of SQL, namely SELECT, UPDATE, DELETE, and INSERT.(Pahlavi, Mulyani and Khoir, 2018).

2.2.2 Data Definition Language in MySQL

*DDL*stands for Data Definition Language which is also part of MySQL. This DDL functions more into manipulating the structure of the database. For example this DDL can be used to create a table or delete a table. We can also create keys or indexes using this DDL, creating relationships between tables can also be done with this DDL. Some statements or syntax that are often found in DDL, namely: CREATE TABLE, ALTER TABLE, DROP TABLE, CREATE INDEX, and DROP INDEX(Susila, Wahanani and Akbar, 2020).

2.3 Xampp

Xampp is a software package consisting of Apache, MySQL, PhpMyAdmin, PHP, Perl, Filezilla, and others.(Ayu and Permatasari, 2018). Meanwhile, according to (Verawati, 2018) Xampp is an apache web server software in which a MySQL database is available and PHP programming support is available. Meanwhile, according to (Afifah, 2018)XAMPP is an open source-based web server package that can be installed on several existing operating systems (Windows, Linux, and Mac OS).

According to Supono & Putratama (2018) defines that XAMPP consists of the apache web server, MySQL, PHP, Perl, FTP server and phpMyAdmin. Meanwhile, according to Risnandar (2013) stated that XAMPP is a program that is used as a server to execute functions that exist in web pages.

2.4 Database

Database is a large storage area where there is a collection of data that contains not only operational data but also data descriptions(Pahlavi, Mulyani and Khoir, 2018). Meanwhile, according to (Ayu, 2018) the database is a collection of connected data that is stored together on a medium, without looking at each other or not needing a duplicate of data.

The database is an arrangement or collection of complete operational data from an organization or company that is organized or managed and stored in an integrated manner using certain methods using computers so that it is able to provide optimal information needed by the user. (Sutikno, Astuti and Khairina, 2018). Meanwhile, according to (Pahlevi, 2018)*Databases*or database is a collection of files that are related to each other, the relationship is usually indicated by the key of each existing file. A database shows a collection of data that is used in one scope of available information. In one file contains records that are equivalent, the same size, the same shape, fields that are related to direct that field in a broad sense and recorded in one record. According to AS and Salahudin (2018), a database system is a computerized system whose main purpose is to maintain processed data or information is available when needed.

2.4.1 Database Concept

according to (Pahlavi, Mulyani and Khoir, 2018), In the concept of a database consists of several definitions, namely database, file, entity, and record.

a. Entity

*Entity*is a technique for analyzing and explaining the data needed by system users. Data descriptions must be concise, accurate and legible by users, programmers and other technical specialists.

1) *Attribute*

Each entity has an attribute or designation to represent all entities with their attributes, such as object name, address, object type, and so on. Attributes are also referred to as data elements, data fields, items.

2) Data Value

Data value is the actual data or information stored on each data element or attribute.

b. Databases

Databases is a collection of several fields that have a relationship between one field with another field so as to form a data building to inform traffic conditions in a particular language.

c. File

File is a collection of several similar records that have the same element length, similar attributes, but different data.

d. *Records*

Records is a collection of fields which are complete and will usually be calculated into rows.

According to (Sutabri, 2016) Concept *database* is a connected data set (*interrelated data*) that are stored together on a medium, without overlapping each other or do not need a copy *data*. Meanwhile, according to Sutarman (2012)*database* bunch *files* interconnected and organized or group *records* which stores data and the relationships between them.

According to Ladjamudin (2013) *database* is a group *data store* stored in *magnetic disk, optical disk, magnetic drum*, or other secondary storage media. Meanwhile, according to Raharjo (2011)*database* is a collection of data that is integrated and arranged in such a way that the data can be manipulated, retrieved and searched quickly.

