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WEB-BASED INFORMATION SYSTEM DESIGN AT THE PIKSI GANESHA POLYTECHNIC CAMPUS QUALITY ASSURANCE INSTITUTION

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ABSTRACT

The need for a quality assurance institution system is needed for the agency in the implementation of monitoring and evaluation in the context of quality control in accordance with the vision, mission, objectives, quality standards, and strategies that have been set. The purpose of this research is to create a Quality Assurance Institution System at the Piksi Ganesha Polytechnic Bandung, which can manage user data, faculty data, document data, filling out self-evaluation forms and internal audit instruments, reporting internal audit results. This system was created using PHP and Mysql programming as a database. The method used by the prototype. The stages of the prototype methodology include listen to customer, build/revise mock-up and customer testdrives mock-up. The system was tested using Blackbox i.e. Blackbox interface. The information system generated in this design can manage user data, faculty data, document data, filling out self-evaluation forms and audit instruments, and reporting audit findings.

KEYWORDS
Quality Assurance Institution,
Black-Box Testing,
Self-Evaluation Forms

1. Introduction

Along with the development of science, information and communication technology makes the advancement of science in various fields such as companies or organizations, without exception in the field of education [1]. The existence and role of information technology has brought a new era in the development of education as it is today. In government agencies, the use of computers can be used as a very useful tool. Likewise, the existence of the internet today is certainly welcomed by all circles, one of which has even penetrated into the world of education since the last few years. So that this creates competition for educational services in each educational institution [2].

The low quality of universities in Indonesia can be seen based on the results of university accreditation and study programs. Of the 4,472 universities in Indonesia, only 50 universities have A accreditation and 2,512 new A accredited study programs [3], [4]. This is proof that the quality of Indonesia's universities must improve itself. Standardization set by the National Accreditation Board for Higher Education (BAN PT) must be implemented in improving the quality of higher education. So that internal quality assurance system management is needed in developing a university in achieving accreditation standardization.

2. Literatur Review

Ega Nugraha et.al (2019). The aim of the study was to create a web-based planned referral system (SIJUNA) to help manage referral services from public health centers to hospitals so that there was no reason for patients not to be served because the human resources and facilities needed were not available. This study uses action research with a qualitative approach and the system development stage using the FAST method. The system is tested using black box testing. The results of this study are the establishment SIJUNA that facilitates the referral process of patients from the Public Health Center to the Hospital.

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With the existence of SIJUNA, the operational needs of services are good with the types of outpatient referrals, inpatient care, and emergencies can be fulfilled by increasing accessibility such as certainty of service time with competence and the closest radius of the patient's location, equalizing and increasing the effectiveness of health services, nearest health who has competencies according to patient needs [5].

Ahmad Andreansyah et.al (2020). Technology is an integral part of application development. Utilization of technology under the target user application becomes one assessment in the success of a software. The XYZ Savings and Loan Cooperative is a non-bank financial company engaged in savings and loans. In the employee payroll process so far it still uses the manual method, start from recording attendance, up to the salary calculation process. Web-based application development developed by researchers is used to overcome the problems of XYZ Savings and Credit Cooperatives. Development of Savings and Loan Cooperative applications developed using the incremental model. 31 respondents from the company tested the application. Application testing based on usability factor ISO 9126-3. Applications get a value of 82.66% in terms of ease of understanding, 81.50% in terms of ease of study, 81% in terms of ease of operation, 81.33% in terms of interest and 82% in terms of usage compliance. The average total rating in terms of the usefulness of the application get 82.66% so the application is very useful for companies in helping to calculate employee payroll [6].

Hendra Jatnika et.al (2024). This study is dedicated to evaluating the efficiency of diverse data collection methods in obtaining optimal data for computational data mining. The investigation meticulously compares the questionnaire and web mining methodologies within the framework of SVM and NBC algorithms to discern the flexibility inherent in each data type. The outcomes of this comprehensive analysis demonstrate that questionnaires showcase remarkable flexibility, exhibiting accuracy rates surpassing 80% in both algorithms, along with AUC values exceeding 0.9 when contrasted with data acquired through web mining techniques. These results underscore the paramount importance of the dataset collection method in the realm of computational data mining. The study contributes compelling evidence that advocates for the superiority of the questionnaire data collection method over web mining in the specific context of computational data mining. The questionnaire method not only outperforms in terms of flexibility but also achieves high accuracy, making it a more reliable choice for acquiring data in this domain. Beyond its practical implications, the research highlights a critical aspect of methodology in data collection by emphasizing the necessity of exploring and assessing methods that may have been overlooked in previous research endeavors. This underscores the continuous evolution of research methodologies and the need for ongoing exploration to enhance the robustness and effectiveness of data collection in computational data mining studies [7].

