



Development of a System for Submitting Funds Proposals at the National Web-Based University

Bimo Anggoro Seno¹, Septi Andryana², Agus Iskandar³

Universitas Nasional, Pasar Minggu No.61, Jl. Sawo Manila, RT.6/RW.7, Jakarta 12520

Email: bimooas@gmail.com, septi.andryana@civitas.unas.ac.id, agusiskandar1005@civitas.unas.ac.id

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ABSTRACT

The development of the digitalization of several activities, led the National University in the development of a planned information management system for the benefit of student associations. The difficulty of student associations in submitting proposals and activity reports, has hampered and consumed a lot of time. The process of validating proposals and reporting activities through several parties is also one of the obstacles. Therefore it is necessary to realize a web-based information management system that makes it easy for them in this regard. This development is intended to facilitate the student association in submitting proposals and reporting the results of activities. Not only students, some related parties such as student bureaus, vice deans, lecturers can also be facilitated by this system. The waterfall method has been applied in the development of this web-based system. The results in the form of web-based systems have gone through the stages of limited trials and periodic system maintenance. A system that is fully functional, dynamic, and efficient in use has provided a good guarantee to facilitate the collection of proposals and other activities. The relevance of this article lies in the fact that as technological dynamics change, software development will evolve in several aspects of life. The ease with which this information system has been generated has minimized the energy, time, and finances of Unas student associations in carrying out procurement procedures and reporting activities.

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1. Introduction

Universities play an important role in education, research and case studies, and talent development. The Student Association as a mediator for talent development within the university, of course, will always hold student activities. These activities are inseparable from the procedural events in the form of proposals and activity reports. The National University Student Affairs Bureau contributes in handling student activities procedurally. Student activities are also inseparable from the supervision of the academic community, especially the vice deans and heads of related study programs.

The process of submitting proposals, reviews, and submitting accountability reports for student activities at the National University is carried out by meeting with the Student Affairs Bureau to find information about student activities, then submitting activity proposals that have been made to several related parties, namely: Head of Study Program, Deputy Dean, Student Affairs Bureau, Vice Chancellor, and BAK for the checking process and getting approval. This procedure can take a lot of time if done manually.

A web-based information management system needs to be developed to facilitate the collection in the activity review process. System design is an activity of designing and determining data to be processed into the information needed[1]starting from observation, making designs, to making program code. It is hoped that the design and analysis of this information system will be able to make scientific-based changes in accordance with university management standards[2].

The web development method should focus on the user and the output from the initial phase to the implementation phase related to each other in activity management [3]. Related studies regarding web development for the benefit of student associations produce features in the application that are in accordance with BAKA's needs. University information



system updates are needed to speed up data distribution[4]. The relevance of technology development with information systems needs to be done to make it easier for stakeholders in the university environment.

Research conducted by student activities at Padang State University discusses the management of student activities in submitting proposals and reporting activities online [5]. The application uses the Yii Framework in its development[5], [6]. This is done to balance technology and human labor. The existence of a system that makes it easier to submit proposals is expected to be able to minimize the time, effort, and financial matters of the activity committee. The Object Oriented Programming (OOP) and Waterfall are used as system development procedures. Model View Controller (MVC) technique with the Hypertext Preprocessor (PHP) programming language and Management System (DBMS) and MySQL as a database[7] also used in its development.

The Student Activity Unit (UKM) at the Dinamika Bangsa High School of Communication Science in Jambi does not yet have a digital information system. The design and analysis of SME information systems is necessary to facilitate SMEs in disseminating information digitally. Web engineering is carried out in designing this information system. Unified Modeling Language is used in determining the creditworthiness of the system[8], [9]. This design and analysis produces a system that makes it easier for the UKM at Batanghari University to do digital recording[9].

Association management activities at Telkom University are still done manually. This is the initial design in developing a web-based activity management information system. Efficiency in submitting proposals is needed in association activities, therefore an application is designed FAIRSHIP with Iterative and Incremental methods. This method has several phases, including increments involving system analysis, system design, coding to create systems, integration, system testing and revision; and periodic evaluations[10], [11]. The concept of Model View Controller (MVC) uses the PHP programming language with the CodeIgniter framework and the MySQL database is used in the development of this system. This application makes it easier for the association to submit proposals until the proposed activity is successfully held[11].