3 RESULTS AND DISCUSSION

3.1. Ongoing System Analysis

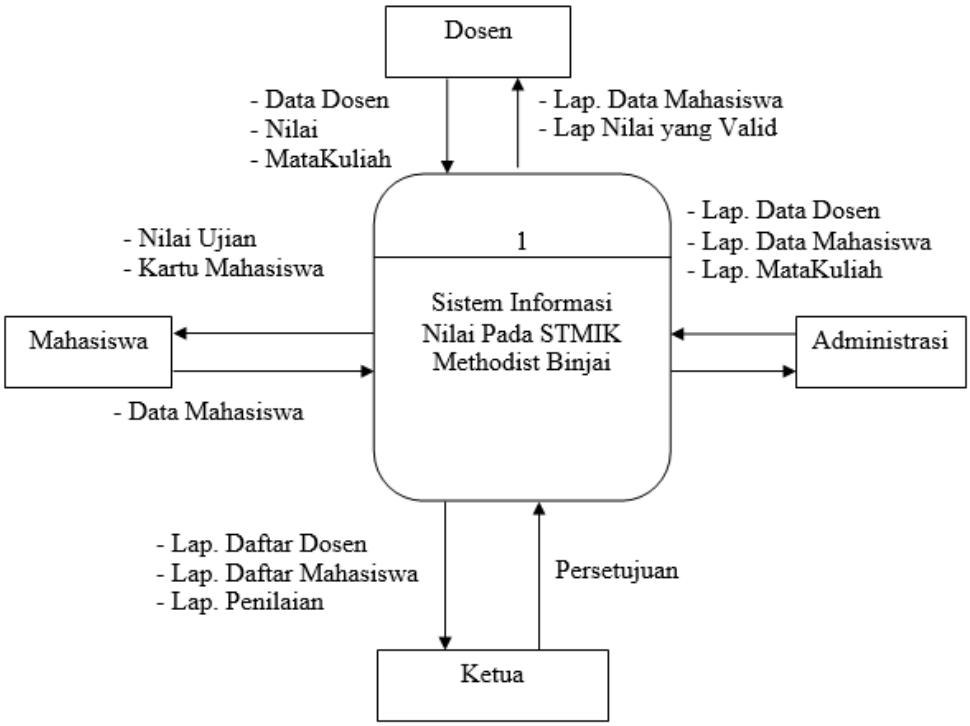


Figure 1 Overview Diagram / Diagram 1 On-going System

3.2. PerSystem design

Sa good system and in accordance with the rules of information system design, in designing a value information system at STMIK Methodist Binjai, the author has determined several designs that include the input and output system designs as follows:

3.2.1. Data Flow Diagrams (DFD)

designerbro, the DFD that the author made in this design consists of a Context Diagram, and a Zero Level DFD as follows:

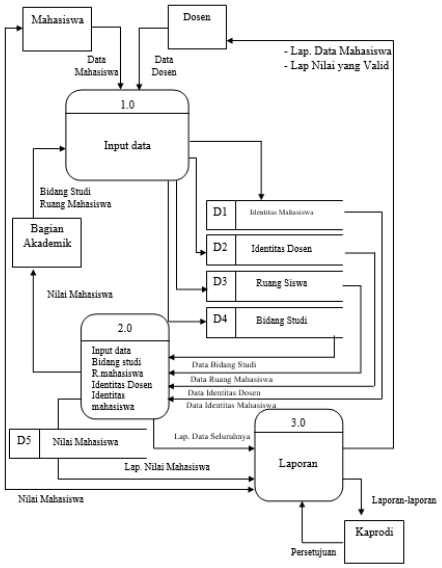


Figure 2 DFD Level 0

3.2.2. Database Design

Databases is a collection of interrelated files that are related to one another where the relational data model or the relationship between files is realized with the relation key which is the primary key of each file. The database is stored on a computer external storage that is used by certain software to manipulate it to create output or results, then the elements of a database must be able to be used, this result also applies to input or input that will be recorded from the database, database files must has elements to accommodate the input entered. Thus the structure of a database depends on the incoming and outgoing flows to the file. The database design regarding this information system requires several database tables, namely as follows:

The following is a Lecturer table, where this table is useful for inputting Lecturer data:

Table 1 Lecturer Table

Field Name	Data Type	Size	Description
id	int	5	ID
full name	Varchar	50	Lecturer Name
nidn	Varchar	30	Nidn
place of birth	Varchar	50	Place of birth
date of birth	Date		Date of birth
gender	Varchar	20	Sex
ref_agama_id	int	5	Religion
no_phone	Varchar	12	No phone
address	Text		Address

