

Development of Information System Application for Final Examination Industrial Engineering Department Univet Sukoharjo

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Abstract—Information technology has an important role to improve the performance an organization. Industrial Engineering Department of Engineering Faculty, Veteran Bangun Nusantara University of Sukoharjo still uses the manual method with Microsoft Excel to process the information system for Final Examination. The information system is needed to assist the lectures in courses managing process, the lectures data, the students grade, quickly and accurately. This research aims to develop the information system design application for the Final Examination at Industriian Engineering Study Program. This applications are made by using XAMPP program. Data collection is carried out by observation, interviews, literature studies, and searching for procedure documents for the Final Examination used in the Faculty of Engineering. The results of this study are the design of Final Examination System Application. The inputs are student data, course data, course data taken by students, lecture data, student grades data. The outputs of this application are the data of course participants, the number of course participants, courses conducted in the semester, courses conducted by each lecturer, and the student grades in each course taken.

Keywords—*application, development, final exam, information system.*

I. INTRODUCTION

The use of information technology has been used in all fields of industry. The ease gained through the use of information technology can improve work productivity. In addition to supporting the decision-making process, information systems can also help to coordinate, to monitor, to analyze the problems, to delineate complex things and to create new products [1]. The involvement of information systems can provide a positive contribution to the progress of the company's operational implementation [2]. The concrete results can be seen clearly from the expenditure, the efficiency achieved, and the satisfaction of external and internal participant.

The use of systems on computers can used in various fields such as economics, administrative education, and so on [3]. In the administration, for example in the campus environment or referred the Academic information system. The academic information systems are specifically designed to meet the needs of universities that want computerized education services to improve the performance, service quality, competitiveness and the quality of the human resources.

The development of Academic information systems is carried out continuously and intensively, following the development of technology and the basic needs of universities, in order to increase the ability of Academic information systems continued. The academic information systems can assist you to managing the data of student value, courses, teaching staff data (lecturers) and faculty / department administration which are still manual to work with the help of software to be able to streamline the time and to reduce the operating costs [4].

Veteran Bangun Nusantara University of Sukoharjo is a university located in Sukoharjo. The Industrial Engineering Study Program of Engineering Faculty is one of the Study Programs owned by Veteran Bangun Nusantara University of Sukoharjo. The Administrative activities in the Industrial Engineering Study Program are still manual so that the administrative staff and students are less comfortable and the administration process is too long. The number is not appropriate between registrants and the reality that is calculated and the difficulty of recapping the number of test participants in each subject.

Based on this background, the research was carried out with the aim to produce the design of the semester final exam information system application for Industrial Engineering Study Program. This application is expected to help the administration system in the Industrial Engineering Study Program. With this application is expected to be able to streamline time and reduce operating costs.

II. METHODS

A. Object

The object of this study is the process of conducting the semester exam and the process of the Study Result Card (KHS) in the Industrial Engineering Study Program of Engineering Faculty, Veteran Bangun Nusantara University of Sukoharjo.

B. Materials and Tools

The tool that is used in this research is the developer Visual Basic 2008 and the My SQL Server database. The material that used in this research is the name of the student, the student's NIM, the name of the lecturer, the name of the course, and the number of credits.

C. Data Collections

Data collection methods are carried out by looking for data regarding matters relating to records and documents directly from the source such as the name of the student, the name of the lecturer, the name of the course, System Credit Semester, and so on. This method is used to obtain the Academic supporting data to assist the research process.

D. Technique of Collecting Data

Technique of collecting data in this research are using Visual Basic 2008 applications and My SQL Server Database. This application is expected to solve the problem of academic information systems in the Industrial Engineering Study Program.

III. RESULT AND DISCUSSION

A. Planning System

Design and plan contain of the data needed in making SIM program (Student Information System) for the researchers to know the processes needed in making the system.

