

E-Consult: Designing of Development for Thesis Advisory Model Based on Management Information System in IAIN Bukittinggi

1st Supriadi
Graduate Program
Universitas Negeri Padang
supriadi@iainbukittinggi.ac.id

3rd Syafri Anwar
Faculty of Social
University State Padang
Padang, Indonesia
Syafri_anwar@gmail.com

2nd Kasman Rukun
Faculty of Engineering,
Padang State University
Padang, Indonesia
kasman.rukun@gmail.com

4th Khairani
Faculty of Social
University State Padang
Padang, Indonesia
yajikha58@gmail.com

Abstract—This research is a series of research related to the development of thesis advisory model based on management information system. This study aims to follow up the results of preliminary research that has been done to design a thesis advisory model at IAIN Bukittinggi, so the problems found in the initial research can be resolved. This research was conducted using research and development method with Borg and Gall model, with system development chosen as waterfall model. The results of this study produce a thesis advisory application based on management information systems called e-Consult. The term e-Consult means electronic consultations that can be utilized by departments, faculty, and students. This research is limited to the design process only, which will then be tested for the validity, effectiveness, and practicality in further research.

Keywords— Thesis Advisory, MIS, e-Consult

I. INTRODUCTION

Thesis is one part of the final task in the form of scientific work that must be completed by every student to finish their undergraduate education (S1) in IAIN Bukittinggi.[1]

Basically, it aims to exercise students' ability to analyze the problems seen in the social environment by using correct research procedures then describing it in a systematic written form using the rules of writing agreed on an institution.

Each university applies that thesis writing is a subject with a high credit.[2] It is even higher than other face to face courses. Therefore, thesis writing is considered important because the mark obtained by student will influence their GPA at the end of study.[3]

Because of the importance of this course, the process of thesis writing is usually supervised and advised by several advisors.[4] The number of these advisors will depend on the academic rules that apply to the college. These advisors play the role in providing direction, input and guidance for students in their thesis writing.

The process of thesis advisory between students and advisor occurs through face to face interaction [5] with the procedure on the agreement between students and advisors. Face to face is a formal interaction that must be recorded in a document to be accounted for.

Under normal conditions, the process of thesis advisory through face to face interaction is relatively easy. However, in other conditions, such as out of town duty, seminars, training and other national or international scientific forum as well as official duty, the advisory process will face some challenges.

These challenges include inadequate advisory time, declined seriousness in advisory process, and long duration of advisory process. Therefore, in the long run, it will slow down students' completion of their study and give an impact on accreditation of the institution.

Initial research that has been done in IAIN Bukittinggi 2018 reveals that the lecturer's perception regarding the development of thesis advisory model based on management information system shows their expectation on this system to regulate the process of thesis advisory through an application. This can be seen from the following graph:

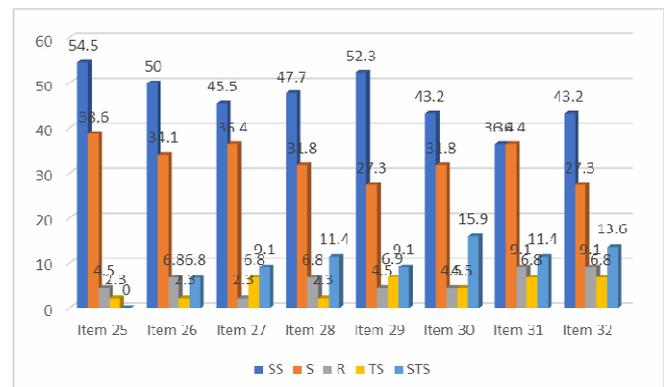


Fig. 1: Lecturer's Perception on the Planning for Development of Thesis Advisory Application

Among 32 items provided, eight of them reveals that there is a desire from lecturers of IAIN Bukittinggi to have thesis advisory application based on information management system that will help bridge between busy work and lecturer activities with the obligation to supervise students' thesis . Hence, with the application, thesis advisory can be conducted anywhere and anytime.

Based on the findings of the initial research, the researcher then designs an application that can be used as the mediator on the process of online thesis advisory which is later called *e-Consult*. This name is taken the word consult which means consultation or advisory and "e" as the abbreviation of electronic. These are combined to have the meaning of electronic consultation between students and advisors.

II. METHODS

A. Research Method

The research method used in this research is Research and development method, a process used to validate and develop a product.[6] The model used is the one developed by Borg and Gall consisting of 4 main steps: introduction, development, field test, and dissemination.[7]

In this piece of research, the researcher focuses more on the second step i.e. product development. In this step, the researcher set objectives, product specification, product advantages, product limitations, work procedure, and limited feasibility test as well as hypothetical design. Meanwhile, the first step (preliminary) has been done in previous research and the third and fourth step is part of the next research.[8]

B. System Development Model

The system development model used is the waterfall model because it is a systematic approach with the sequences starting from needs analysis system, design, coding, testing and maintenance. [9] This waterfall model is also called the Linear Sequential Model. This model is the most widely used model in Software Engineering. [10]