The following class table is useful for inputting classes to be given to students:

Table 2 Class Table

Field Name	Data Type	Size	Description
id_class	int	5	Class ID
class name	Varchar	50	Class name
study program	Varchar	5	Study Program
year of entry	int	10	Entry year
status	int	2	Status

The following table KHS, where this table is useful for classifying course values for students who have been inputted:

Table 3 Table KHS

Field Name	Data Type	Size	Description
id	int	11	ID
matkul	Varchar	20	Matkul
study program	Varchar	5	Study Program

The following is the KRS table, where this table is useful for grouping courses for students that have been inputted:

Table 4 Table KRS

Field Name	Data Type	Size	Description
id	int	11	ID
matkul	Varchar	20	Matkul
study program	Varchar	5	Study Program

The following table of values, where this table is useful for inputting student grades and semesters.

Table 5 Value Table

Field Name	Data Type	Size	Description
id	int	11	ID
student	int	5	Student
matkul	int	5	Matkul
study program	int	5	Study Program
semester	int	5	Semester
class	int	5	Class

score	int	5	Score

The following table Matkul, where this table is useful for inputting the names of courses that exist on the campus:

Table 6 Matkul Tabel Table

Field Name	Data Type	Size	Description
id	int	2	ID
code_matkul	Varchar	25	Matkul code
name_matkul	varchar	100	Name Matkul
credits	int	1	Credits
semester	int	11	Semester

The following is a student table, where this table is useful for inputting students on the campus:

Table 7 Student Table

Field Name	Data Type	Size	Description
id	int	3	ID
nim	varchar	15	Nim
full name	varchar	50	Full name
place of birth	varchar	50	Place of birth
period	int	5	Period
date of birth	date	-	Date of birth
gender	int	2	Sex
study program	int	5	Study Program
religion	int	5	Religion
Mobile phone	Varchar	15	Mobile phone
address	varchar	100	Address
status	varchar	10	Status

The following table users, where this table is useful for storing user data:

Table 8 User Table

Field Name	Data Type	Size	Description
id	int	1	ID
username	varchar	25	Username
password	varchar	65	Password
password_text	Varchar	50	Text
level_id	int	5	Id Level
last_login	Datetime		Last Login
status	int	2	Status

The following is the study program table, where this table is useful for storing data for the study program and the head of the study program:

Table 9 Study Program Table

Field Name	Data Type	Size	Description
id	int	2	ID
no_permission	varchar	25	No Permission
name_prodi	Varchar	25	Study Program Name
Lecturer	int	5	Lecturer

3.2.3 Entity Relationship Diagram (ERD)

Entity Relationship Model is the real world which is translated or transformed by using a number of conceptual tools so that it becomes a relationship diagram between entities. Entity Relationship Mode which contains the components of entity sets and relationship sets, each of which is equipped with attributes that represent all facts from some of the real world, which can be described better and systematically by using Entity Relationship Diagrams.