Making information systems Students in registering for the Student Exams and Card Study Results (KHS) Industrial Engineering Study Program of Engineering Faculty, Veteran Bangun Nusantara University of Sukoharjo are made using Visual Basic and the My SQL Server data base. By using this software is expected to help the performance of employees in the Industrial Engineering Study Program of Veteran Bangun Nusantara University of Sukoharjo.

B. The Data Flow

1) Hierarchy

In this hierarchy database model is a data model which is the data arranged with a data tree structure or often known as one to many. Below is a picture of the student information system hierarchy model which can be seen in Figure 2.

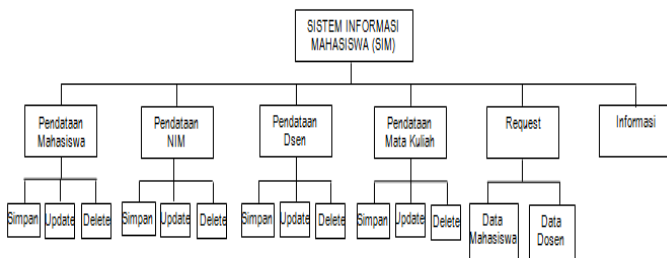


Figure 2. Hierarchy

2) Data Flow diagrams (DFD)

Data Flow Diagrams are models that describe the system as a network between functions that are interconnected with the flow and storage of data. DFD is often used to describe an existing system or a new system that will be developed logically without considering the physical environment where the data will be stored. Analysis of Data Flow Diagrams in the Industrial Engineering Study Program can be seen in Figure 3 to Figure 6.

3) DFD level 1 programming flow

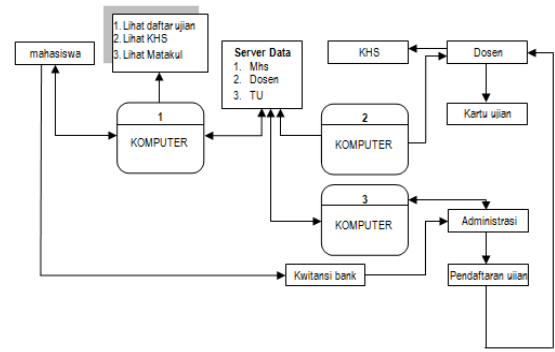


Figure 3. Program making flow

In Figure 3, it is explained about the flow of programming, where computer 1, computer 2, computer 3 are interconnected. Which will be connected to a data server that can be seen by students, lecturers, and administration. In the flow of making this program there are three admin who have different tasks. Students can only see, lecturers input data and print, administration only prints.

4) DFD level 2 processes student data input

Admin can save, update student data, and delete student data. This can be seen in Figure 4.

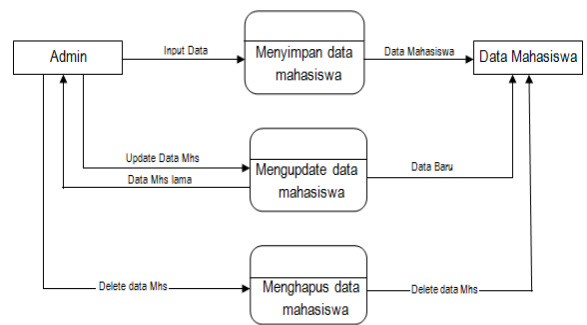


Figure 4. Process of inputting student data

5) DFD level 3 input process for lecturer data

In Figure 5, the lecturer data input process can be explained that the admin can store the lecturer data, update, and delete lecturer data.

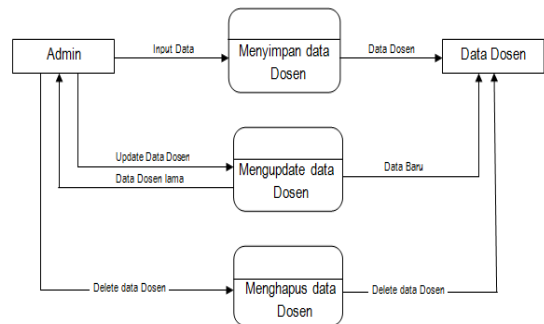


Figure 5. Process of inputting lecturer data

6) Level 4 DFD The process of inputting courses

In DFD Level 4 this describes the process of inputting courses. At level 4, admin can store course data, update course data, and delete course data.