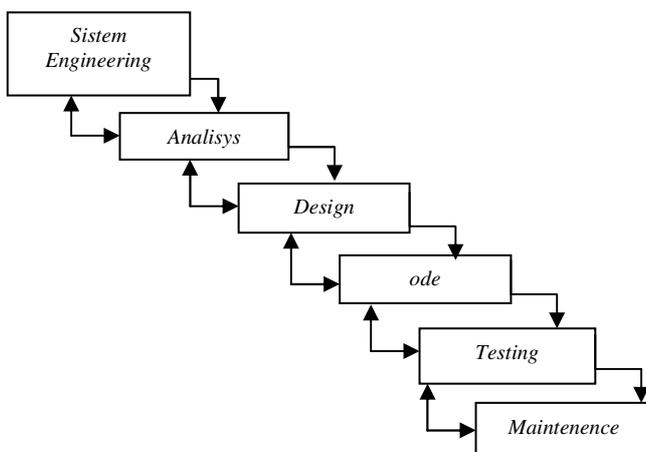


Fig.2. Waterfall System Development Model [10]

This system development model can be described as follows:

1. Software needs analysis. At this stage, needs analysis is collected with a focus on the software including the information domain, the required functionality, performance and interface.
2. Design. This process involves four attributes of a program i.e. data structure, architecture, software, interface representation, and procedural (algorithm) details
3. Coding. At this stage, translating design into mechanical language is done.
4. Testing. This process is done after the code is designed with the focus on the function and the number of errors to be corrected.
5. Maintenance. The activity at this stage includes any adjustments or changes that evolve with the adaptation of the software to the actual condition or situation after it is submitted to users.[11]

III. RESULTS AND DISCUSSION;

A. Preparing

The initial research is the basic idea of the further development of this system further. The further preparation is related to the hardware and software needed in designing this thesis advisory model such as preparation of compatible computer / laptop, operating system, editor programming language PHP / MySql, Browser and Xampp.

B. Designing

a) Use Case Diagram

Use Case is a diagram illustrating the interaction between systems and users.[12] It works by describing the type of interaction between the user of a system with its own system, through a series of stories how a system is used

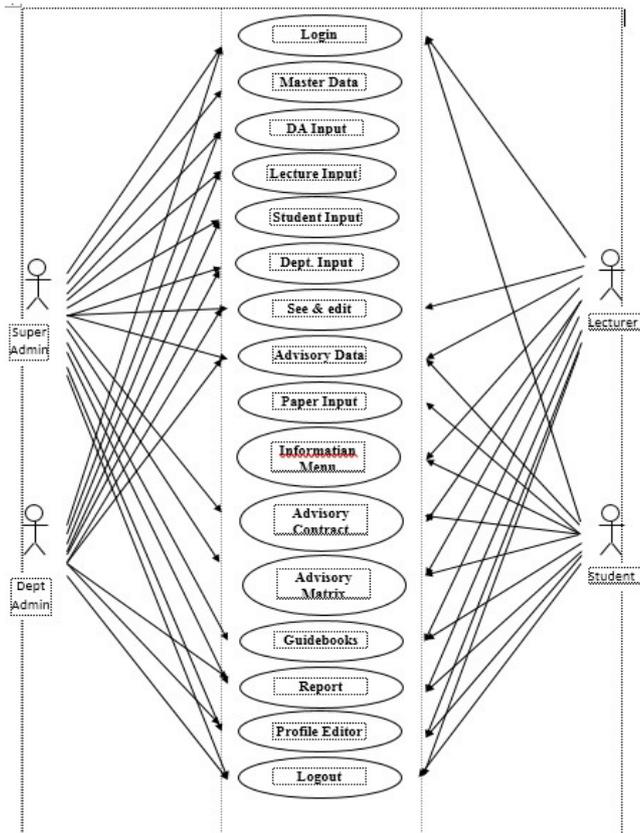


Fig. 3 Use Case Diagram of e-Consult

b) Activity Diagram

Activity Diagram shows the activity of the system in the form of a collection of actions, the flow of activities in the system designed.[13] It also shows how each flow begins, the possible decisions and how the system ends. The activity diagram e-Consult can be seen as follows:

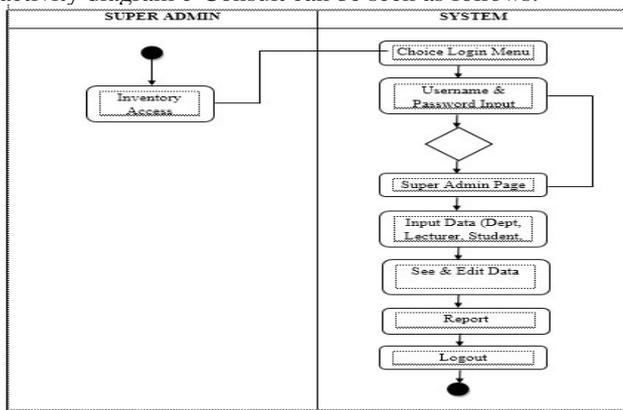


Fig. 4 Super Admin Activity Diagram

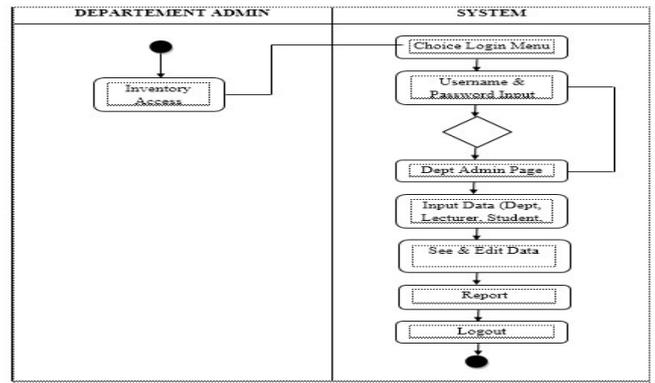


Figure 5 Department Admin Activity Diagram

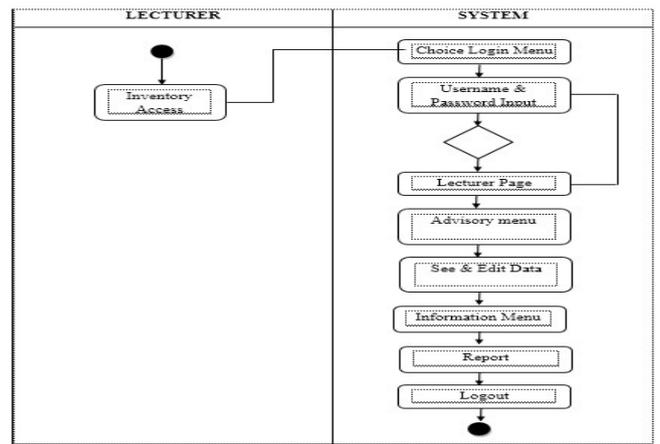


Fig. 6 Lecturer Activity Diagram

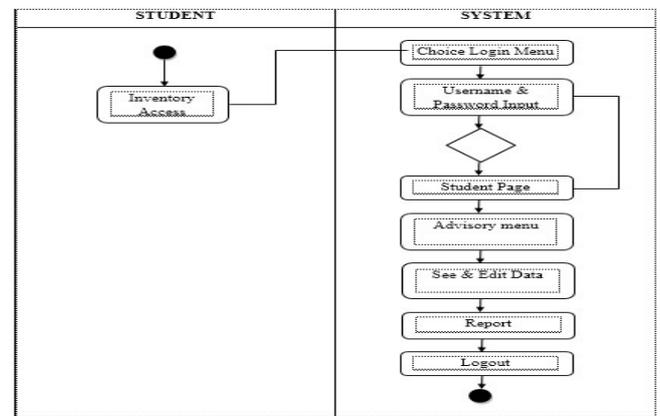


Fig. 7 Student Activity Diagram

C. Input Designing for Super Admin

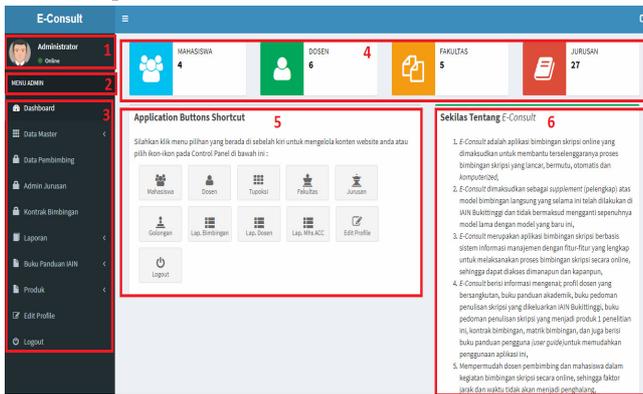
This application has been launched online on the address: <http://www.e-consult.iainbukittinggi.ac.id>.

a) Form Login Designing

It is a page to input username and password for super admin, admin, advisor and students in order to use this application further.

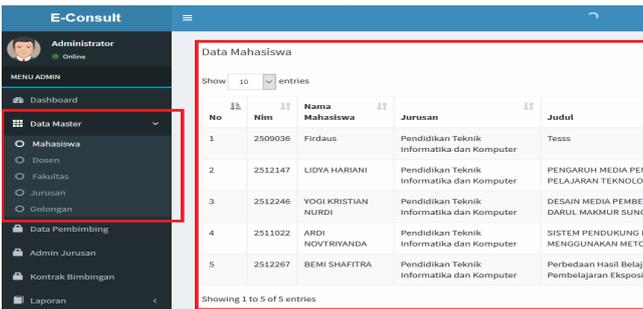


b) Super Admin Home Menu



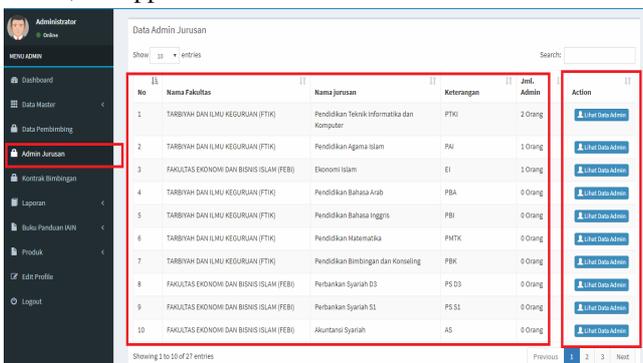
c) Super Admin Data Menu

It contains college data including lecturer, position, students, department, and faculty.