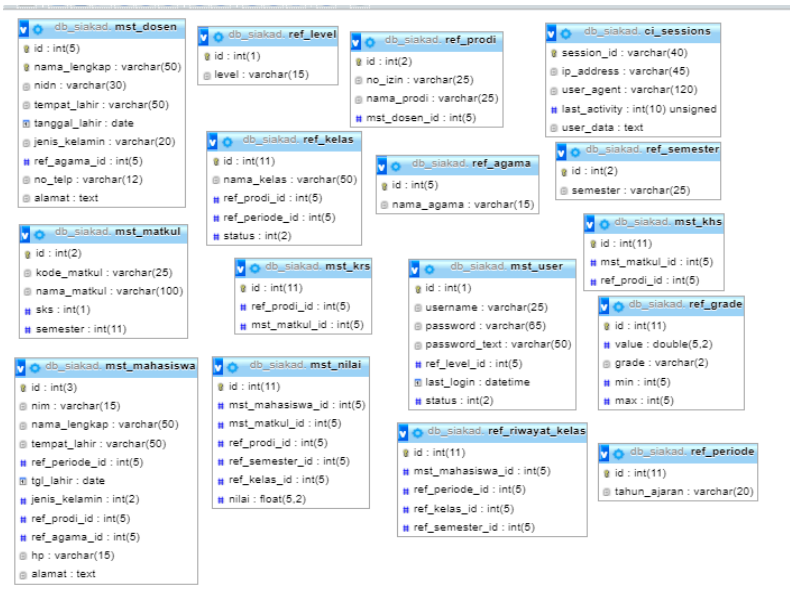


Figure 3 Table Relation

3.3 Program Demonstration

The demonstration program of the design of the Student Values Information System at STMIK Methodist Binjai is as follows:

1. Main course

The Main Menu Display of the Student Value Information System at STMIK Methodist Binjai is as follows:

Figure 4 Main Menu Display

2. Admin Login Menu Display

The Admin Login Display of STMIK Methodist Binjai is as follows:

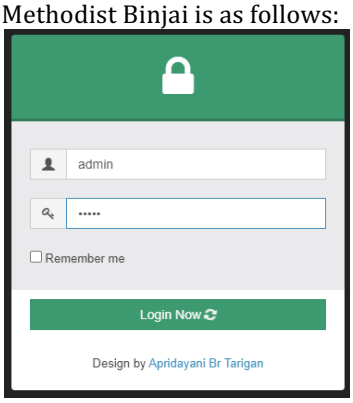


Figure 5 Admin Login Menu Display

3. Admin Menu Display

Here is the Admin Menu Display, where there are Dashboard, Master, Student, Lectures, Academy, and User Account menus. Here's how it looks:

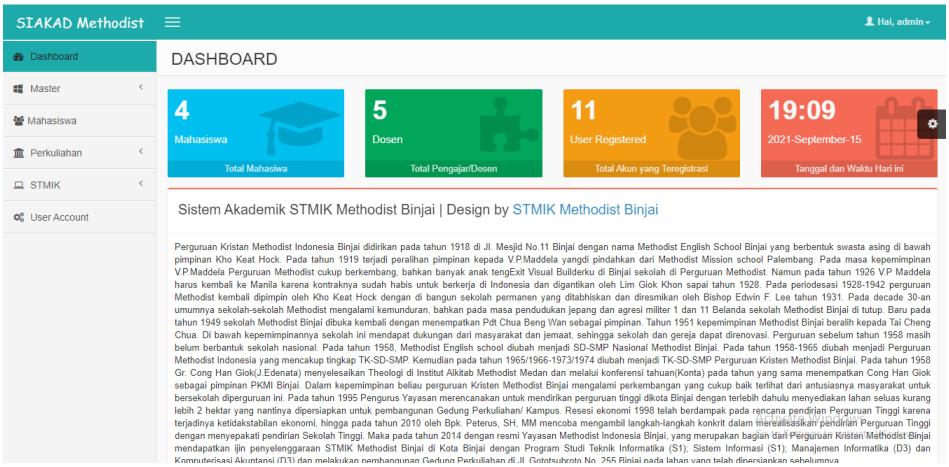


Figure 6 Display Main Menu Admin

4. Master Data Menu Display

The following is the display of the master data for the study program sub menu from STMIK Methodist Binjai:

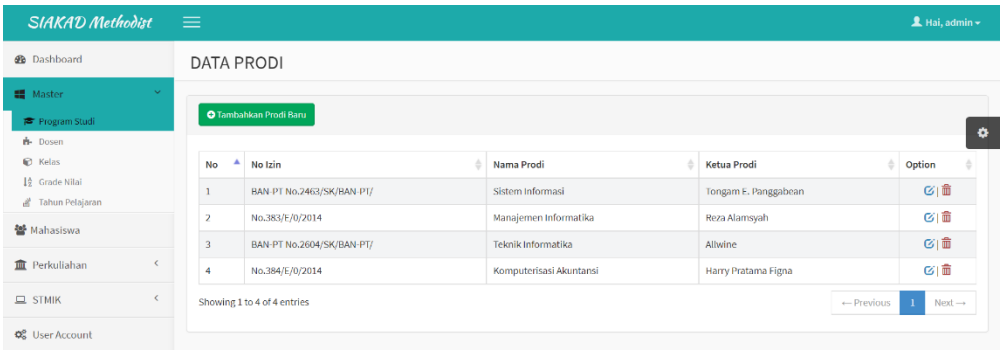


Figure 7 Master Data Menu Display

5. Student Data Menu Display

The following is a display of student data, where all student data will be inputted here:

