



## Academic Information System for Student Leave at the National University

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### ABSTRACT

*Limitations regarding the leave application process at the national university students tend to be effective and efficient because it still uses a manual system that makes students feel difficult. Since the number of files that accumulate leave so as to make the part of academic administration forgot to process when there are students who ask leave of absence. The purpose of this design will generate student leave application program is web based, so as to provide convenience to the user in filing and processing leave. Software system development methods using Waterfall Model. The results of this study will show the main page there is also a facility to leave application, as well as leave application status changes. Through this website, students can leave application process online.*

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## 1. Introduction

Technology developments today many positive impacts for humans, namely in terms of particular largely corporate or university where technology can facilitate human activities. One implementation that is very much applicable to companies that academic information system, where one application is the leave application that is already online.

Leave is the right one student. Leaves can be used by students to enter college with no particular reason, eg refreshing, rest pain, childbirth, performing religious duties, and other purposes in accordance with the provisions on leave on each organization. Leave application student at the National University is still done manually whereby when students have a request to submit a written request to the party off campus is only limited by the request directly or through the mail to be processed by the operator. This causes difficulties in the search data when sending the request letter be stacked or operator to forget that there are students who ask to be made Application for such leave.

In the issue that really needed is a practical and easy media in use and has been applied by many other universities is an online media such as websites to help the leave application process, especially students. Where in this website containing information such as leave application form. Information system design student leave application refers to SK. RECTOR NO. 1 Year 2011 on the National University Students Academic Leave.

The results of this study are intended to help the students to perform leave application process that is web based and online.

## 2. Literature Review

To reinforce this design, the authors take a few benchmark journal on furlough system. The author takes 4 reference journals. The first journal which refers to improving good service to students, required a computer-based system to overcome this, the data processing information creation process correspondence well ordered. Stages of the study began with an analysis phase, system design, construction and implementation of the system application. The system created to help BAAK in





improving administrative services correspondence better and faster, so that students can receive better service. [1]

The second journal which refer to the latest academic information system so as to provide convenience for the staff in the processing of student data. The study consisted of data collection stage, analysis phase, and the phase of system development. This research has resulted in an application that features academic leave, non-active academic, clashed exam, supplementary exam, the class moved, moved majors and checking of value. Therefore, it can reduce the waiting time students in the completion of academic services and reduce the length of the service queue. [2]

The third journal is referring to the Academic Information System which will facilitate both students, and Prodi itself. The system, which will eventually consist of 3 user, the admin user, the user's head Prodi, and the user of the student; which each have different functions and activities of each lain. Penelitian was developed by the Waterfall method and using tools UML Use Case Diagram and Activity Diagram to describe the design / prototype system that will be created. [3]

Journal of the fourth which refers to the design of academic information system is considered very helpful in speeding up the process services to students and faculty and also This system aims to help the implementation of education, so that colleges can provide good information and effective, through the Internet [4].

### 3. Research Methods

Broadly speaking, the waterfall method has the following steps: Analysis, Design, Writing, Testing and Implementation and Maintenance. (Kadir, 2003)

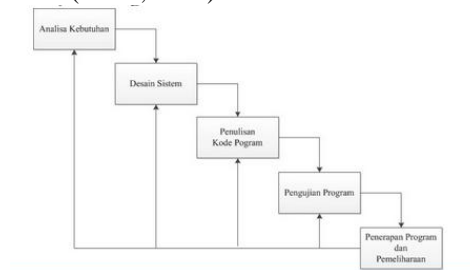


Fig 1. Waterfall method.

#### Stages Waterfall Method:

##### A. Needs Analysis

This step is an analysis of the needs of the system. Collecting data in this stage can make a research, interview or literature. Systems analysts will dig up as much information from the user that will create a computer system that can perform the tasks desired by the user. This phase will result in the user documents requirement or can be regarded as data relating to the wishes of the user in the manufacturing system. This document is the one who will be the reference systems analyst to translate into the language of the programmer.

##### B. System Design

Stages where do the pouring thoughts and designing the system to the solution of existing problems by using system modeling tools such as data flow diagrams (data flow diagrams), entity relationship diagram (entity relationship diagram) as well as the structure and discussion of data.

##### C. Code Writing Program

Writing program code or coding a design translation in a language that can be recognized by the computer. Performed by programmers who would meterjemahkan transaction requested by the user. This stage is what a real stage in working out a system. In terms of computer use will be maximized in this stage. After the coding is completed there will be testing of the system have been made earlier. The purpose of testing is to find faults with the system and then can be fixed.