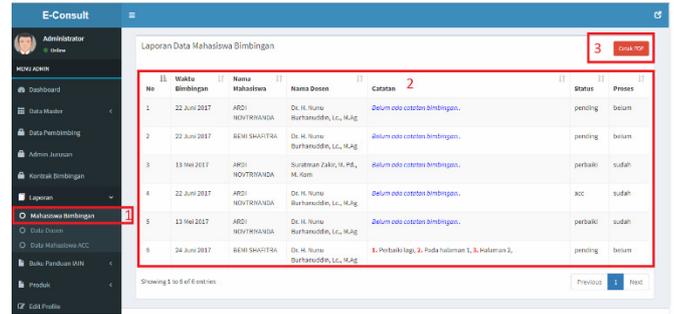
d) Department Admin Menu on Super Admin

To appoint an admin of department is the responsibility of super admin. Without appointing this admin, the app account will not work.



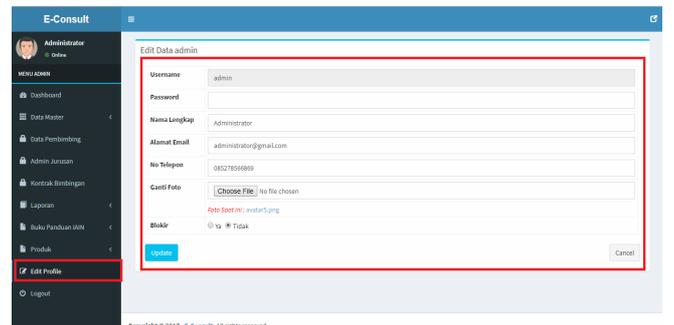
e) Super Admin Report Menu

This menu contains the report for super admin regarding students, advisor, and approved students' thesis.



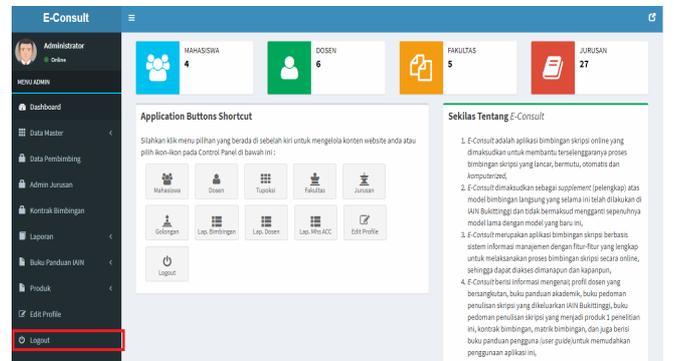
f) Super Admin Profile Edit Menu

This menu is used to update or change user name and password given by the super admin.



g) Super Admin Logout Menu

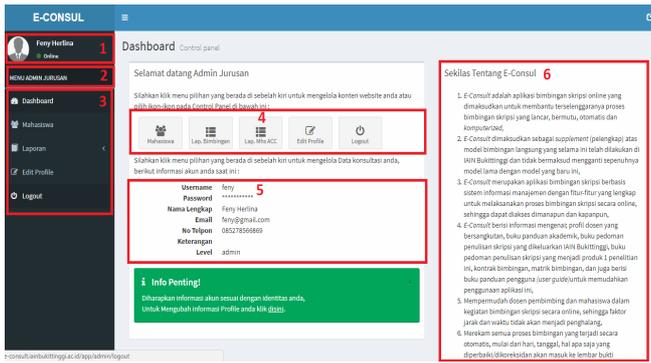
This menu is used to logout from the application by simply clicking the logout menu icon.



D. Input Designing for Department Admin

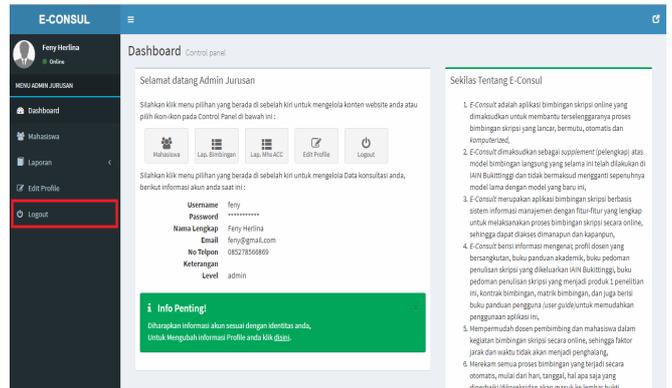
a) Department Admin Home Menu

Department Admin is an extension of super admin with the responsibility of technical issues related to the input process of students, thesis titles, and advisor.



