

Development of Web-Based Information System Using Linear Sequential Method at SMP Makna Bakti Jakarta Pusat

Muhammad Try Endriansayh¹⁾, Rika Astuti²⁾, Galuh Bakti Ramadhan³⁾

^{1,2,3} Fakultas Industri Kreatif dan Telematika, Jurusan Teknik Informatika, Universitas Trilogi,
Jalan TMP Kalibata No.1, RT.4/RW.4 Duren Tiga, Kec, Pancoran, Kota Jakarta Selatan
Daerah Khusus Ibu Kota Jakarta 12760, Indonesia.

E-Mail : Tri_utaal16@trilogi.ac.id¹⁾, Rika23@trilogi.ac.id²⁾, Galuhramadhhan@trilogi.ac.id³⁾

Abstract - The development of information and communication technology (ICT) which is growing rapidly nowadays, SMP MAKNA BAKTI JAKARTA PUSAT wants the application of information technology in a structured governance process in schools. One of the problems currently faced by SMP MAKNA BAKTI JAKARTA PUSAT is that the assessment process conducted by teachers is still done manually and is less effective. Constraints also occur when the subject teacher has finished assessing and must submit to the homeroom teacher. Constraints faced include delays in the collection of grades by subject teachers, and the length of time required for the homeroom teacher to recapitulate grades. And it is difficult for students to see the results of learning done by asking or waiting for confirmation from the subject teacher. The author intends to make a web-based information system application in the form of e-report cards. With the existence of a web-based information system, it is expected to be able to help in efficient management of entity data and a more structured assessment system for better implementation. In the design of the e-report system information on SMP MEAN BAKTI uses PHP programming language, with the use of MySQL database. The method used in this study is Sequential Linear.

Keywords: ICT, Assessment System, Schools, e-Reports

1. INTRODUCTION

The current era of globalization, the development of technology and information (ICT) is very rapid. One of them is the development of computerized technology. The use of computerized technology is very much needed. With the advantages of this computerized technology is being able to produce information precisely and accurately. The development of computerized technology has developed and spread widely in the world of education. For example e-raport technology published by the ministry of culture and communication science (Ministry of Education and Culture). some schools, especially the junior high school level in data management and assessment systems, still use manual methods and still use the old system. Especially still not using computerized technology in the implementation. Therefore an application that can support data processing and managing all activities in activities such as student assessment is needed. Based on the problems in the background, the authors raise the title of research on Information System Design Development of E-Raport Applications in SMP MEANING THE CENTER OF JAKARTA-BASED JAKARTA USING Using Linear Sequential Methods.

Identifying problems that occur from the background in SMP MAKNA BAKTI JAKARTA PUSAT namely the assessment of students who are still done manually by each subject teacher to the

walikelas for confirmation, student assessments that are still done manually by each subject teacher to the mayor to be confirmed, the difficulty of mapping report cards or student learning outcomes that have to wait for confirmation from the administration and the difficulty of students in seeing learning outcomes that must wait in confirmation from the subject teacher.

The Purpose and Objectives of this study are to facilitate the process of assessing subject teachers to enter grades into the mayor. to facilitate the mapping of report cards or student learning outcomes by the walikelas and facilitate students in seeing learning outcomes. The aim is to create an information system for E-Raport Applications in SMP MAKNA BAKTI JAKARTA PUSAT Web-based and help and facilitate each entity in carrying out their respective activities. In this research problem limitation needs to be done so that in managing and making the system can be more directed and so as not to deviate from its objectives. The limitation of the problem in this study is that the teacher can input values into the walikelas and know student data, the walikelas can see student value data and can print student learning outcomes and students can see learning outcomes.

2. LITERATURE REVIEW

In a study needed support from the results of previous studies that already exist. And we have



collected 10 literatures related to this research. Yuri, Protus Pieter "in this study explained the academic information system that is focused on the relationship between tables and between tables. Table design and relationship decisions between tables are very important in terms of creating information systems because these tables and relationships have an influence on system performance and to avoid data redundancy. The method used in this study is an interview with users who are involved in the system and retrieve the required hardcopy. Normalization is carried out until the third stage. The conclusion found in this study is that the number of tables used in this system is six and there is no data redundancy." [1].