##### D. Testing Program

The final stage in which the new system was tested ability and effectiveness to obtain shortcomings and weaknesses of the system are then carried out the review and improvement of the application for the better and perfect.

##### E. Implementation and Maintenance





The software has been delivered to the customer will definitely change. Such changes can be due to a fault because the software must adapt to the environment (peripherals or the new operating system) are new, or because the customer requires functional development [5].

While the method of modeling system to be used is a model of UML (Unified Modeling Language). Model UML visual modeling language that is used to specify, visualize, construct, and document the design of a software system. The UML diagrams are used to perform leave application system model student at the National University are:

- 1) Use Case Diagram  
Describing the modeling of behavior information system that will be created. Use case describes an interaction between one or more actors with the information system will be created.
- 2) flowchart Diagram  
Describing the workflow chart that shows the overall system and explain the sequence of procedures that exist in the system. In other words, this flowchart is a graphical decryption of a sequence of procedures that make up a system.

## 4. Results and Discussion

### A. Software Requirement Analysis.

Analysis software needs required in making a website leave application system at the national university, is:

- 1) User needs  
The needs of users in the design of the website is divided into the needs of students, academic lecturer, head of the study program, the dean, part of financial administration, the administration of academic and website admin needs.
  - a. needs Students
    - a) Students can melhat university profile and could see the requirements and regulations on leave at the national university.
    - b) Students can leave application.
    - c) Students can menunggah transfer proof of payment.
  - b. Needs Academic Supervisor
    - a) Lecturers can view the student data corresponding to the academic supervisor.
    - b) Lecturers can approve or reject the leave application.
  - c. Needs Head Study Program
    - a) Professors who can see data in accordance with the faculty.
    - b) Students can view the data in accordance with the academic supervisor.
    - c) Can do approve or reject the leave application.
  - d. Needs Head Dean
    - a) You can see data Head Study Program in accordance with the faculty.
    - b) Students can view the data in accordance with the faculty.
    - c) Can do approve or reject the leave application.
  - e. Needs Financial Administration Bureau
    - a) Students can see the data.
    - b) Students can view the data already submitted evidencing payment.
  - f. Needs Academic Administration Bureau.
    - a) Students can view data
    - b) Can print data that students leave application has been approved.
  - g. Admin needs
    - a) Having all data access.
    - b) Can view, modify and delete a student data.
    - c) Can view, modify and delete a lecturer of data.
    - d) Can view, modify and delete a head of data study program.
    - e) Can view, modify and delete a head dean of data.
    - f) Can view, modify and delete a financial administration bureau data.
    - g) Can view, modify and delete a keuantan administration bureau data
    - h) Can view, modify and delete a student leave the submitted data.





- i) Leave application can print data students.
- 2) System Requirements
  - a. To enter into the system the user must log in first and then logout to exit the system.
  - b. The system can store data of students, lecturers of data, submission of data, the data of the school year and payment data.
  - c. The system can classify the student data is still active and inactive.
  - d. The system can classify the student data corresponding to the department.
  - e. The system can classify the data professors who are still active and inactive.
  - f. The system can classify the data submission in the process, and the accepted and rejected.
  - g. The system can print the leave application has been approved.

## B. Design

### a) System Design

#### 1) Use Case Diagram

This diagram illustrates the function of each of the user's website leave application of national university students.

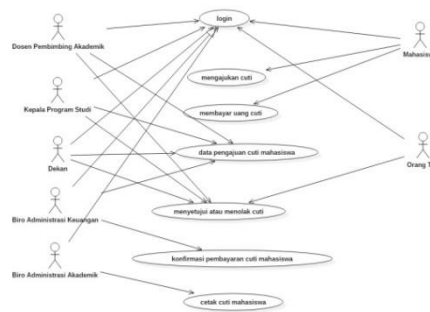


Fig 2. Use Case Diagram

#### 2) flowchart System

This system flowchart depicts the flow of national university students leave application.

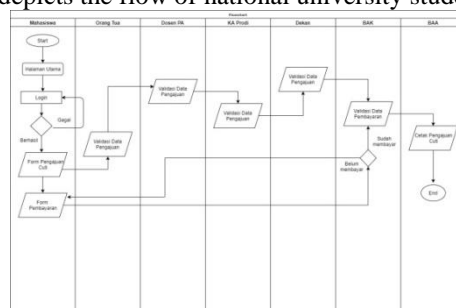


Fig 3. flowchart System

### b) Database Design

Database design is the first step for the design of the data that will be used to design a system that consists of tb\_mahasiswa, tb\_user, tb\_tahunajaran, tb\_ta\_cuti, tb\_pembayaran and tb\_pengajuan.

