Analysis and Design of Application Information System Website-Based Counseling Guide (Case Study: State Vocational School, 43 Jakarta)

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Abstract— *Senior High School 43 Jakarta, located on Jl. Cipulir I No.1 1 4, RT.1 / RW.4, Cipulir, Kec. Kby. Lama, South Jakarta City, Special Capital Region of Jakarta 12230, has around 500 students and 30 teaching staff. Based on interviews that have been conducted by researchers with counseling guidance teachers and the Deputy Principal for Student Affairs explained that the results of absenteeism, guidance or supervision of student violations are recorded as evaluation material to be given to the homeroom teacher and the parents of students at the end of the school year. But the recording is still manual because there is no computerized system. This resulted in at the end of each school year hampering counseling guidance teachers to make reports quickly because the data is still in the form of paper, not to mention the data is easily lost or mixed with other data and must be recapitulated. Therefore the author intends to analyze and design data management in the form of attendance data, counseling guidance and student violation points by the author's thesis entitled "Analysis and Design of Attendance Information System Application for Attendance, Counseling Guidance, and Website-Based Student Abuse Points on SMK Negeri 43 Jakarta "in the hope that the manual recording system can be updated to provide practical solutions through the use of applications. Also, this application can make it easier for students, parents, and teachers to access information related to student problems. The system that will be created by the author uses the PHP programming language as well as the CodeIgniter and MySQL framework as a repository (database).*

Keywords— *Attendance, Counseling Guidance, CodeIgniter, Points Violation.*

I. INTRODUCTION

Along with the changing times, the development of technology in the current era of globalization is so rapid, so also with a variety of information media that is increasing rapidly the flow of information becomes very fast in the delivery to the public.

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II. LITERATURE REVIEW

2. 1 Literatur Review

2.1.1 Information system

Information systems are ways that are organized to collect, enter, and process and store data, and ways that are organized to store, manage, control, and report information in such a way that an organization can achieve its stated goals.[1]

Information systems are regulated ways to collect, enter, and process and store data, and organized ways to store, manage, control, and report information in such a way that the organization can achieve its stated objectives. [2]

This it can be denied that the information system is a combination of organized modules related to components related to hardware, software, people and networks through separate computers and produce information to achieve goals.

2.1.2 Systems Development Method

Rapid Application Development (RAD) is a model of an incremental software development process, especially for short processing times. (Sukamto & Shalahudin, 2016).
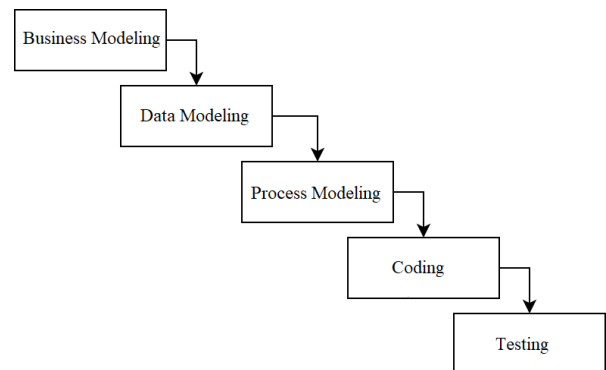

Figure 1. Systems Development Method

a. Business Modeling
Modeling is done to model business functions to find out what information must be made, who has to make that information, how the information flows, what processes are related to that information.

b. Data Modeling
Model what data is needed based on business modeling and define its attributes and their relationships with other

15

data. This stage the author uses ERD (Entity Relationship Diagram).

c. Process Modeling

Implement defined business functions related to defining data. This stage the author uses UML as an identification of business processes.

d. Application Making

Implement process and data modeling into a program. The RAD model strongly recommends the use of existing components if possible. This stage the author programming the application with the programming languages PHP, HTML, and CSS in accordance with the design that has been made.

e. Testing

Test the components being made. This stage is carried out testing using blackbox testing to find out whether it can operate properly or not