Eri Zuliarso, Herry Februariyanti "in this study explained that information technology that has developed provides a trend of disseminating information not only using banners or brochures, but through Instant messaging. This is because computers, laptops, tablet computers, mobile phones are primary needs and are always attached wherever the owner goes. So with this basis, researchers try to implement the Instant messaging application as a means of disseminating information to students with the main goal being the delivery of information from campus directly to students. This research was built Academic Information Service System using Instant Messenger. Instant Messenger that is used using the Google Talk service, to be able to use this facility the user must have a gmail email account (xxxx@gmail.com). In this study the system can disseminate information to all students, the system can answer the need for requests for academic information from the academic community and the system has the ability to authenticate text messages from the academic community. So that information can only be accessed by the academics who are entitled " [2]. Dwi Wijonarko, Betta Wahyu Retna Mulya "in this study explained that the ease of access to information between devices and the media is now very common. An important function in application development is the ability to develop applications that are larger and can be applied on a variety of platforms and devices that exist today. The development of application programming interfaces is one way for an application / system to be accessed and utilized by other parties without having to change the system's main code and system database and facilitate communication between systems despite different platforms. Academic Information System of Malang City Polytechnic, applying the application programming interface using the RESTful method to communicate with other systems such as mobile applications and website applications"[3].

Achmad Solichin, Dwi Kristanto "in this study explained that, the development of information and communication technology (ICT) which is rapidly increasing at this time the Mitra Bintaro Junior High School wants the application of information

technology in the process of managing education in schools. One of the problems currently faced by SMP Mitra Bintaro is that the assessment process conducted by teachers is still done manually and is less effective"[4].

Fritz Gamaliel "in this study explained that, to support the implementation of education, so that the Polytechnic can provide better information services to its students, both inside and outside the school through the internet. but the problem is that the operator is afraid to use the SIAKAD again because the operator previously saw the untruth in the results of data processing by the SIAKAD. If the data passed from SIAKAD to the Feeder application is wrong, then what is posted by the Directorate General of Feeder application to the PDPT will also be wrong. This resulted in the operator must submit a letter of request to the Directorate General of Higher Education to correct the incorrect data. Based on the description of the problem above, the thing that needs to be considered in the design of academic information systems is synchronization between the academic reports of higher education with the Feeder application so it needs to be made an academic information system design that is aligned with the Feeder application. This study discusses data collection on academic activities by referring to the Feeder application that focuses on interactions that occur between users and systems, business processes, and database design"[5].

Yusuf Durachman "in this study explained that, The Role of Information Systems and Technology is no longer a supporting tool in organizations, but is considered a competitive advantage. The This phenomenon was not found at Muhammadiyah 7 Islamic Boarding School Sawangan. The role of the Information System is only used for data entry and basic searching including in academic matters. Therefore, it is necessary to develop an integrated academic information system in schools. Then, the system development life cycle (SDLC) is used as a method of developing a system in which 5 stages: Planning, Analysis, Design, Development, and Implementation are taken. PHP and MySQL as the programming language in this system"[6].

Melan Susanti "in her research explained that, School is one of the formal educational facilities that must be able to provide the best service or facilities for students and also to parents. One appropriate way is to utilize information technology by accessing academic value through the website. The software development method used is the Waterfall method. The design of web-based academic information systems can provide optimal services to students and parents so there is no need to come to school to get academic information, so that information is produced quickly and accurately"[7].

Wina Widiati "in her research explained that, if the academic system of data processing is still done manually, it will cause problems for system users (teachers, students and Academic Students). The



author builds an adynamic web application that can be used to disseminate correct information, quickly and accurately, develop and update data processing of students, secondary school teachers in Widya Nusantara. The study was conducted using the method of observation, interviews, and literature study. Supporting equipment used in this study created an Entity Relationship Diagram model and Unified Modeling Language. Which aims to provide convenience to teachers in informing reports of student activities quickly and accurately”[8].

Parasian D. P. Silitonga, S.Kom., M.Cs. Replication is the process of copying and maintaining database objects, such as tables, in many databases that make up a distributed database system. Changes made at one place are recorded and stored locally before being forwarded and applied to each other location”[9].

Nataniel Dengen, Dyna Marisa Kh "in this study explained that, web-based information system Negeri 4 Samarinda is a system that provides information on student activity reports online in the form of value reports and student attendance reports concerned with web-based, so that helps speed and quality in the delivery of information. Also with web-based data information can be accessed by time and place that is not specified. In this system, the menu can only be accessed by certain users, namely students, instructors and administrators”[10].