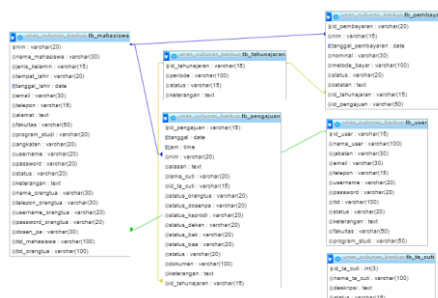




Fig 4. database design

## C. Display Interface



Fig 5. Main page

In Figure 5 is a view of the home page, on this page there is a brief description of the national university's profile, and there is also an explanation of the requirements and leave the proposed regulation by the students.





No	Dokumen	Data Pengajuan	Status
1		Ary Dal Paritono (P20190000000000000000) Tgl: 8 Desember 2019, 21:00:07 WIB Alasan: BBA Lama Cuti: 1 Semester Tahun Akademik Cuti: Semester Ganjil 2019/2020	Status Orang Tua Status Dosen BK Status Asisten Status Dosen Status BAA Status BAA

Fig 6. Students Leave Submission Form page

In figure 6 a leave application form pages is done by the students.

No	Tanggal Pembayaran	Mahasiswa	Metode Pembayaran
1	12 Desember 2019	Ary Dal Paritono Cuti ID Pengajuan: (P20190000000000000000)	BNW: 750.000,00

Fig 7. Payment Form page Cuti Students

In figure 7 a form page leave pay will be undertaken by the student.

Fig 8. Login page

In figure 8 this is the login page for all users consisting of administrators, students, parents, faculty pa, ka Prodi, dean, tubs, and BAA in the application of national university students leave application.

Fig 9. Admin Dashboard page

In figure 9 is a view in the admin dashboard. Admin can add, edit and delete the user data, student data, the data of the school year, academic year data on leave, the submitted data and payment data.





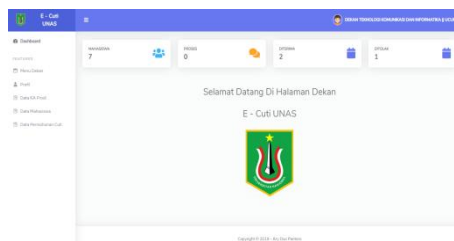
**Fig 10.** Dashboard page Lecturer Academic Pemimbing

In the figure 10 is a display on the dashboard academic supervisor. academic supervisor can view the student data and the data leave application made by students who will be in the process by the academic supervisor.



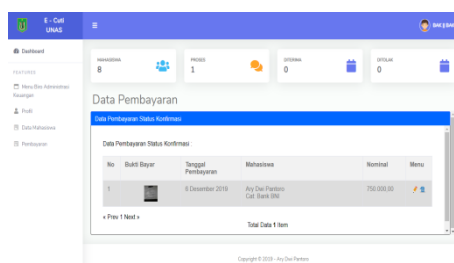
**Fig 11.** Dashboard page Head Study Program

In figure 12 is a display on the dashboard of the head of the study program. Head of the study program students can see the data and the data leave application made by students who will be in the process by the head of the study program.



**Fig 12.** Dean Dashboard page

In figure 12 is a display on the dashboard dean. Dean of the faculty who can see data in accordance with the faculty, the student data, and the data leave application made by students who will be in the process by the dean.



**Fig 13.** Payments page Financial Administration Bureau





In figure 13 is a display on the dashboard of the Financial Administration Bureau. Bureau of Academic Administration can view the student data and payment data conducted by the student furlough to be processed by the finance department.

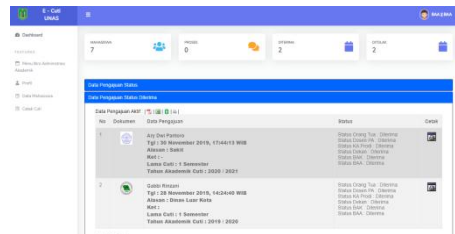


Fig 14. Print page Cuti Academic Administration Bureau

In figure 14 is a display on the dashboard of Academic Administration Bureau. Bureau of Academic Administration can view the student data, and data submission has been approved and prints leave application.