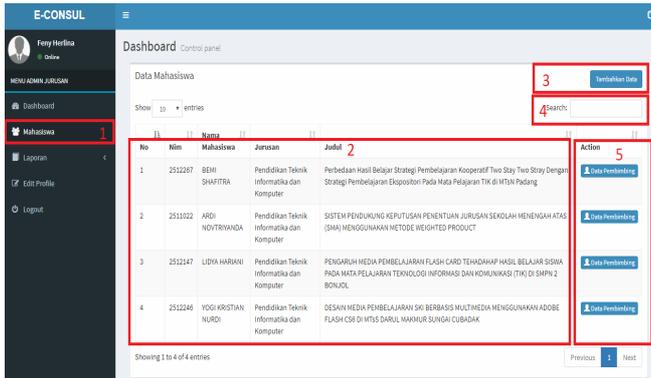
e) Department Admin Logout Menu

This menu is used to logout from the application by simply clicking the logout menu icon.



b) Student Menu on Department Admin

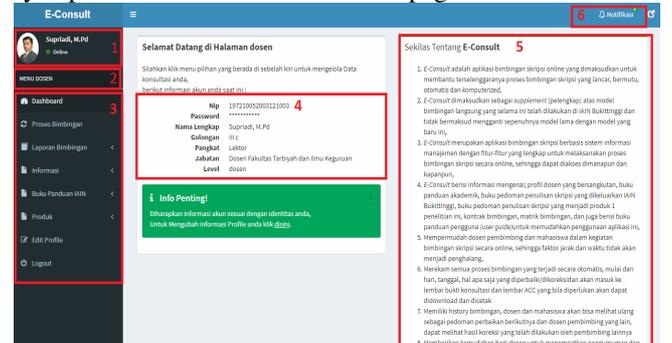
It contains the options to add, edit, and delete students and their thesis title.



E. Input Designing for Advisor

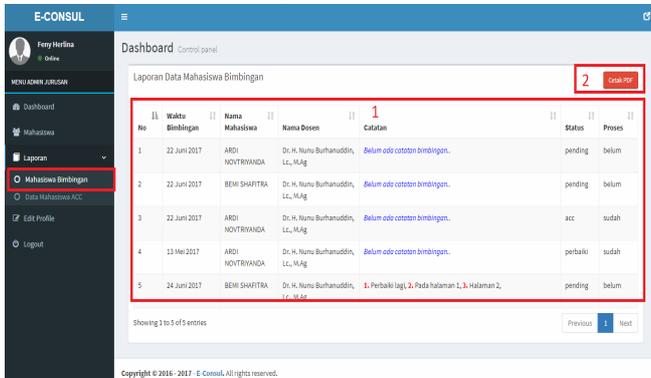
a) Advisory Home Menu

The lecturers appointed as a thesis advisor and added by department admin can access this page.



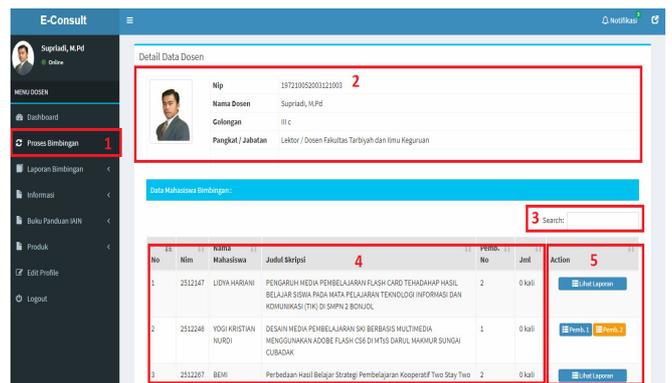
c) Department Admin Report Menu

It contains the report to department admin regarding students and approved thesis.



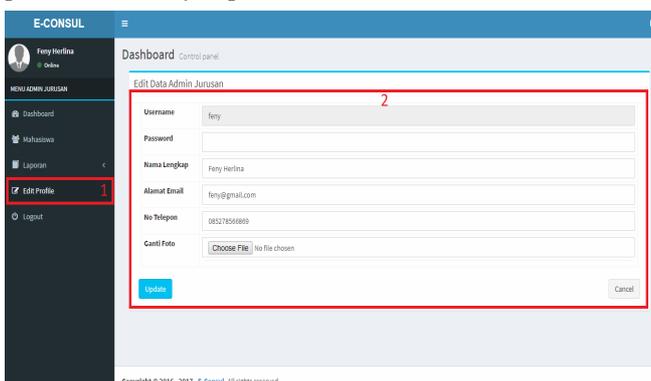
b) Advisory Process Menu

It contains students' data advised by the given lecturer that include registered number, name, thesis title, and total number.



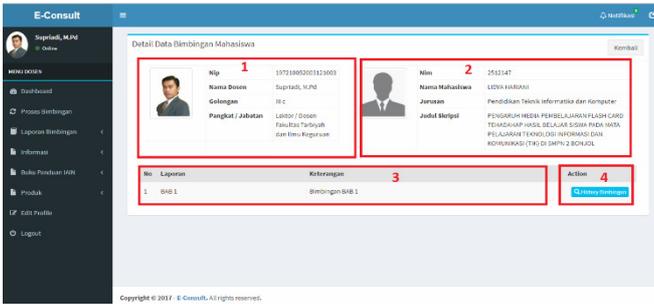
d) Department Admin Profile Edit Menu

This menu is used to update or change user name and password used by department admin.