3. RESEARCH METHOD

A. Data Collection

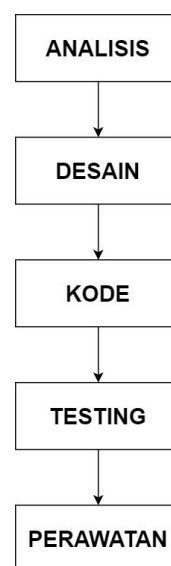
Training methods for conveying theory, include: question and answer and discussion, while practicum consists of question and answer methods as well as assignments or exercises. This training activity method is carried out based on the theoretical learning process and practical learning approaches. The following is a description of community service activities that we carry out at SMP Makna Bakti, Central Jakarta.

- a) **Observation**
This activity is carried out by visiting the service partners at SMP Makna Bakti Central Jakarta to find out the needs of partners in activities within the school as a result of the survey of partner locations (observation).
- b) **Interview**
Direct interviews were conducted with Makna Bakti Middle School Principals, teachers and staff about the needs that could be used as objects of community service. From the two methods of data collection above, we conclude the interrelationships between the activities we carry out between the team and the users are as follows: The team conducted an analysis of user needs to SMP Makna Bakti and discussed with relevant parties such as the Principal and teachers. Lecturers make the results of needs analysis by designing the system requirements. The writing team made

the system flowchart flow. The writing team prepares the use of methods in system design.

B. System Design

The research method in designing this system uses the Linear Sequential method. The method "Linear Sequential Model" or "Classical Life Cycle" or "Waterfall Model" or better known is "Waterfall." The Linear Sequential Method proposes an approach to systematic and sequential software development that starts at the level and progress of the system throughout all analysis, design, code, testing, and maintenance. The linear sequential model encompasses the following activities:



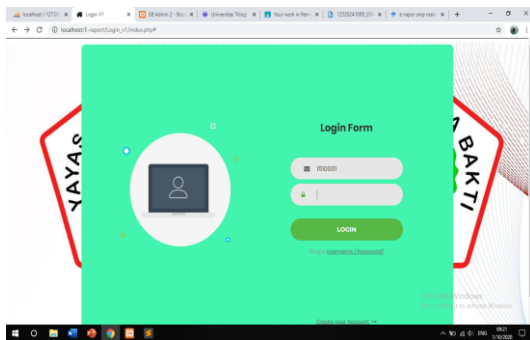
Picture 3.1 Linear Sequential Flowchart.

- a) **Analysis**
Analysis is a study carried out in a study to examine the structure of the research in depth.
- b) **Design**
Design is applied arts, architecture, and various other creative achievements. In a sentence, the word "design" can be used both as a noun and a verb. As a verb, "design" means the process of creating and creating new objects. As a noun, "Design" is used to refer to the end result of a creative process, whether it is in the form of a plan, proposal, or in the form of a real object.
- c) **Code**
Code is a symbol consisting of letters, numbers, punctuation, and other symbols.
- d) **Testing**
Testing is after a program has been completed, the next step is testing the program.
- e) **Maintenance**
Maintenance after a program is complete, the program is damaged or updated.



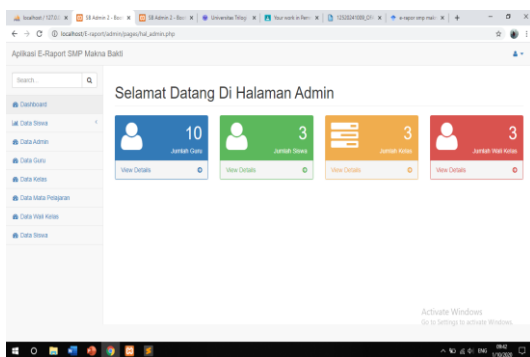
4. RESULTS AND DISCUSSION

The results and discussion of the design of the e-report information system in the form of a web that has been made and tested as follows :



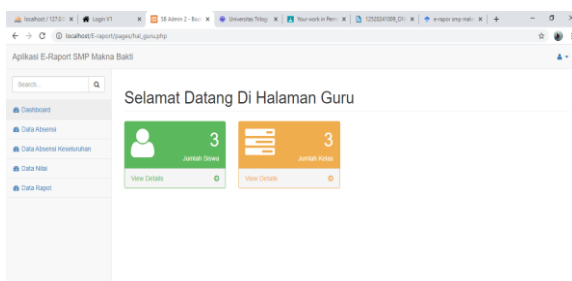
Picture 4.1 Login page.