2.1.3 Analysis

In this stage the current system is described, problems and opportunities are defined. General recommendations for how to repair, upgrade or replace an ongoing system are proposed. The main purpose of the analysis phase is to understand and document needs. In this case the writer makes an analysis of the input requirements needed such as information obtained from the principal or teacher and defines a system of proposals to be made by the author by looking at the needs of the community regarding information about the school. [3]

2.1.4 Design

Understanding the design according to Al-Bahra Bin Ladjamudin (2005: 39) in his book entitled Analysis and Design of Information Systems, is as follows: "The stages of design (design) has the aim to design new systems that can solve the problems faced by companies that are obtained from the selection of the best alternative system. "[4]

2.1.5 Counseling guidance

Counseling Guidance According to (Rustantiningsih, 2008) Counseling guidance is one of the important components in the education process as a system. Guidance is assistance to individuals in dealing with problems that can arise in their lives. While the concept of counseling according to (Yusuf, Syamsu, & Juntika, 2006) provides understanding of counseling as an effort to help individuals through a process of personal interaction between counselor and counseling so that the counselee is able to understand themselves and their environment, able to make decisions and determine goals based on the values they believe in, so that the counselee feels happy and effective behavior. Guidance helps individuals achieve optimal self-development as social beings (Sukardi, 2008). [6]

2.1.6 Unified Modeling Language (UML)

Unified Modeling Language (UML) is a very reliable tool in the world of object-oriented system development. This is because UML provides a visual modeling language that allows system developers to make a blueprint for their vision in a standard form, easy to understand, and equipped with effective mechanisms for sharing and communicating their designs with others. [8]

1. Use Case Diagrams

Use Case Diagram is a UML (Unified Modeling Language) diagram model that is used to describe the expected functional agreement of a system.

2. Activity Diagram

Activity Diagrams model the flow of processes and relationships between processes in an information system and also contain scenarios that exist in the system.

3. Sequence Diagram

Sequence Diagrams are diagrams that explain interactions between objects arranged according to the processing time. This diagram is used to illustrate the step by step that must be done by the system user to produce something from the use case diagram that has been made.

4. Class Diagram

Class Diagram is a diagram showing classes that exist from a system and logically interconnected. This diagram illustrates the static structure of a system.

2.1.7 Codeigniter

The web development process can be done with various programming languages such as PHP, Python, Ruby, Perl, C ++, JAVA and so on. At present, there are many web frameworks that are designed for the language programming. One of them is CodeIgniter. CodeIgniter is a web framework for the PHP programming language, created by Rick Ellis in 2006, inventor and founder of EllisLab. [9]

2.1.8 MySQL

MySQL is the name of the database server. Database server is a server that functions to handle the database. By using MySQL, we can save data and then access ordinary data in an easy and fast way. MySQL is classified as a relational database. In this model, the data is expressed in the form of two dimensions specifically called a table. And the table is composed of rows and columns. [10]

2.1.9 HTML

HTML is a markup language for creating web pages and the language used is still very standard as one of its functions to create tables, add sound objects, videos and animations is the understanding of HTML. [11]

2.1.10 WEB

Www or the world wide web or the web alone is a system that is interrelated in a hypertext format document that contains a variety of information, both writing, images, sound, video, and other multimedia information and can be accessed through a device called a web browser. translate documents in the form of hypertext into the form of documents that can be understood, then the web browser through the web client will read web pages stored on a web server through a protocol commonly called http or Hypertext Transfer Protocol. [12]

2.1.11. CSS (Cascading Style Sheets)

CSS or cascading style sheets are a set of web programming code that functions to control several components on the web so that they appear uniform, structured, and organized. [13]

III. RESEARCH METHODS

3.1 Data Collection Technique

Data collection is the most important phase in conducting research. The approach used in this research process can be grouped into several stages as follows:

1. Observation

In this observation method a direct observation was conducted at SMK Negeri 43 Jakarta. This research was conducted to determine the ongoing business processes.