3. Methodology

The concept applied in the design stage of the Internal Quality Assurance Information System is to use the Waterfall model Software Engineering. Software Engineering is a managerial and technical discipline related to the systematic discovery, production and maintenance of high-quality software systems, delivered at the right time and at an expensive price [8], [9], [10].

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The stages in the waterfall model include:

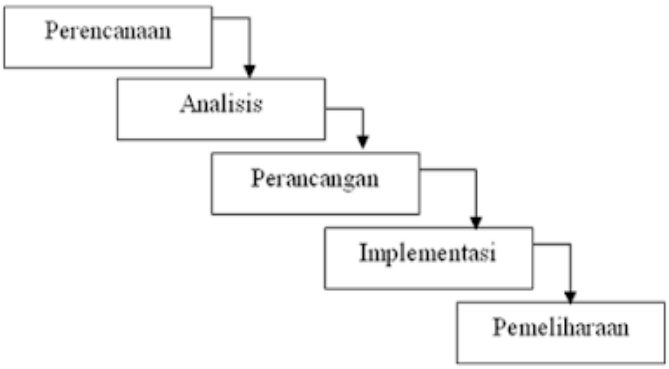

Fig. 1. Waterfall Model

3.1 Waterfall Model

1) System planning

- Research Planning At this stage, system planning is carried out that will be made on the campus of the polytechnic piksi ganesha Planning is made based on the needs of users in carrying out quality assurance activities at the faculty level. The users involved include faculty and study program leaders, heads and members of the Quality Assurance Unit and lecturers at the piksi ganesha polytechnic.
- Data Collection To obtain accurate data, in this study data collection is carried out by:
- The interview technique is a method of collecting data by asking questions or questions and answers directly with the resource persons related to the issues discussed. In this case, questions and answers are carried out according to needs

2) System analysis

- At this stage, an analysis of the existing problems has been carried out. The activities carried out are:
- Identifying user information needs, among others, the development of an Internal Quality Assurance Information System
- Provide alternative solutions to the proposed system. Considering the predetermined research time, not all customer needs can be solved in one research time frame. Therefore, several alternative information systems have emerged that can accommodate the interests of users and systems that have flexibility for further development.
- System selection/eligibility. That is to choose one of the many alternative system solutions offered. Of the several alternatives that will be built, the priority of the faculty's quality assurance system that is built is the learning monitoring and evaluation system.
- Object Modeling. In this section, the system will be modeled into interconnected objects and classes.

3) System planning

- At this stage, a new system is prepared and explained in writing, the activities carried out are:
- Use case diagram design
- Database and table requirements design
- Designing the Interface Display Class.

4) Program Creation

The process of making a program is a stage where the results of the appropriate design are then implemented. At the code creation stage, it is translating from the design that has been designed to the program. At this stage, they perform coding using PHP, HTML, and CSS programming languages as well as MySQL and XAMPP software.

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3.2 Implementation and Testing

This stage is the stage where the author integrates the database that has been created with the proposed system by hosting on the website of the hosting service provider. The process of testing the system with the blackbox method.

4. Results and Discussion

4.1 Result

1) Overview of LPM Piksi Ganesha

A Quality Assurance Agency (LPM) is a unit or organization within an institution, usually in an educational or government environment, that is responsible for ensuring and improving the quality or quality of a process, product, or service. This LPM usually has the task of designing, implementing, and monitoring the quality assurance system so that the standards that have been set can be achieved and maintained.

The Quality Assurance Institute (LPM) of Piksi Ganesha Polytechnic is a unit responsible for developing, implementing, and ensuring educational quality standards in the campus environment. LPM plays an important role in improving the quality of education through various sustainable quality assurance programs. With a focus on improving the curriculum, teaching and learning process, and the performance of lecturers and education staff, LPM strives to achieve the vision and mission of Piksi Ganesha Polytechnic in producing graduates who are competent and ready to compete in the world of work. LPM also ensures that every aspect of campus operations is in line with national higher education standards, and strives to always make continuous improvements to achieve academic excellence.