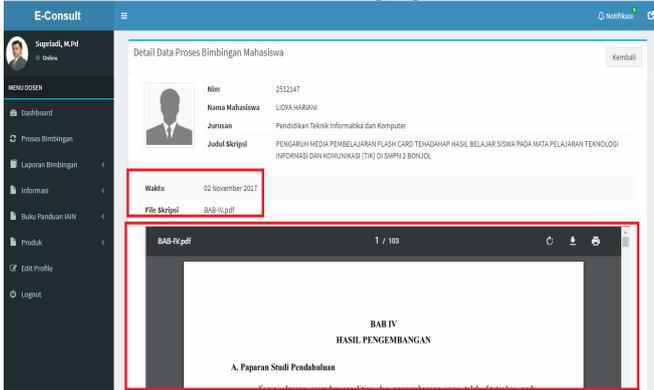


c) Student Detail Menu

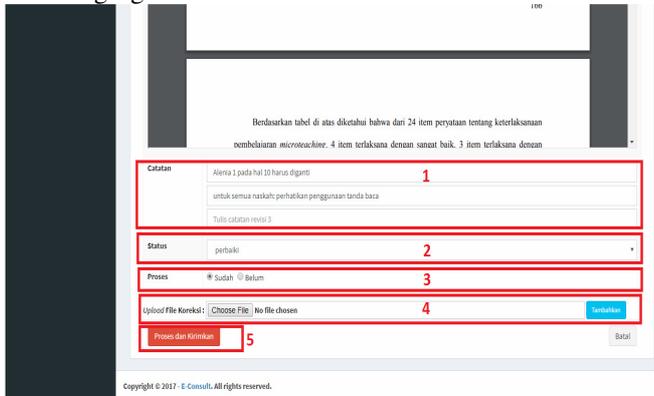
This menu show detail data on advisors and their advised students.



If the detail data icon is clicked, it will bring up the file that has been uploaded by students to be read and corrected as shown in the following figure:

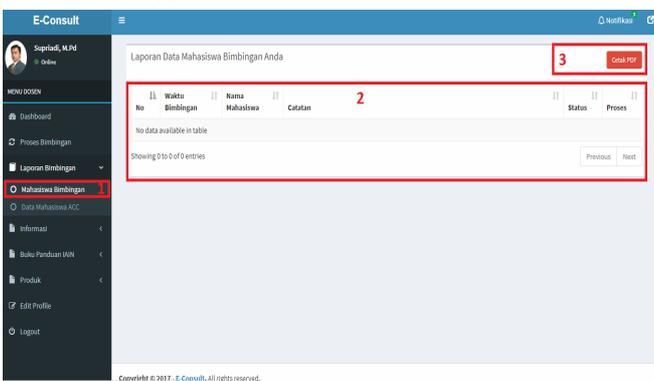


The above figure has already shown thesis uploaded by students for its improvement and suggestions from the advisor. Screen it in scroll down, the menu will look like the following figure:



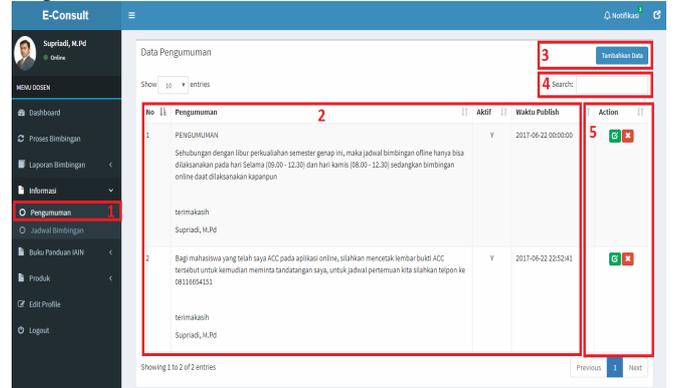
d) Advisor Report Menus

It contains reports for advisors regarding their students and approved thesis.



e) Advisor Information Menu

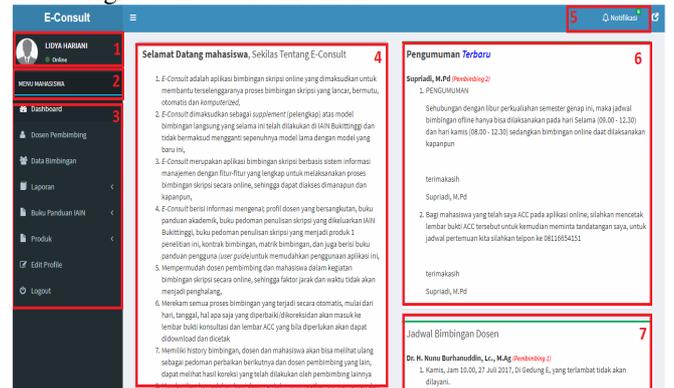
This menu is only for the advisor and is not available for other accounts. On this menu, advisors can share a variety of general information that can be accessed by all related student and detected in the notification menu as a response to student associated accounts.



F. Input Designing for Advisor

a) Student Home Menu

Students who have signed up and have been approved by the department admin and have been given access rights can access this menu.

