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Analysis of Web-Based Academic Information System at Harapan Kartasura Vocational School

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Abstract—Technological advancements are continuously developing rapidly, initiated or based on the world of education that provides knowledge, guidance and practice on how to create updated technology. The cause of the creation of technology stems from the world of education, so the world of education should implement a technology-oriented information system.HarapanKartasura Vocational School in processing academic data still uses a simple computerized system and still uses paper. Even though it is supported by a computer, it only uses simple applications such as Microsoft Excel and Word applications, thus allowing a lot of errors in processing academic data. This can hinder academic services to students and teachers as well as result in difficulties in finding data and consuming time in preparing reports. The purpose of this study is to design an academic information system at HarapanKartasura Vocational School so that it can facilitate the processing of academic data such as student data, teacher data, class data and subject data and can overcome existing problems.The result of this research is an academic information system that can help accelerate school performance and make it easier for schools to get the information they need precisely, quickly and accurately.

Keywords : Information System, Academic, Vocational School

I. INTRODUCTION

Technological advances are continuously developing rapidly, initiated or based on the world of education that provides knowledge, guidance and practice on how to create updated technology. The cause of the creation of technology stems from the world of education, so the world of education should implement a technology-oriented information system.

Technology-oriented information systems create many alternative solutions in managing information data. In fact, technology provides convenience and efficiency in processing information data quickly and precisely. In this case, information technology is often developed based on the website according to the required features.

HarapanKartasura Vocational School is a school that was established under the Al-MuttaqienWaqf Foundation. HarapanKartasura Vocational School is an educational institution that has a variety of expertise programs that are in dire need of Information Systems. The information system that is needed by HarapanKartasura Vocational School is the Academic Information System. The academic system that runs at HarapanKartasura Vocational School in processing academic data still uses a simple computerized system and still uses paper. Even though it is supported by a computer, it only uses simple application programs such as Microsoft Office Excel and Word so that it allows a lot of errors in processing academic data. This can hinder academic services to students and teachers as well as result in difficulties in finding data and consuming time in making reports

Therefore, it is necessary to innovate an information system based on academic data processing atHarapanKartasura Vocational School. With the development of the academic information system, it is hoped that it can become a means of supporting academic data processing effectively and efficiently.

Based on the background of the problem above, a problem can be formulated, namely: How to Design and Create a Website-Based Academic Information System at HarapanKartasura Vocational School.

II. RESEARCH METHODS

The system development method is a systematic or regular method that aims to analyze the development of a system so that the system can meet needs. In essence, this waterfall model system development method is the work of a system that is carried out sequentially or linearly. From the user side, it is also more profitable for the data and processes that will be needed.

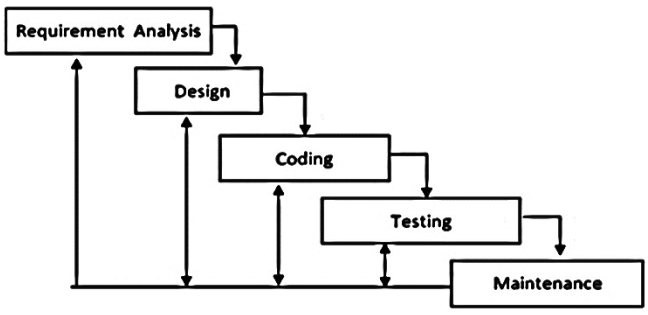

Figure 1. Waterfall method

A. Requirement Analysis

Collect the complete requirements then analyze and define the requirements that must be done completely to be able to produce a complete design.

B. System Design

This stage is done before coding. This stage helps in specifying hardware and system requirements and defining the system as a whole.

C. Coding

The program design is translated into codes using a predetermined programming language. Programs that are built directly are tested both on a unit basis. In this stage, programming is carried out. Software development is broken down into small modules which will be combined in the next stage. In addition, at this stage an examination is also carried out on the modules made, whether they have fulfilled the desired function or not.