2. Interview

In this interview method, writing conduct interviews with the parties concerned such as teacher staff

3. Literature Study

Literature study is conducted to collect data or information by reading various kinds of reference books and articles written by experts relating to the application system to be made

3.2 Research Flow Chart

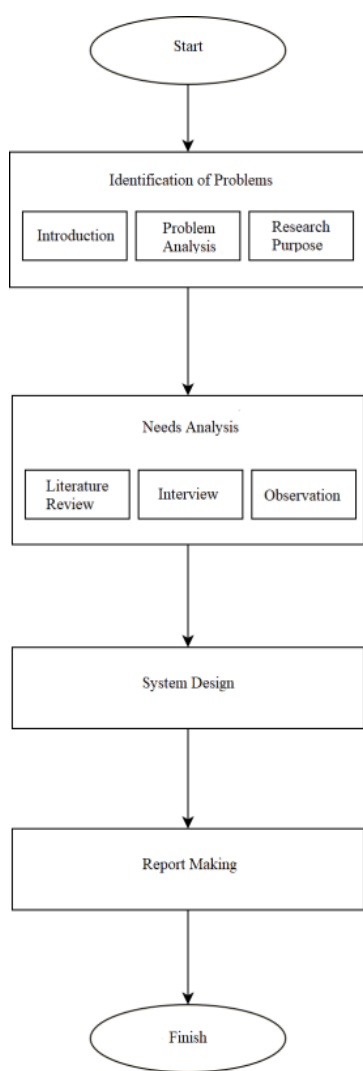In this sub-section, the stages of research are explained in the form of diagrams, with information about each stage.
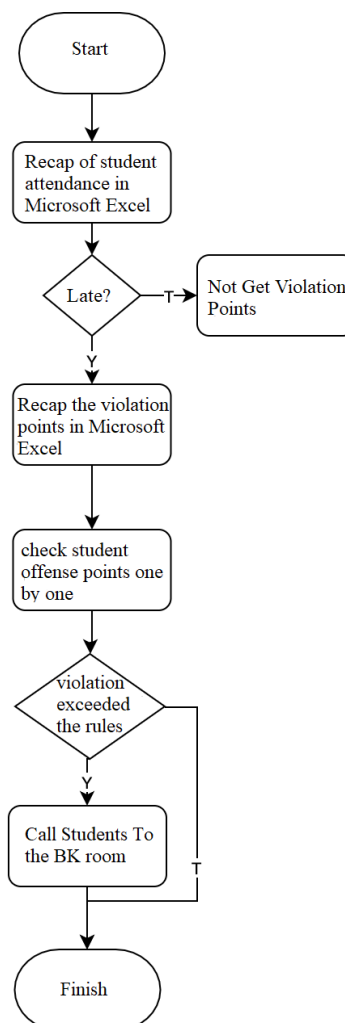

Figure 2. Research Flow Chart

3.3 Prior flow

Figure 3. Previous Flow

IV. RESULTS AND DISCUSSION

4.1. Usecase Diagram

Figure 4. Usecase Diagram

17

4.1.2. Usecase Description

In this description aims to explain the actions carried out by the actor along with the activities of the proposed system.

TABLE 1. Use Case Description Managing Student Daily Attendance Data

Use Case ID	UC001
Use Case Name	Manage Student Daily Attendance Data
Actor	Teacher
Description	Actor manages student daily attendance data
Pre-Condition	Actor has opened the website
Flow of Event	1. The system displays the login page 2. Actor selects Attendance Menu 3. Actors manage student daily attendance data 4. Actor saves changes in student attendance data
Post-Condition	Actor managed to save student daily attendance data