2) Vision and Mission of the Quality Assurance Agency (LPM)

- Vision:

"To become a Superior Quality Assurance Institution that is able to create a culture of higher education quality at Piksi Ganesha Polytechnic in 2030"

- Mission:

a) Develop and implement an academic quality assurance system that is in accordance with campus culture.
b) Implementing a reliable and sustainable quality assurance system.
c) Develop and implement a superior higher education governance system.

3) LPM Initial View

Fig. 2. Home View

On the branda page we can find out about LPM Piksi Ganesha Polytechnic Campus, this page also displays the locations and contacts of the Piksi Ganesha Polytechnic campus.

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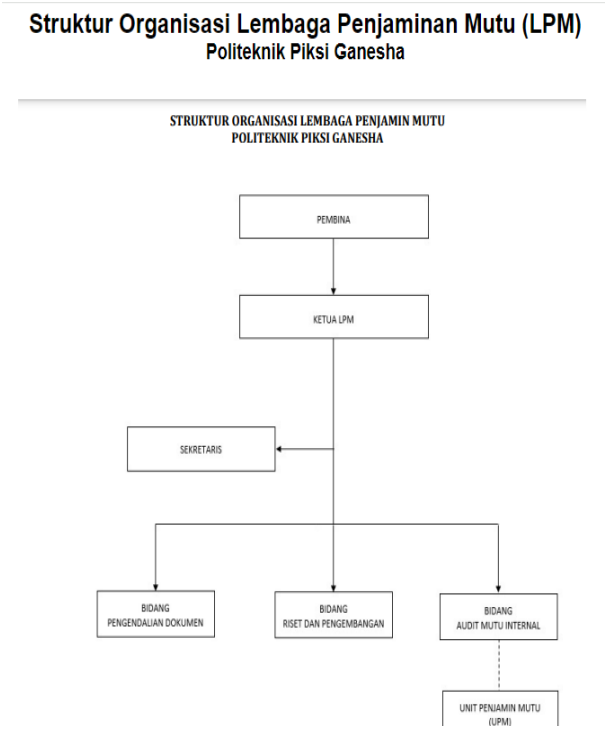

Fig. 3. Profile View

On the profile page, we can find out the vision and mission of LPM as well as the organizational structure.

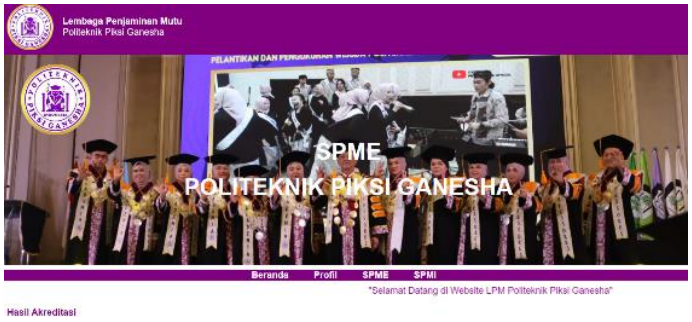

Fig. 4. . SPME Display

On the SPME page, we can find out the results of the accreditation of the Ganesha polytechnic campus. SPME or accreditation is carried out through an assessment of the implementation of SPMI by universities for the determination of accredited statur and accredited rankings of study programs and/or universities.

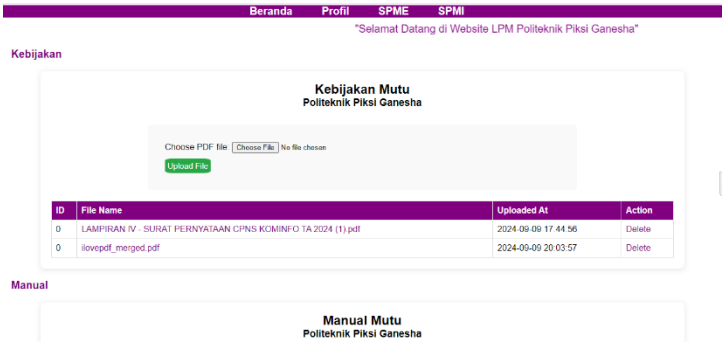

Fig. 5.SPMI Display

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On the SPMI page we can find out quality policies, quality manuals, quality standards, education quality standards, research quality standards, quality standards, community service, quality form standards.