D. Program Testing

At this stage, the modules that have been made are combined and this test is carried out to find out whether the software made is in accordance with the design and there are still errors or not.

E. Maintenance

Operate the program in the environment and carry out maintenance, such as adjustments or changes due to adaptation to the actual situation. This is the last stage in the waterfall model. Software that has been run and carried out maintenance. Maintenance includes fixing errors not found in the previous step. Improvement of system unit implementation and improvement of system services as new requirements.

III. LITERATURE REVIEW

A. System

The system is a network of interconnected procedures, gathered together to carry out activities or to perform certain goals.

B. Information

Information is data that has been processed into a form that is meaningful to the recipient and useful in current or future decision making [9].

C. Information System

Information system is a data that is collected, categorized, and processed to become a single unit of information that is mutually sustainable with each other and supports each other until it becomes useful information for the recipient [6].

D. Academic

Academic is a field that studies curriculum or learning where one of its functions is to increase knowledge in terms of learning education to be managed by a school or educational institution [1].

E. Web

The web is a collection of pages consisting of several pages that contain information in the form of digital data in the form of text, images, videos, audio, and other animations provided via an internet connection [2].

F. Laravel

Laravel framework is an open source framework created by Taylor Otwell. Laravel is a bundled, migration and artisan CLI (Command Line Interface) framework that offers a set of tools and application architecture that combines many of the best features of frameworks such as Codeigniter, Yii, ASP.NET MVC, Ruby on Rails, Sinatra and others. Laravel has a rich set of features that will increase the speed of web development [4].

IV. RESULT AND ANALYSIS

A. Requirement Analysis

Analysis of the current system is very necessary in the creation of a new system, especially to find various weaknesses and problems of the previous system and play an important role in the development of the next system.

System requirements are requirements that contain functional and non-functional data on the admin page on the company's website, requiring a process that is able to simplify and speed up finding the desired information on the web used. System requirements are determined so that the system can match the data on the previous system.

Determination of functional requirements makes it easier for writers to determine how many forms will be made and which are used as references for output, the following is an analysis of input and output requirements:

1) Admin Input: Manage Student and Teacher data
2) Student Input: Submitting a place for Industrial Practice
3) Schedule and Announcement Output: The system can display schedules and announcements
4) Print Output : The system can display the industrial practice cover letter

B. System Flowchart

The system created is a web-based academic information system, this information system is made to reduce problems from manual academic management to a computerized system. This information system makes it easier for teachers to manage academics and students in knowing academics at HarapanKartasura Vocational School quickly and accurately. The following is an overview of the system that will be created.

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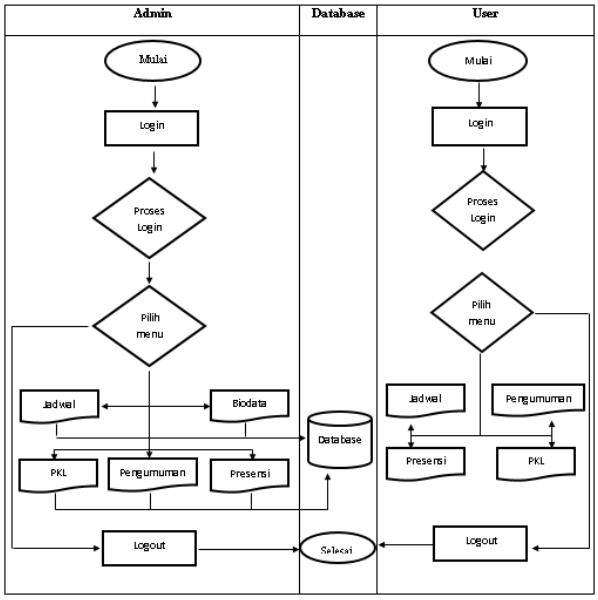

Figure 2. Academic Information System document flowchart

C. System Design

System design is a strategy in problem solving. The design includes the following diagrams:

1) Context Diagram: Context diagram is a diagram that describes the outline of an information system application with the entities involved in the application system. The context diagram also describes the incoming and outgoing data flows. The following is a description of the Context Diagram designed by the author:

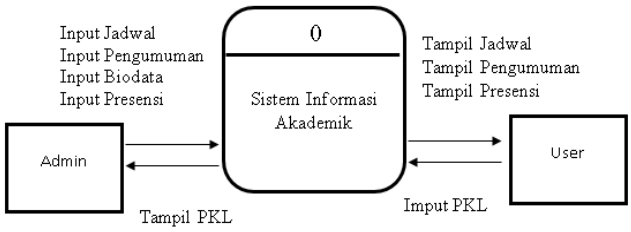

Figure 3. Context Diagram

2) Tiered Chart: A tiered chart is a detailed description of the processes in the system to be created. A tiered diagram based on a predefined document flowchart and context diagram. The following is a tiered chart of the academic information system that will be created:

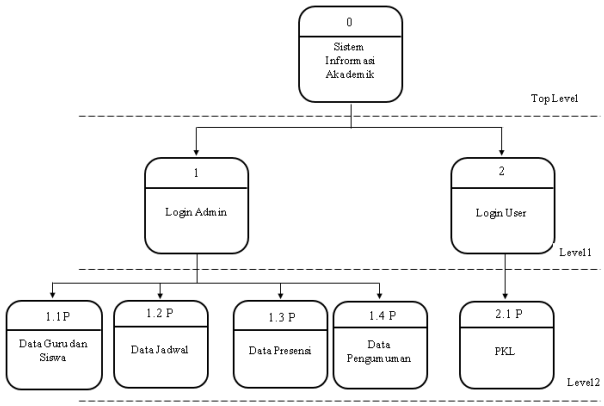

Figure 4. Tiered Chart

3) Database Design:The database is a collection of several tables that form a single unit where there is a relationship between the relations between the tables in question which will be used in the preparation of computer applications. In the tiered chart above, it can be seen that there are 5 tables, namely login, biodata, schedule and announcements, attendance, and field work training.

#	Nama	Jenis	Penyortiran	Atribut
1	**id**	bigint(20)		UNSIGNED
2	**name**	varchar(255)	utf8mb4_unicode_ci	
3	**username**	varchar(100)	utf8mb4_unicode_ci	
4	**email**	varchar(255)	utf8mb4_unicode_ci	
5	**email_verified_at**	timestamp		
6	**password**	varchar(255)	utf8mb4_unicode_ci	
7	**two_factor_secret**	text	utf8mb4_unicode_ci	
8	**two_factor_recovery_codes**	text	utf8mb4_unicode_ci	
9	**level**	varchar(100)	utf8mb4_unicode_ci	
10	**remember_token**	varchar(100)	utf8mb4_unicode_ci	
11	**created_at**	timestamp		
12	**updated_at**	timestamp		

Figure 5. Login Table

#	Nama	Jenis	Penyortiran	Atribut
1	**nama_guru**	varchar(100)	utf8mb4_unicode_ci	
2	**nuptk**	int(11)		
3	**mapel**	varchar(50)	utf8mb4_unicode_ci	
4	**pendidikan**	varchar(100)	utf8mb4_unicode_ci	
5	**created_at**	timestamp		
6	**updated_at**	timestamp		

Figure 6. BiodataTable

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#	Nama	Jenis	Penyortiran	Atribut
1	id	bigint(20)		UNSIGNED
2	file	varchar(100)	utf8mb4_unicode_ci	
3	keterangan	varchar(300)	utf8mb4_unicode_ci	
4	created_at	timestamp		
5	updated_at	timestamp		

Figure 7. Schedule and Announcement Table

#	Nama	Jenis	Penyortiran	Atribut
1	nama_siswa	varchar(100)	utf8mb4_unicode_ci	
2	nis	int(11)		
3	s	varchar(10)	utf8mb4_unicode_ci	
4	i	varchar(10)	utf8mb4_unicode_ci	
5	a	varchar(10)	utf8mb4_unicode_ci	
6	created_at	timestamp		
7	updated_at	timestamp		