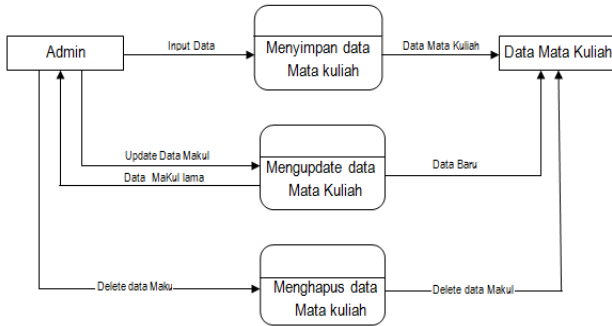


Figure 6. Process of inputting courses

C. Data Modeling

Data modeling is part of system design that contains fields needed by a database to run program applications that have been created. Data modeling can be said as an explanation of the fields filed in the database.

By using data modeling, the analysis system can define the data flowing in the system completely. Data modeling is based on the data flow in the flow diagram. Data flows and flow diagrams are global only addressed the name of the data flow only. The data related to the semester exam registration information system at Univet Bantara Sukoharjo Industrial Engineering Study Program can be seen in Figure 7.

In Figure 7, it can be explained that in this data modeling there are 6 inputs namely: profile of the institution, master lecturer, course, student, master login data. Here later between students, master lecturers, courses must have a login password which will be created by the login data master.

D. Database Design

In the construction of this system the database is used to store the data needed. File structure is a sequence of contents or data items that are in the database file. This structure design is intended to be able to conduct data search activities to facilitate system work. The file structure contained in the computerized semester exam registration information system can be shown in Table 1. until Table 5.

TABLE 1. DATA TABLE OF INSTITUTIONS

Field	Type Data	Key	Explanation
Institutions	Tinyint	Primary Key	Not Null
Faculty	Varchar (14)		Not Null
Study Program	Varchar (30)		Not Null
Address & Phone	Tinyint		Not Null

TABLE 2. LECTURER DATA TABLES

Field	Type Data	Key	Explanation
Status	Varchar (20)	Primary Key	Not Null
Lectures	Varchar (35)		Not Null
NIP	Varchar (30)	Primary Key	Not Null
Class	Varchar (11)		Not Null
Study Program	Varchar (30)		

Field	Type Data	Key	Explanation
NIM	Varchar (30)	Primary Key	Not Null
Name	Varchar (35)		Not Null
Hometown	Varchar (10)		Not Null
Date of Birth	Varchar (11)		Not Null
Generation	Varchar (22)		Not Null
Majors	Varchar (30)		Not Null
Guardian	Varchar (24)		Not Null
Lecture			

TABLE 4. TABLE OF COURSE DATA

Field	Type Data	Key	Explanation
MK Code	Tinyint	Foreign Key	Not Null
MK Name	Varchar (35)		Not Null
MK Groups	Varchar (12)		Not Null
SKS	Varchar (5)	Primary Key	Not Null
Requirements	Varchar (15)		Not Null
Lecture	Varchar (24)		Not Null

TABLE 5. LOGIN DATA TABLE

Field	Type Data	Key	Explanation
Kode MK	Varchar (15)	Foreign Key	Not Null
Username	Varchar (30)		Not Null
Pasword	Text	Primary Key	Not Null
Status	Varchar (20)		Not Null

