THE IMPLEMENTATION OF *FAST* METHOD FOR ACREDITATION FORM SUPPORTING DATA

Dewi Kania Widyawati, Zuriati
Lecturers at the Faculty of Information Management, Lampung State Polytechnic
zuriatimkom@gmail.com, dewi_mi@polinela.ac.id

ABSTRACT

The implementation phase at FAST method is established after the *Construction Phase* is already completed with a reference used in implementing the application based on *use case, class diagram* and*activity diagram* fully designed at the previous phase.

The testing conducted uses*white box testing.* Of the advantages is when the application is tested, it can find out codes and strategies that take a role in developing the functions of each application module effectively. This seems to support the information system development with FAST method which one of its benefits to give a performance and accurate information. At this phase there are several things to test, namely: unit testing, static and dynamic analysis, scope of statement and mutation test. The case study used in implementing the application is the form supporting data at Lampung State Polytechnic.

Kata kunci: *class diagram* , *Construction Phase*, FAST, *use case, activity diagram, white box testing.*

1. Introduction

Accreditation Form Data is used as a reference form preparing the self-evaluation accreditation of each study program. In the preparation it involves all elementsof academicians. There are several things to do to gain the maximum accreditation score, such as simultaneous efforts in improving students' competency along with the advance of science and technology, and the needs of importance, Human Resource quality of the study program through scientific activities for the specific fields of sciences, the quality of students' soft skill competency through entrepreneurship skill exploration, preparation for database of students and alumni, quantity and quality of the research, scientific publication and Society Service carried out by the lecturers of the study programand the increase of cooperation among private/ government/profession institutions aimed at increasing the achievements of students' competency, work placement, and *income generating* for the study program. Overall, this can be summarized into standard 1 to standard 7 in the accreditation form data.

The mechanism of accreditation form data preparation through the data collection phase either internal or external. Then, the verification of the data is continued by classifying and presenting the data. The process conducted in the preparation of this accreditation form data is still done manually, so it takes long time to search the data. Therefore, it is needed an application to support the accreditation form data which can provide information of accreditation form service rapidly and efficiently. The application built is based on the implementation of the system development using FAST method (*Framework for the Application of System Thinking*). The testing of the system uses *white box testing.* The testing of this application uses five phases, namely the test for respective units by investigating each application module built, the static and dynamic analysis by analyzing errors from the source program, the test of statement scope and branch scope, and the mutation test.

2. Research Method

The system development built uses FAST method *(FrameworkFor The Aplication of System Thinking)*. The phases to do in this system development are:

1. *Preliminary Investigation.* The data collection phase either internal or external, the result obtained from this phase is the accreditation form supporting data continued by classifying the data and presenting the data.
2. *Problem Analysis Phase*. In every component of accreditation form standard, the result obtained tells constraints occurring in the field, and then discussed by the whole team members.
3. *Requirement Analysis Phase.* The data preparation phase is based on the result of the analysis obtained for the *Problem Analysis Phase*. The result obtained is

   the concept of the information system development to provide services for respective accreditation form standard.
4. *Decision Analysis Phase.* The application decision taking will be built to the achievement of the concept at the *Requirement Analysis Phase*.
5. *Design Phase.* The phase is done by making the design using several supporting tools to ease the workflow of the system development.
6. *Construction Phase.* The testing is done through investigation of every application module that is built internally by utilizing the tool to analyze the source code from the application program as the basis for evaluating the codes of each module. When the execution is once made whether or not it causes a problem and then to validate the data when the modules lead to the application branches to do the development effectively from each existing function.
7. *Implementation Phase*. The program application implementation has been tested by paying attention to the following things, such as application program feature which can represent all of the accreditation form data.
8. *Operation and Support Stage Phase*. The phase is done by monitoring all applications implemented.