4.1.3 Activity Diagram

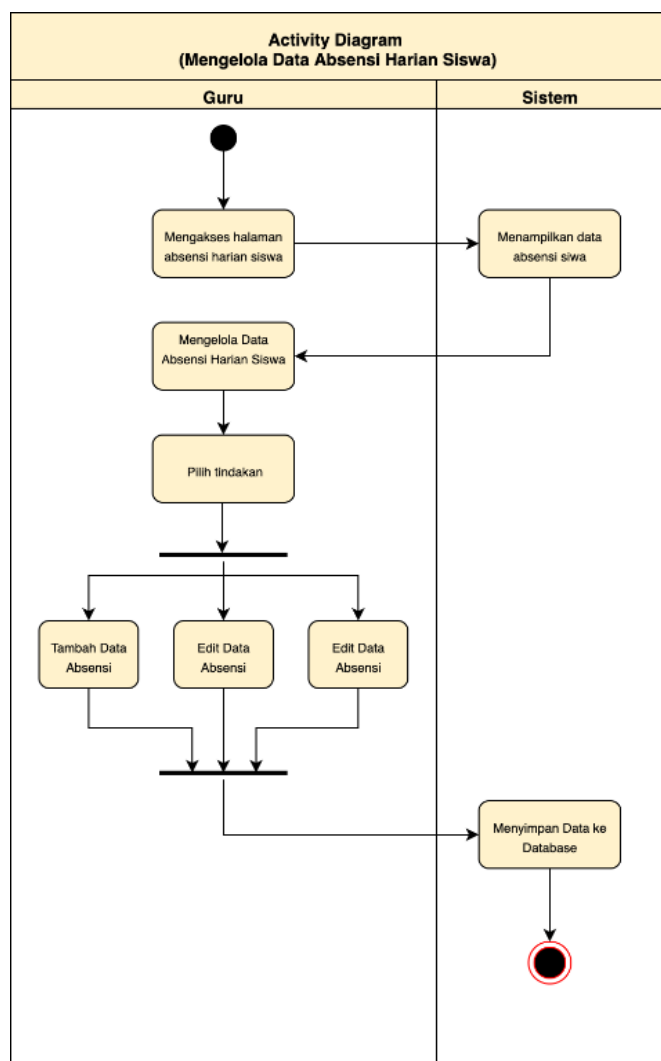#### 4.1.3.1 Activity Diagram Managing Student Daily Attendance Data

Figure 5. Activity Diagram - Managing Student Daily Attendance Data

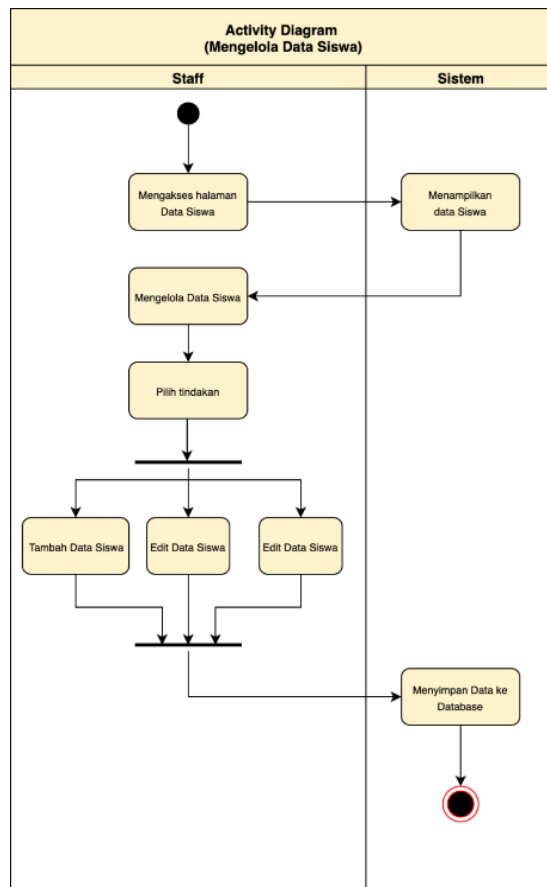#### 4.1.3.2 Activity Diagram Managing Student Data