4) Black Box Testing

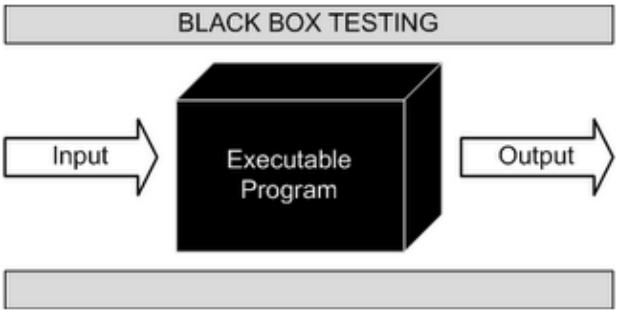

Fig. 6. Black box testing method

Black box testing or also called Behavioral Testing is a test that is carried out to observe the input and output results of software without knowing the code structure of the software. This testing is done at the end of the software build to find out if the software can function properly.

5) Test Results

Table 1. Full-Page Testing

NO	TESTING ACTIVITIES	EXPECTED RESULTS	TEST RESULTS	PASS/FAIL
1	Users access the home page by clicking the home button	Displaying the contents of the home page	Displaying the contents of the home page	PASS
2	User accesses the profile page by clicking the profile button	Displaying the contents of the profile page	Displaying the contents of the profile page	PASS
3	User accesses the SPME page by clicking the SMPE button	Appear on the SPME page	Appear on the SPME page	PASS
4	User accesses the SPMI page by clicking the SMPI button	Appear on the SPMI page	Appear on the SPMI page	PASS

Table 2. SPMI Page Testing

NO	ACTIVITY TESTING	RESULTS EXPECTED	TEST RESULTS	PASS/FAIL
1	User click the "choose file" button	File page display	File page display	PASS
2	User click the "upload file" button	File uploaded successfully	File uploaded successfully	PASS

4.2 Discussion

Overall, the design of this web-based information system is able to answer the needs of LPM at Piksi Ganesha Polytechnic in improving the quality of quality assurance management. This system not only automates administrative processes but also provides more accurate data that can be used for strategic

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decision-making. However, the successful implementation of information systems depends not only on the technology used, but also on the readiness of human resources and managerial support. Therefore, continuous commitment from all stakeholders is needed so that this system can provide maximum benefits and support the achievement of campus quality in a sustainable manner.

5. Conclusion

The web-based information system developed has met the needs of LPM Piksi Ganesha Polytechnic in managing quality effectively and efficiently. The success of this implementation is expected to be the first step in the digital transformation of the campus, which not only improves the performance of the institution but also contributes to the achievement of the campus vision in building a culture of quality and achieving academic excellence in a sustainable manner.

References

[1] G. Aceto, V. Persico, and A. Pescapé, "A survey on information and communication technologies for industry 4.0: State-of-the-art, taxonomies, perspectives, and challenges," *IEEE Commun. Surv. Tutorials*, vol. 21, no. 4, pp. 3467–3501, 2019.

[2] J. Loeckx, "Blurring boundaries in education: Context and impact of MOOCs," *Int. Rev. Res. Open Distrib. Learn.*, vol. 17, no. 3, pp. 92–121, 2016.

[3] G. V. Auktor, T. Altenburg, and A. Stamm, *The transition towards a green economy and its implications for quality infrastructure*, no. 102. Studies, 2020.

[4] W. Bank, "Pakistan: Skills Assessment for Economic Growth." World Bank, 2019.

[5] S. P. Arso, "Design of Web-Based Planned Referral Information System from Public Health Centers to Hospital".

[6] A. Andreansyah, A. Rachman, and R. R. Putri, "Implementation of Incremental Models on Development of Web-Based Loan Cooperative Applications," *Int. J. Educ. Sci. Technol. Eng.*, vol. 3, no. 1, pp. 26–34, 2020.

[7] H. Jatnika, A. Waluyo, and A. Azis, "A Comparative Study on Data Collection Methods: Investigating Optimal Datasets for Data Mining Analysis," *J. Appl. Data Sci.*, vol. 5, no. 1, pp. 16–23, 2024.

[8] I. Sommerville, "Software engineering (ed.)," *Am. Pearson Educ. Inc*, 2011.

[9] P. Jalote, *An integrated approach to software engineering*. Springer Science & Business Media, 2012.

[10] E. J. Braude and M. E. Bernstein, *Software engineering: modern approaches*. Waveland Press, 2016.