The web based platform makes it possible easy access to do work in various places [12]. The System Development Life Cycle (SDLC) is applied in the analysis and design phase of a web-based community progress information system, which was developed by Bina Nusantara University students. Unified Modeling Language (UML) is applied as a model in a system that functions to monitor the progress of empowerment programs, especially reports, documentation, and verification of activities.[12].

Not only among students, lecturers in the university also often submit research proposals for academic needs [13]. The research conducted requires a valid budget breakdown in the proposal. The difficulties for lecturers usually lie in the budget revision process, so there is a need for system updates that make it easier for lecturers to prepare budgets. The effectiveness and efficiency of budgeting can be realized with the information system developed by Indragiri University students through the Systems Development Life Cycle / SDLC model.[13].

The administrative process of the Biomedical Laboratory at Brawijaya University is somewhat inefficient. Designing a biomedical laboratory management information system needs to be done considering the need for services in the laboratory continues to increase[14]. Information systems play a role in retrieving, sending, storing, retrieving, as well as changing and displaying recorded information[14], [15]. Taylor Otwell's free PHP-based open-source framework is adopted in this system. The Framework has significantly reduced the time, effort and effort required to develop and maintain web applications[16].

One of the Web-based applications developed by Telkom University students, aims to store data neatly, paperless, as well as a medium of communication between the Japan Genki Community (JGC) Management. Progress reports, and ongoing activities / events can also be uploaded in this application, so that all members of the community can easily access them. This application was developed with Waterfall, Unified Model Language (UML) to model the system. PHP programming language with CodeIgniter framework and MYSQL database and other software also play a role in this system[17].

Most of the related research makes it easier for researchers to analyze the needs of users of information systems. Efficiency of the procedure for submitting proposals and reports on the results of student activities for the National University by designing and developing a web-based information system. The realization of this web-based information system development is devoted to facilitating activity units and student associations in submitting proposals and reporting the results of activities, as well as minimizing all obstacles in the procedure for implementing activities.

2. Research methods

Waterfall is a fundamental method and is a sequential linear approach to developing software. The waterfall method plays a role in data collection, literature review, and supports the retrieval of research results in this study. The waterfall method phase can be generalized as follows:

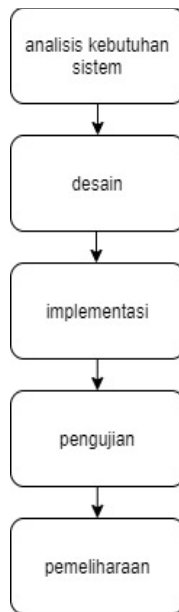


Fig 1. Waterfall Model

Furthermore, the research flow will be described to make it easier to explain the steps and procedures in this study (Figure 2.).

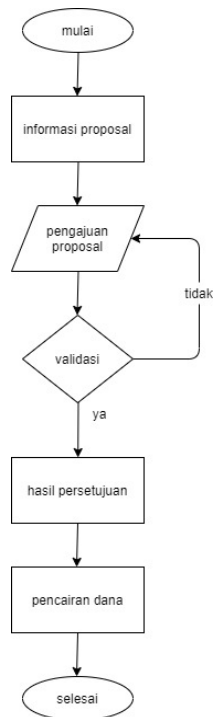


Fig 2. Research Flow

a. System Requirements Analysis

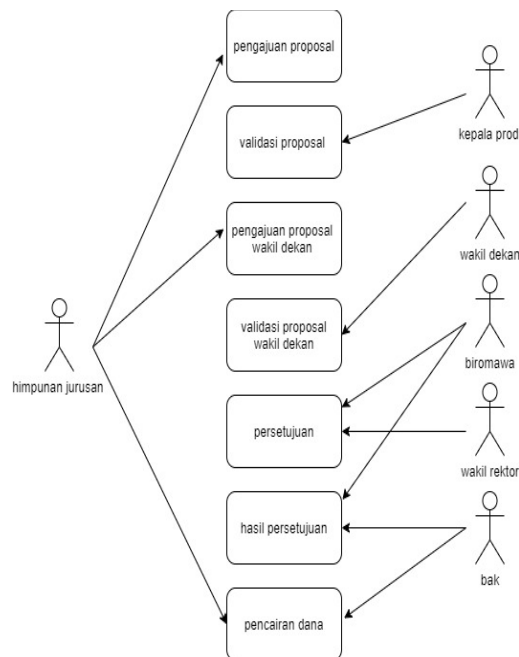


Fig 3. Use Case Running Diagram

This phase aims to understand, collect and document user requirements. The design stage begins with a set of majors making a proposal which will be validated by the head of the study program after which the proposal that has been validated by the Head of Study Program is submitted to the vice dean and re-validated. Then the proposal was submitted to the vice chancellor and biromawa for approval and in the end the results of the approval were given to the next pool like disbursing the funds and giving the funds to the department association.