Figure 6. Activity Diagram - Managing Student Data

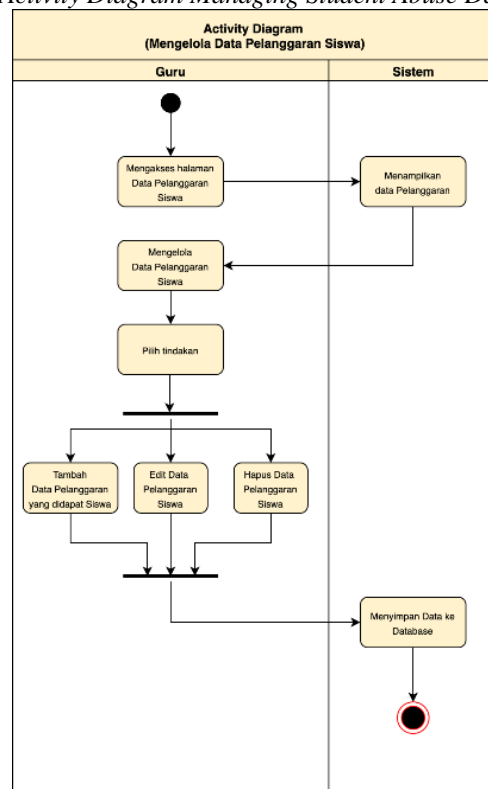#### 4.1.3.3 Activity Diagram Managing Student Abuse Data

Figure 7. Activity Diagram - Managing Student Violation Data
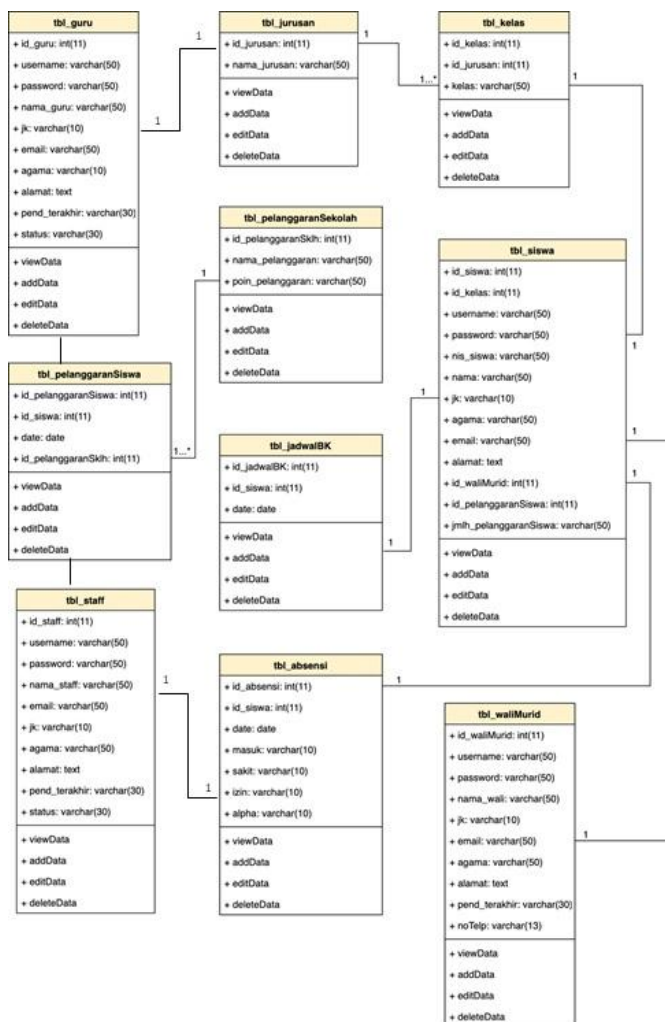
18

4.2 Class Diagram

Figure 8. Class Diagram

V. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusion

Based on the explanation described in the previous chapters on the Analysis and design of the application of the Attendance Information System for Attendance, Counseling Guidance and Points of Violation, it can be concluded:

1. This research produced a design application that can be used by schools.

2. The application is designed to provide features that can be used by Teachers, Staff, Students and Guardians of Students

3. The design of the application made can replace the input of attendance, counseling guidance and violation points in writing to a computerized system

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