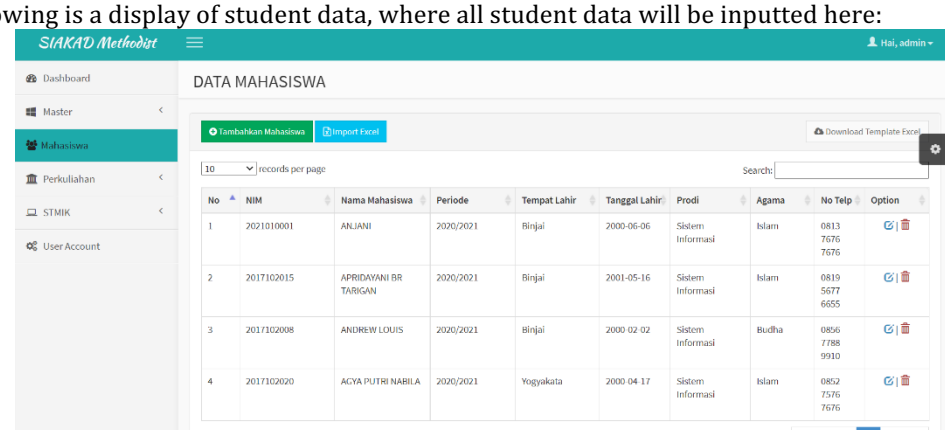


Figure 8 Student Data Menu Display

6. Lecture Data Menu Display

The following is a display of the lecture data menu for the course sub menu, where all lecture data will be inputted on this page:

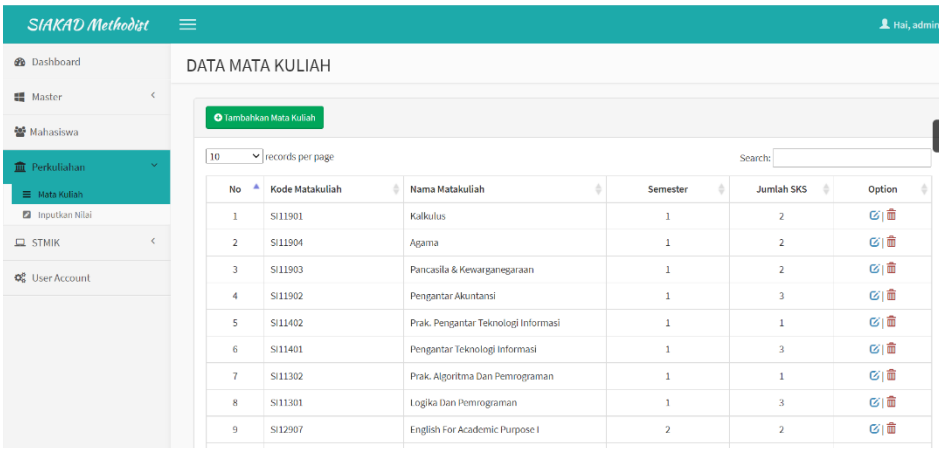


Figure 9 Display of Lecture Data Menu

7. KRS Data Menu Display

The following is a display of the KRS data menu, where all student data taking the KRS offered will be entered on this page:

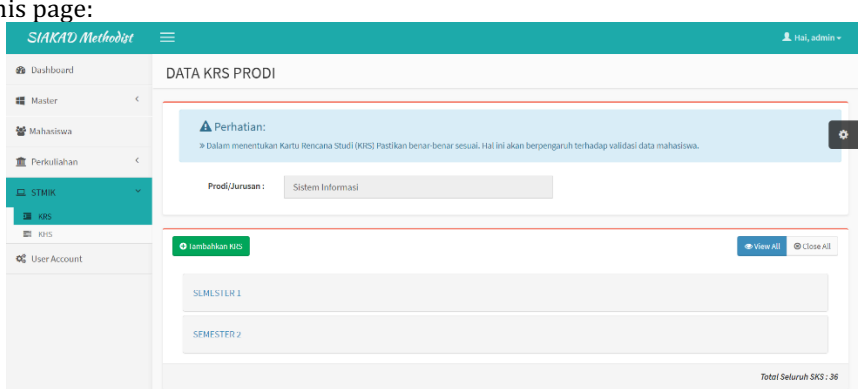


Figure 10 Display of KRS Data Menu

8. User Account Data Menu Display

The following is a display of the user account data menu, where user data is accommodated in this menu:

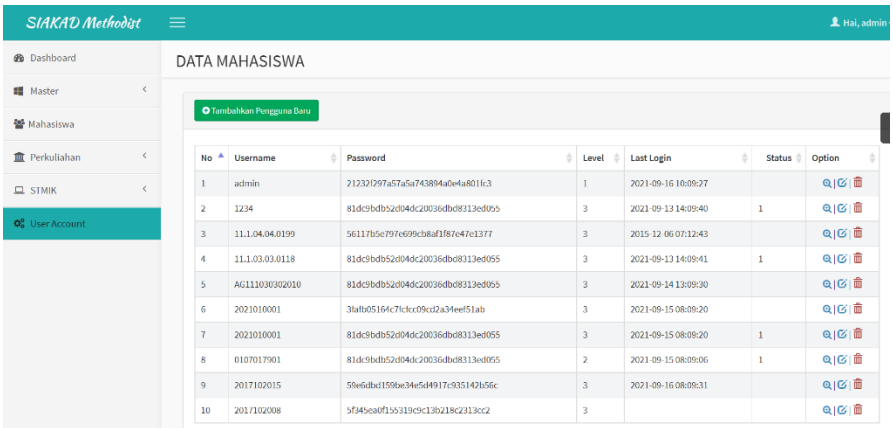
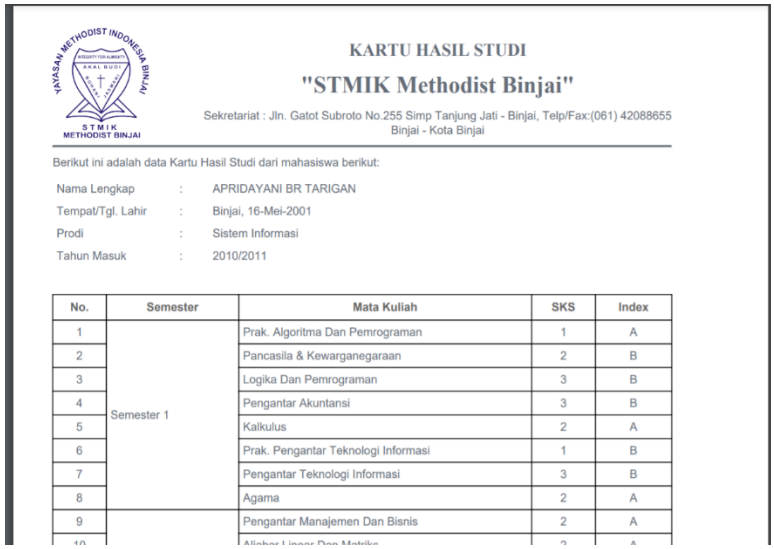


Figure 11 Class Data Menu Display

9. KHS Print Report Display

The following is the menu display for the KHS print report, where each semester student's grades will be inputted on this page:



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Prodi : Sistem Informasi
Tahun Masuk : 2010/2011

No.	Semester	Mata Kuliah	SKS	Index
1	Semester 1	Prak. Algoritma Dan Pemrograman	1	A
2		Pancasila & Kewarganegaraan	2	B
3		Logika Dan Pemrograman	3	B
4		Pengantar Akuntansi	3	B
5		Kalkulus	2	A
6		Prak. Pengantar Teknologi Informasi	1	B
7		Pengantar Teknologi Informasi	3	B
8		Agama	2	A
9		Pengantar Manajemen Dan Bisnis	2	A

Figure 12 KHS Print Report Menu Display

10. Student Menu Display

The following is a student login menu display in which there are several KRS and KHS menus.