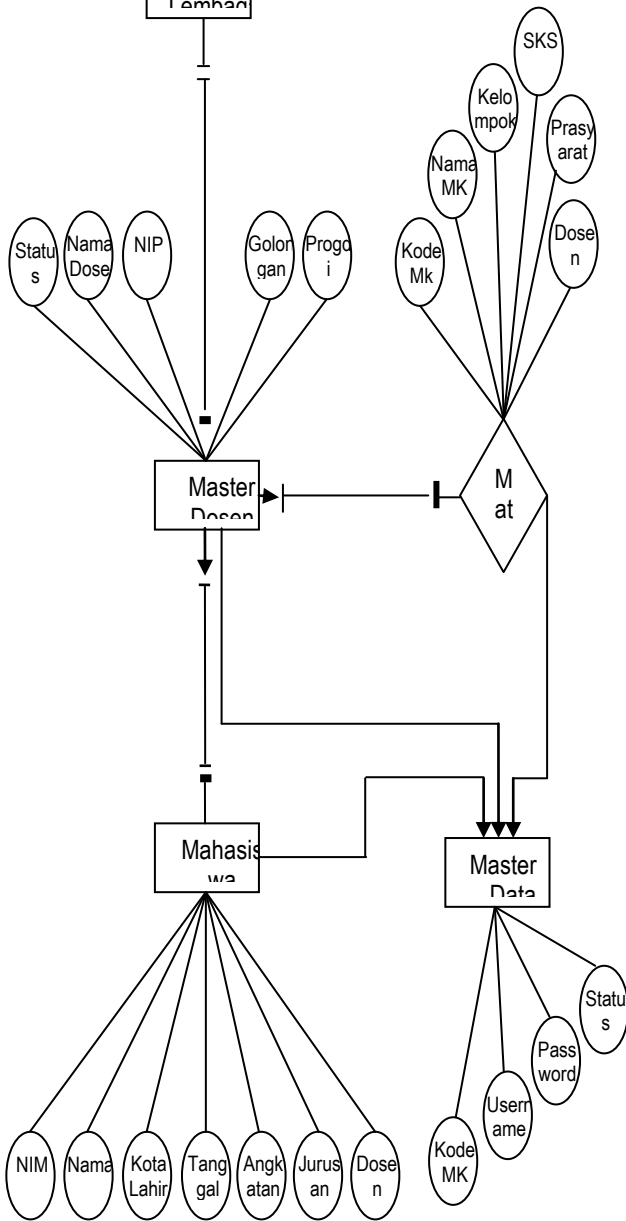


Figure 7. Data modeling

E. Interface Design

The page design starts

A page that first appears when the admin clicks on the Academic Information System file. In Figure 8, this start page contains several text files that have not functioned before the button is clicked.

Silahkan Login Disini	
Username	<input type="text"/>
Password	<input type="password"/>
<input type="button" value="OK"/>	

Figure 8. Start page design

Front page design for admin

Figure 9 describes the home page for the admin. This page is used to display all who are in SIA, such as Student Masters, Master Lecturers, Masters of Courses and so on.

Sistem Informasi Akademik (SIA) Ver 1.0	
Files Master Pengaturan Data	

Figure 9. Front page for admin

Design the main page for lecturers

Pages for Lecturers are used to input student data, courses, and Study Results Card (KHS) reports. Interface can be seen in Figure 10.

Sistem Informasi Akademik (SIA) Ver 1.0	
Files Master Transaksi	

Figure 10. Facing page for lecturers

Front page design for administration

In Figure 11, it can be seen that the administration page is only used for logins for administrative staff who can only print test forms.

Sistem Informasi Akademik (SIA) Ver 1.0	
Files Transaksi	

Figure 10. Front page for administration

IV. CONCLUSION

Academic information system at the end of this semester is an information system that handles student exam registration information and KHS, so that students in the administration process are expected to be more efficient and effective. The weakness of this system is the students cannot see KHS scores directly / online or register for an exam online. This happens because this system has not been connected to the server / online. The advantages of this system are how to operate that is so easy that it can be used by any admin. This system can overcome problems related to the registration of semester exams in Industrial Engineering Study Program which so far is still done manually which

now after the existence of this system can be done computerized. This system is expected to help the work of the Industrial Engineering Study Program of Veteran Bangun Nusantara University of Sukoharjo is more efficient.

ACKNOWLEDGMENT

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