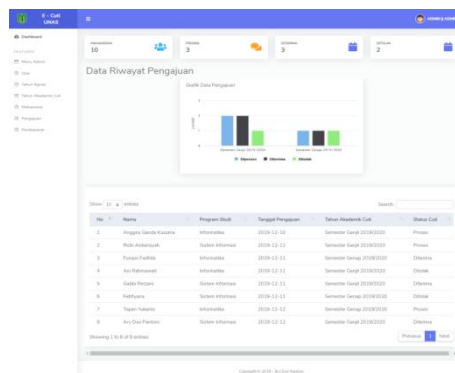


Fig 15. Submission History page Cuti

In the figure 15 is a view of students leave application history data in which there are charts to see the development of academic leave each year.

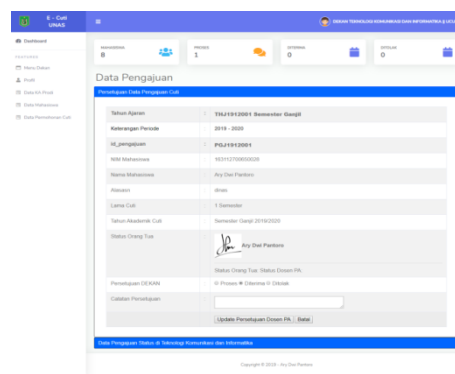


Fig 16. Approval page Cuti

In the figure 16 is a view in the form of leave approval will be made by the faculty to approve or not the leave application submitted by students.

#### D. Testing and Accuracy

Based on the results of testing with a black box method, students leave application system made in accordance with the expected at the beginning of the design.





MENU	AKTIVITAS	YANG DIRAKIPKAN	HASIL TAMPIL	KESIMPULAN
Login	- Username dan Password benar - Username dan Password salah	- Manti ke halaman beranda - Manti ke halaman Pemberitahuan - Manti ke halaman form pengajuan cuti	- Validasi login berhasil - Validasi login gagal	✓ Diterima ✓ Diterima
Mahasiswa	- Melakukan Pengajuan Cuti - Melakukan Pembayaran Cuti	- Manti ke halaman Form permohonan cuti	- Form pengajuan cuti - Form pembayaran cuti	✓ Diterima ✓ Diterima
Orang Tua	- Melakukan persetujuan cuti	- Manti ke halaman persetujuan orang tua	- Form persetujuan cuti orang tua	✓ Diterima
Dosen Pembimbing Akademik	- Melihat data mahasiswa - Melakukan persetujuan cuti	- Manti ke halaman data mahasiswa - Manti ke halaman persetujuan dosen pa	- Form Data Mahasiswa - Form persetujuan cuti orang tua	✓ Diterima ✓ Diterima
Kepala Program Studi	- Melihat data dosen pa - Melihat data mahasiswa - Melakukan persetujuan cuti	- Manti ke halaman data dosen pa - Manti ke halaman data mahasiswa - Manti ke halaman persetujuan ka prodi	- Form Data Dosen PA - Form Data Mahasiswa - Form persetujuan cuti orang tua	✓ Diterima ✓ Diterima
Dekan	- Melihat data ka prodi - Melihat data mahasiswa - Melakukan persetujuan cuti	- Manti ke halaman data ka prodi - Manti ke halaman data mahasiswa - Manti ke halaman persetujuan dekan	- Form Data KA Prodi - Form Data Mahasiswa - Form persetujuan cuti orang tua	✓ Diterima ✓ Diterima
Biro Administrasi Keuangan	- Melihat data mahasiswa - Melakukan persetujuan cuti	- Manti ke halaman data mahasiswa - Manti ke halaman pembayaran	- Form Data Mahasiswa - Form pembayaran cuti	✓ Diterima ✓ Diterima
Biro Administrasi Akademik	- Melihat data mahasiswa - Melakukan cetak cuti	- Manti ke halaman data mahasiswa - Manti ke halaman cetak cuti	- Form Data Mahasiswa - Form cetak cuti	✓ Diterima ✓ Diterima

Fig 17. Black Box Testing Results

## 5. Conclusion

Based on the result of design that has been done, it can be summed up as follows:

- Application of these students leave application website can provide the ease of applying and processing the student furlough.
- Application of these students leave application website to provide information and regulatory requirements leave at the national university.

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