This login page will later be the main page of the e-report-based application, which is used by admin, teacher and students who have an id and password with different primary keys for each admin, teacher and student id to be able to log into their respective pages.



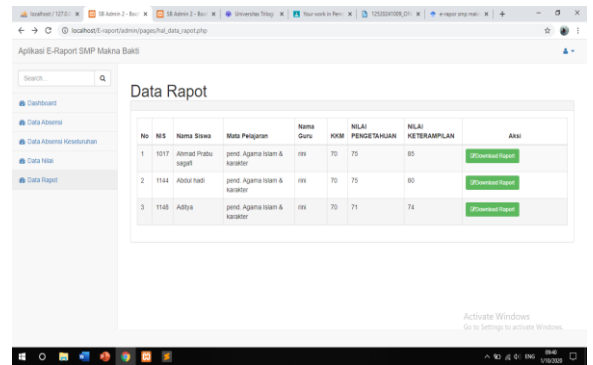
Picture 4.2 Admin Main Page.

Admin page is a page that can see all existing activities such as student data, teacher data, admin data, subject data, grade data and class data. Admin can add data, change data and delete existing data.



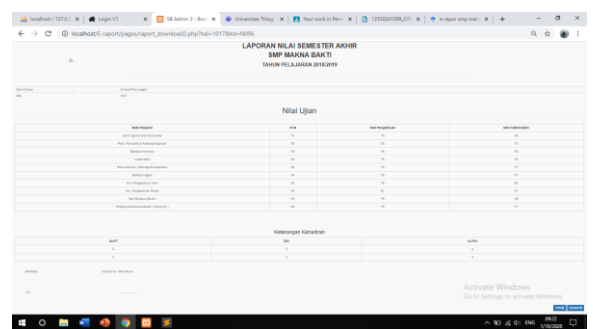
Picture 4.3 The Teacher's Main Page.

The teacher's page is the teacher's activity page in seeing the number of students, the number of classes, subjects, student attendance and input grades or student learning outcomes.



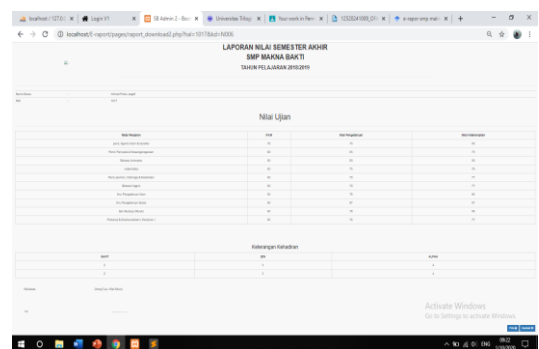
Picture 4.4 Data Report Card Page.

Report card data pages are used by the mayor to summarize all grades and print student learning outcomes.



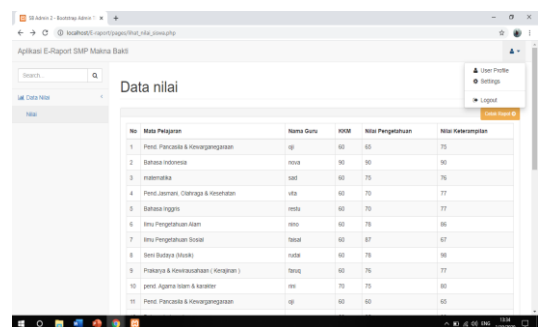
Picture 4.5 View Print Report Card.

View report cards is to display a student report card template that displays student learning outcomes and student attendance data.



Picture 4.6 Student Main Page.

The main page of students is students can see the learning outcomes of each subject that is there.



Picture 4.6 Log Out.



Logout button in the upper right hand corner of each entity page, which will redirect back to the main login page.

5. CONCLUSION

The conclusion from the results and discussion above shows that the system made is in accordance with the system design flow and has reached the goal of research that does not deviate from the existing problem boundaries. From the system that has been made and tested, there are still many that need to be refined again because there are still errors in some features that cannot be used like on the login page if the student forgets the password or the teacher cannot report to forget the password, and at The main page of each search form entity cannot be used to search or enter the following page directly.

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