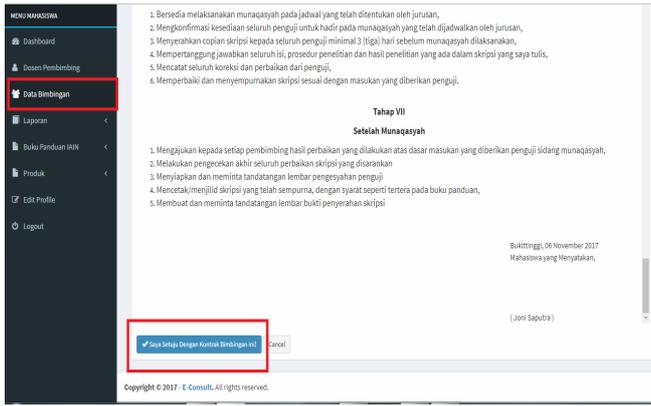


b) Thesis Advisory Contract Menu

Before using the advisory menu, every student who logged for the first time will automatically be shown an advisory contract. They are required to read and understand its contents as well as agree to the contract. Without approving the contract, the further process can not proceed. The advisory contract page can be seen below:

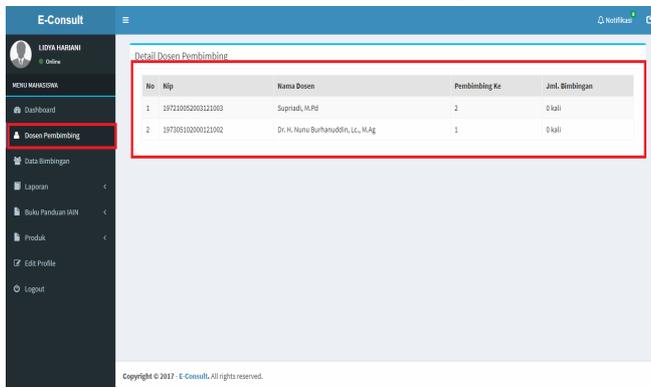


The above figure shows when the advisory data menu is selected, the contract will pop up to be read, understood and then approved by clicking the icon I agree with this contract as it is shown below:



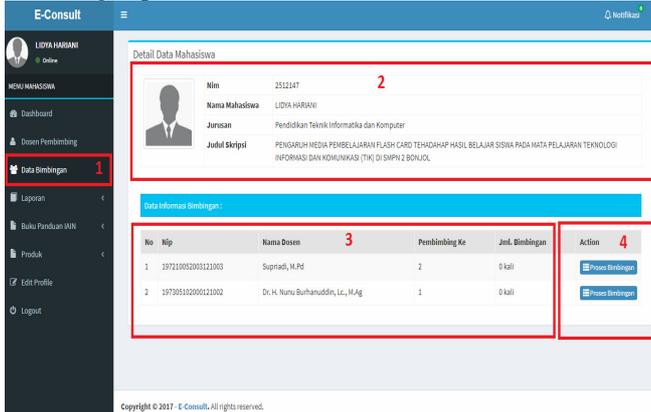
c) Student in Advisory Menu

This menu contain data on major and co advisor regarding their registered number, nmae, and total number of advised students as it is shown in the figure below:

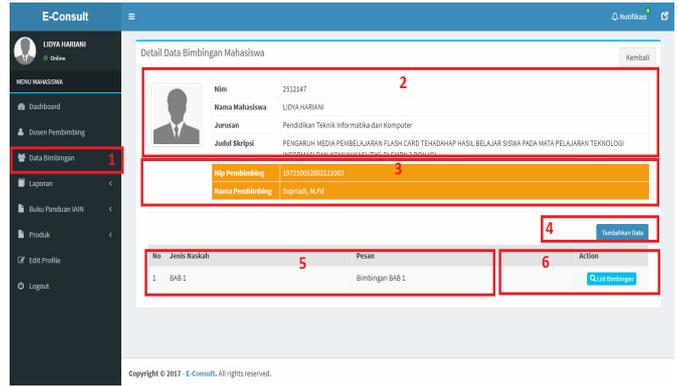


d) Advisory Data Menu

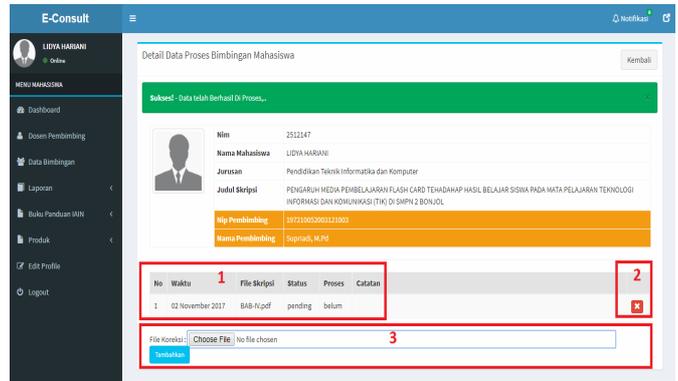
This shows detail data about students and their advisor. In addition, this menu is basically the starting menu to the process of thesis advisory. For more details follow the following explanation:



When icon of **advisory process** is clicked, the following menu will appear:

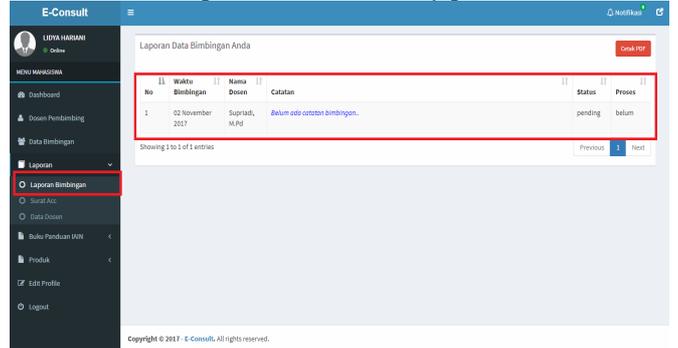


Fill the type of script and the message in this section. Next, the layer will show please click advisory list icon to continue on the file input. After it is clicked, it will show following menu:

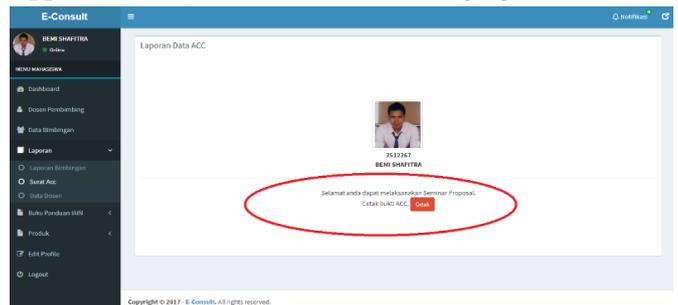


e) Report Menu

This menu contain reports to students including **Advisory Letter, Letter of Thesis of Approval, and Advisor Data**. These reports allow students to see and print out as the written proof of their advisory process:



The report menu of letter of approval us the result of the program from students and advisor on the thesis advisory process. After studets click **Letter of Thesis Approval** menu, it will show the following figure:



Viewed from the value of its benefits, this application has the following advantages: *first*: e-Consult is an online thesis advisory application to help the thesis advisory process run smoothly, automatically and computerizedly. *Second*: e-Consult is intended as a supplement to the direct advisory model that has been carried out. *Third*: e-Consult is a thesis advisory application based on management information systems with complete features and can be accessed anywhere and anytime. *Fourth*, e-Consult contains complete information regarding guidance thesis advisory needs. Facilitate its process, so that distance and time will not be a problem *Fifth*: e-Consult is equipped with **Thesis Advisory Contract** *Sixth*: e-Consult is also equipped with **Thesis Advisory Matrix** and more advantage.

III. CONCLUSION

E-Consult is the result of application system engineering built using the PHP programming language using Dreamwaver with MySQL database that is capable of performing functions as a digital mediator for students' thesis advisory.

E-Consult is online and can work optimally in accordance with its main function in online conditions. e-Consult can stand alone in a domain, or become a subdomain of an existing domain, with a capacity of \pm 100MB. It is very light to be accessed with computers that have low specifications, including with the use of smart phones.

REFERENCES

- [1] IAIN Bukittinggi, (2015), *Buku Pedoman Penulisan Tugas Akhir dan Skripsi IAIN Bukittinggi*, Bukittinggi: IAIN Bukittinggi Press
- [2] Bird, S. J. (2001). Massachusetts Institut of Technology, USA, Mentors, Advisors and Supervisors: Their Role in Teaching Responsible. *Science and Engineering Ethics* 7 <http://www.opragen.co.uk>.
- [3] Darmono, dan Hasan, Ani M, (2005), "*Menyelesaikan Skripsi Dalam Satu Semester*". Jakarta. Grasindo
- [4] Green, Tuckman, (2002), *Procrastination Across Variabels*. <http://www.mwsc.edu/psychology/research/psy302>
- [5] Hamid, Rusdiana, (2015), Causes of Student Delays in completing Study at IAIN Antasari Banjarmasin, (Research Finding) not publications
- [6] Sugiyono, (2015), *Metode Penelitian dan Pengembangan Reserach and Development*, Bandung: Alfabeta
- [7] Gall, J., Borg. W., & Gall, M, (2003), *Education Research: An Introduction* (7th ed). Boston: Pearson Education
- [8] Fraenkel, Jack R. and Norman E.Wallen, (1993), *How to Design and Evalute Research in Education*. New York: Mc Graw-Hill Inc.
- [9] Janner Simarmata (2010), *Rekayasa Perangkat Lunak*, Yogyakarta: Andi Offset
- [10] Budi Sutedjo Dharma Oetomo, (2002), *Perencanaan dan Pembangunan Sistem Informasi*, Yogyakarta: Andi Offset
- [11] I.I.R. Unknown, (2011) Membuat Sendiri Aplikasi E-Commerce dengan PHP dan MySQL Menggunakan Codeigniter dan JQuery. Yogyakarta: Andi Offset
- [12] Pressman, R.S. (2010), *Software Engineering : a practitioner's approach*, McGraw-Hill, New York
- [13] Hill McGraw, (2008), *System Analysis and Design Methods*, McGraw-Hill Companies. Inc., New York