- b. Design
Any further steps cannot be started until the previous step ends. The design phase starts after the user needs analysis is complete. PostgreSQL is used in designing databases and tables and uses the PHP programming language.
- c. Implementation
At this stage, it is the stage where all systems that have been previously created in the form of coding or program code are implemented in the field (trial) starting from the system on the web which will be used by the user.
- d. Testing
At this stage the system is tested to check for any failures or errors in the system.
- e. Maintenance
At the final stage is maintenance which includes installation and system repair process if there are errors / bugs that are not found during the testing stage.

3. Results and Discussion

The following is the result of implementing a web application that has been created using several depictions of the flows that have been made, here is how it looks:

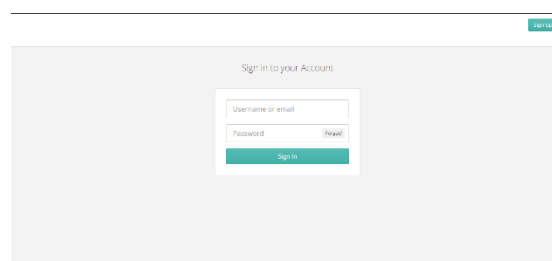


Fig 4. Web Login Display

The display above is the login page on the fund submission system.

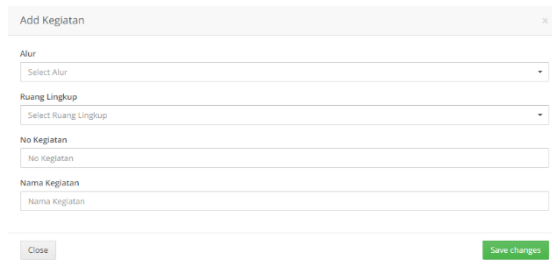
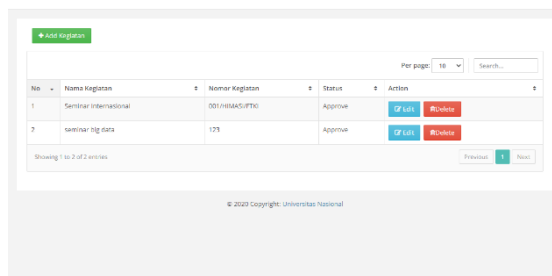


Fig 5. Display Create Activity

The display above is a page for creating association events.



No	Nama Kegiatan	Nomor Kegiatan	Status	Action
1	Seminar Internasional	001110040UPFD	Approve	Add Edit Delete
2	seminar dg data	123	Approve	Add Edit Delete

Fig 6. Display Activity Data

In the display above is a page to see all activity data created by the set.

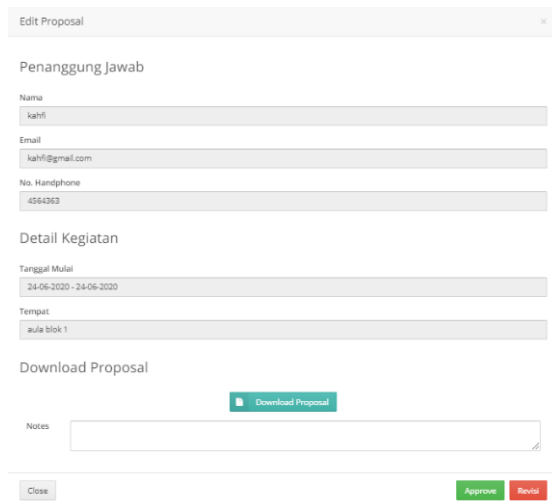


Fig 7. Display Proposal View

In this view is a page for the Head of Study Program, Deputy Dean and Vice Chancellor to see proposals from the association which will later be rejected or approved.

4. Conclusion

Based on the waterfall development procedure in the National University Association Fund Proposal Submission system, it is concluded that the application plays a role in:

- Storing data on association organizations at the National University
- Creating and storing data and images of the results of association activities at the National University
- Make it easier for association members to submit and report activities

- d. Make it easier for the Head of Study Program, Deputy Dean and Deputy Chancellor in validating or revising viewing proposal data and association activity reports.

It is hoped that this system can be applied in campus management to renew the existing system.

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