Figure 8. Attendance Table

#	Nama	Jenis	Penyortiran	Atribut
1	nama_siswa	varchar(100)	utf8mb4_unicode_ci	
2	nis	int(11)		
3	nama_perusahaan	varchar(50)	utf8mb4_unicode_ci	
4	alamat_perusahaan	varchar(200)	utf8mb4_unicode_ci	
5	created_at	timestamp		
6	updated_at	timestamp		

Figure 9. PKL Table

4) Input/Interface/Output Design:The system design stage is the stage of changing the requirements that are still in the form of concepts into real system specifications. Here's what the system design looks like:

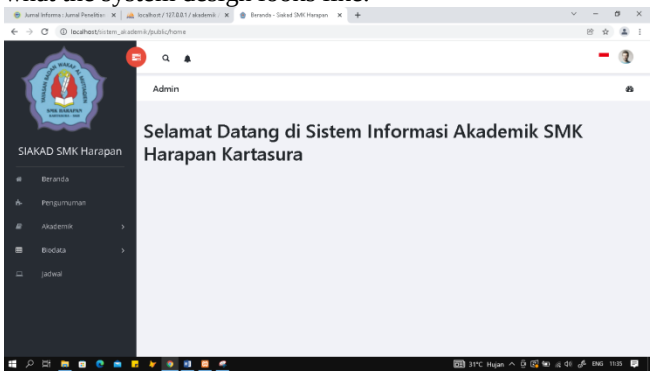

Figure 10. Admin Home Page

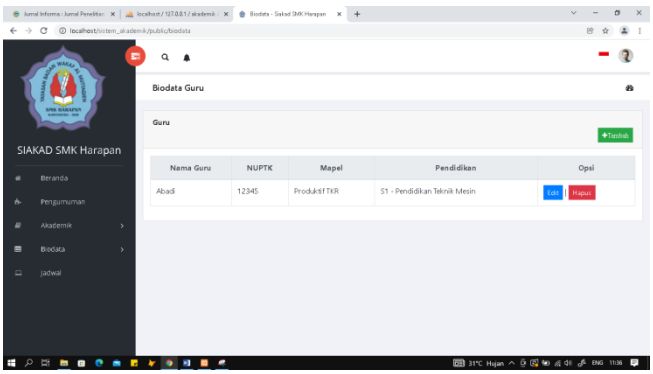

Figure 11. Admin Teacher Bio Page

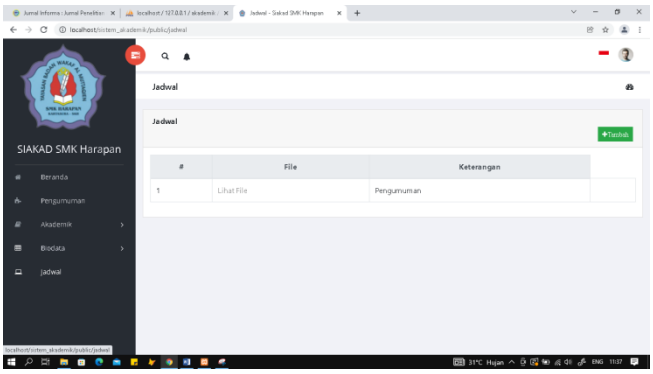

Figure 12. Admin Schedule Page

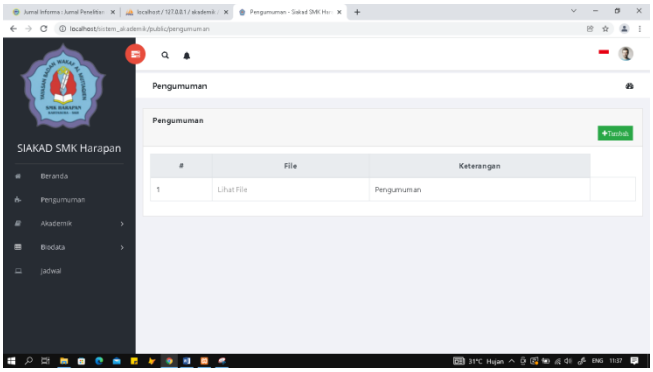

Figure 13. Admin Announcement Page

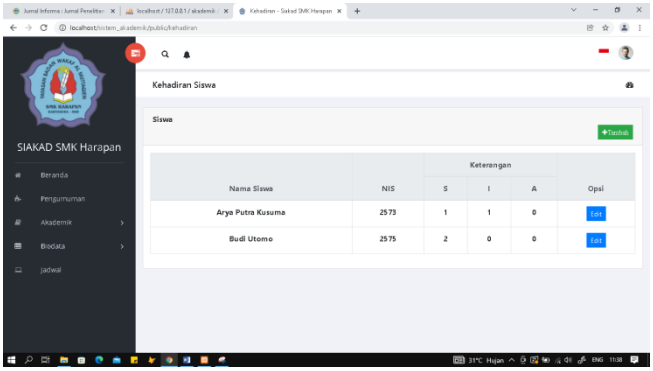

Figure 14. Admin Attendance Page

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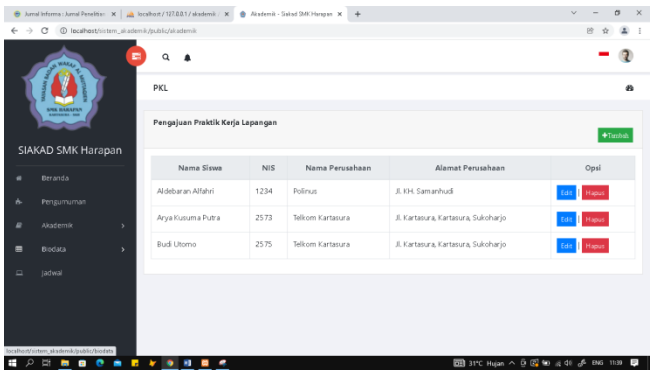