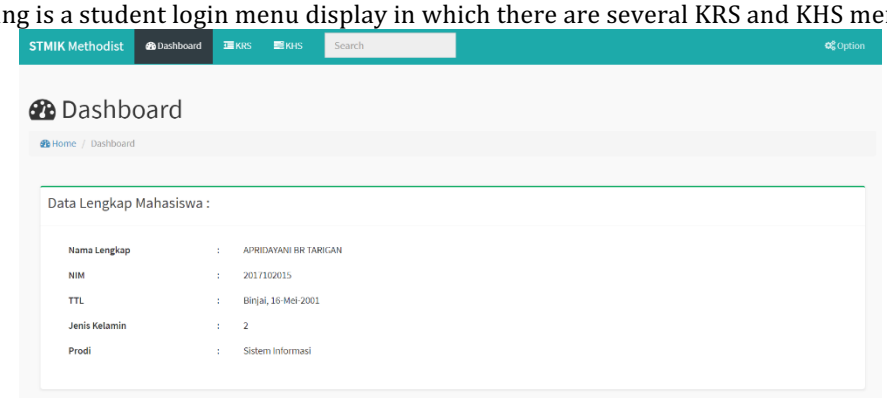
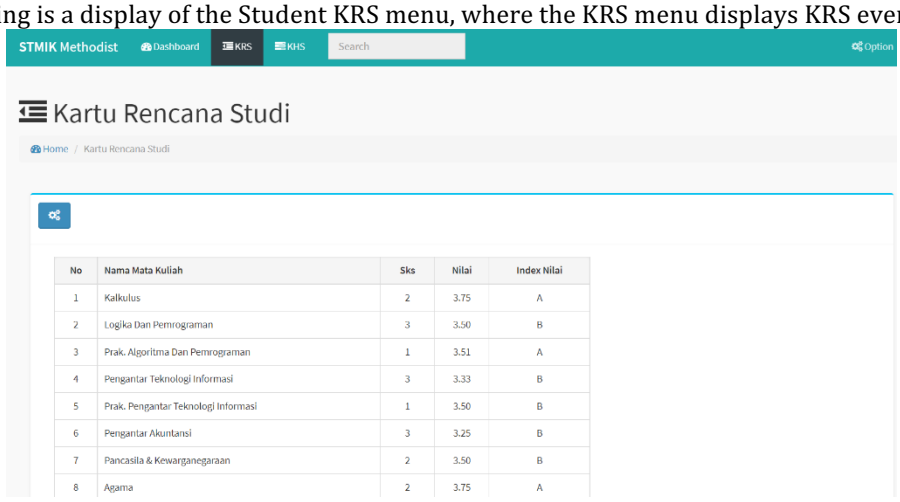


Figure 13 Display of Student Login Menu

11. Student KRS Menu Display

The following is a display of the Student KRS menu, where the KRS menu displays KRS every semester:



No	Nama Mata Kuliah	Sks	Nilai	Index Nilai
1	Kalkulus	2	3.75	A
2	Logika Dan Pemrograman	3	3.50	B
3	Prak. Algoritma Dan Pemrograman	1	3.51	A
4	Pengantar Teknologi Informasi	3	3.33	B
5	Prak. Pengantar Teknologi Informasi	1	3.50	B
6	Pengantar Akuntansi	3	3.25	B
7	Pancasila & Kewarganegaraan	2	3.50	B
8	Agama	2	3.75	A

Figure 14 Display of Student KRS Menu

4. Conclusion

PHP and MySQL is the right and perfect software for designing interesting and innovative student grades, therefore the WEB application designed for student grades is very helpful for lecturers and the head of campus study programs in improving the evaluation of students' grades. Because the web-based application made can be accessed anywhere and anytime by the administration and lecturers.

To simplify and expedite the data input process, it is expected that the campus will apply the designed system. As well as the need for providing training for lecturers or campus administration, so that they are skilled at using applications like this.

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