Figure 15. Admin Field Job Training Page

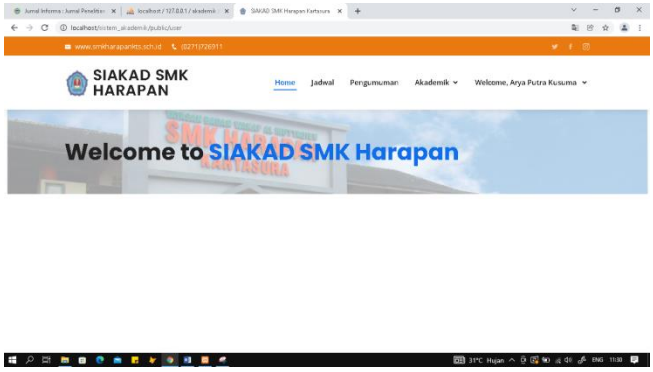

Figure 16. User Home Page

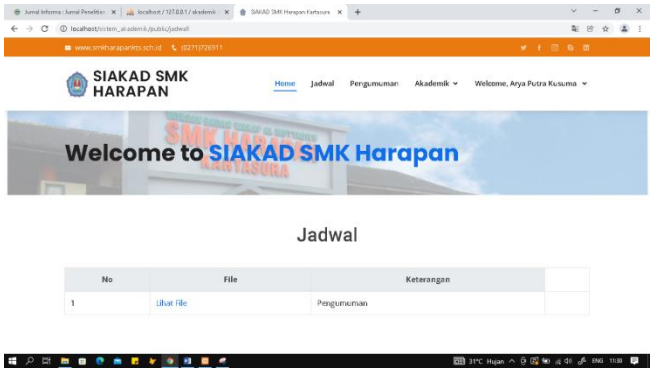

Figure 17. UserSchedule Page

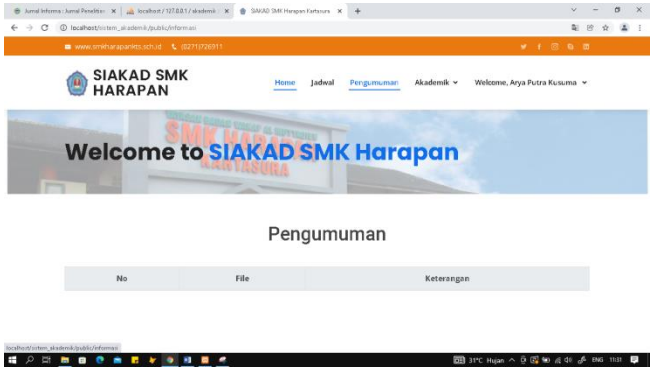

Figure18. UserAnnouncement Page

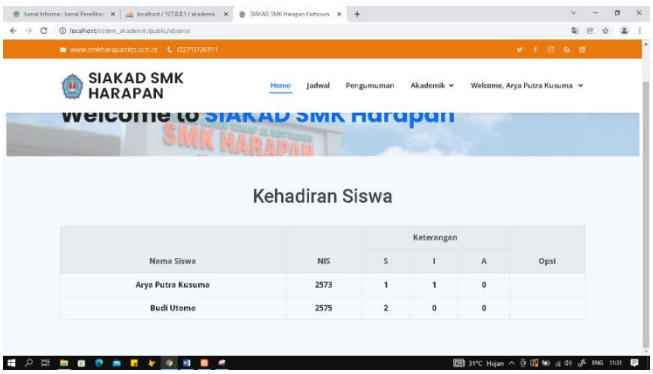

Figure 19. UserAttendance Page

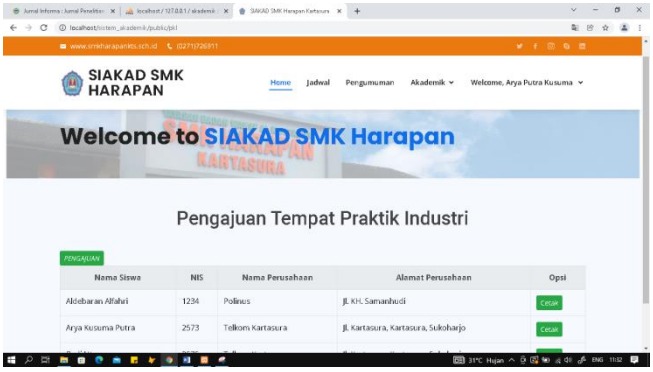

Figure 20. User Field Job Training Page

D. Code Writing

Program code writing is the process of translating the system design into a programming language. The application used to create the code is visual studio code. As for the programming language using PHP with the Laravel framework. By using a MySQL database to manage data.

IV. CONCLUSION

A. Conclusion

Based on the analysis of the problem to the planning process and system testing, several conclusions can be drawn including:

1) The design of a computerized Academic Information System is expected to minimize the loss of existing data because previously the data management was still in the form of documents.

2) The design of this Academic Information System can help accelerate school performance and make it easier for schools to get the information they need precisely, quickly and accurately.

B. Suggestion

1) The Academic Information System at HarapanKartasura Vocational School is still in a simple form, so the system needs to be further developed in order to become a better and perfect system.

2) There needs to be data maintenance and data backup so that the data is more secure.

3) Account data in managing this system is still far from perfect, namely only two access rights made by the author. So this system needs to be developed again.

THANK-YOU NOTE

By giving thanks to the presence of God Almighty, for all the abundance of His grace and gifts, so that the author can complete the journal with the title "Analysis of Web-Based Academic Information System at HarapanKartasura Vocational School".For the preparation of this journal, the author does not forget to thank all of the authors' friends who have provided advice and assistance regarding the writing of this journal. The author hopes that this journal can provide benefits for readers.

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