3. Discussion

Results obtained from every phase

1. The first phase done at FAST method is the *Preliminary Investigation,* in which the result obtained is described in the form of mapping chart depicting parts involved in the preparation of the accrreditation form as well as the processes made at every part, then continued at the second phase, *Problem Analysis Phase*. It is to analyze the problems occuring and viewed from the mapping chart designed. And the third phase is *Requirement Analysis Phase*, in which the result obtained at this phase is the preparation of requirements to build the application of the accreditation form data. For the description of phase one up to phase three at the accreditation form can be seen in the scientific journals at volume 10, 2nd edition, July 2016.
2. The fourth phase is *Decision Analysis Phase,* in which the result in this phase is the decision made in the module process required and the facilities *create, read, update* and *delete* for each accreditation form standard. After the fourth phase is compleeted, it is continued to the next phase, *Design Phase,* in which the result made at this phase is the description of the system described with *use case* and *class diagram.* The datailed result of the fourth phase and the fifith phase in this research can be seen in the national seminar on the agricultural technology development held in Lampung State Polytechnic on 8 September 2016.
3. *Construction Phase.* At this phase it is done system testing for either per module or overall modules of every standard of the accreditation form. The testing is conducted using white box testing through 5 phases, such as unit testing, static and dynamic analysis testing, scope of statement testing, testing in the help of validating the document and mutation

testing. User management in the application built is the admin level and the user level. The admin can display the data of the user and add it. The user level can access this accredittation form data after being approved by the admin. The testing is carried out with 149 items done at the accreditation form data application built.

The testing phase starts from the admin level to standard 7 presented in the form of activity diagram that can be seen from figure 1 to figure 7.

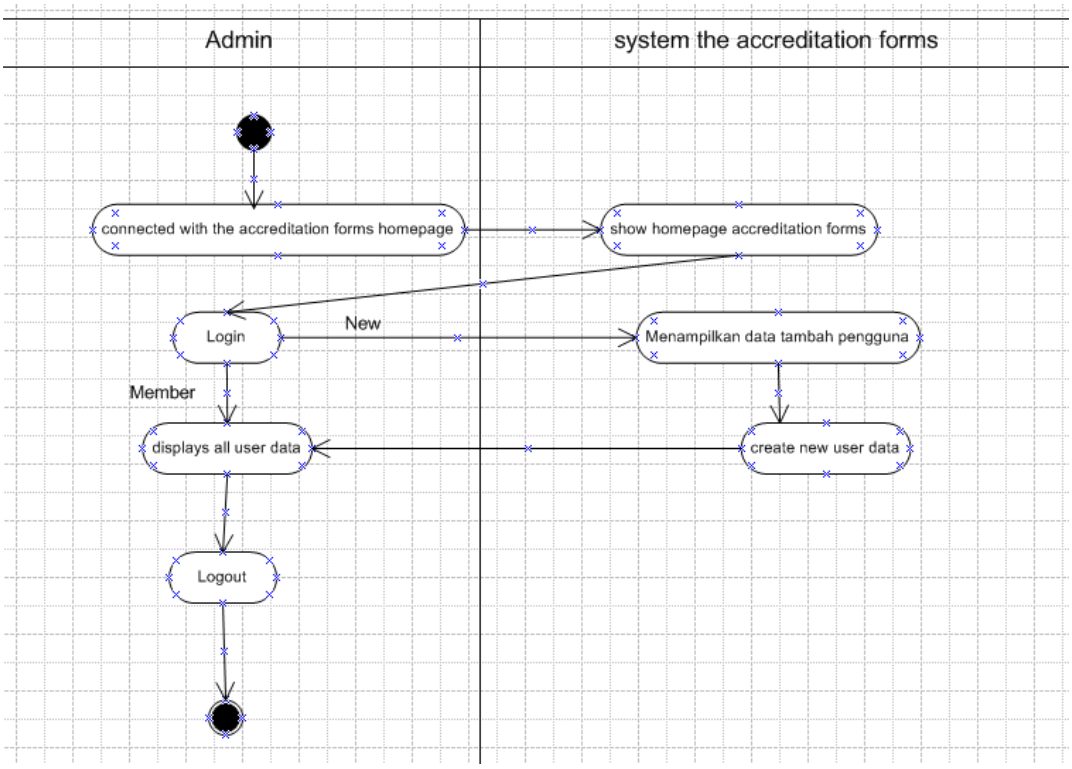

Figure 1. Activity Diagram at Admin Level

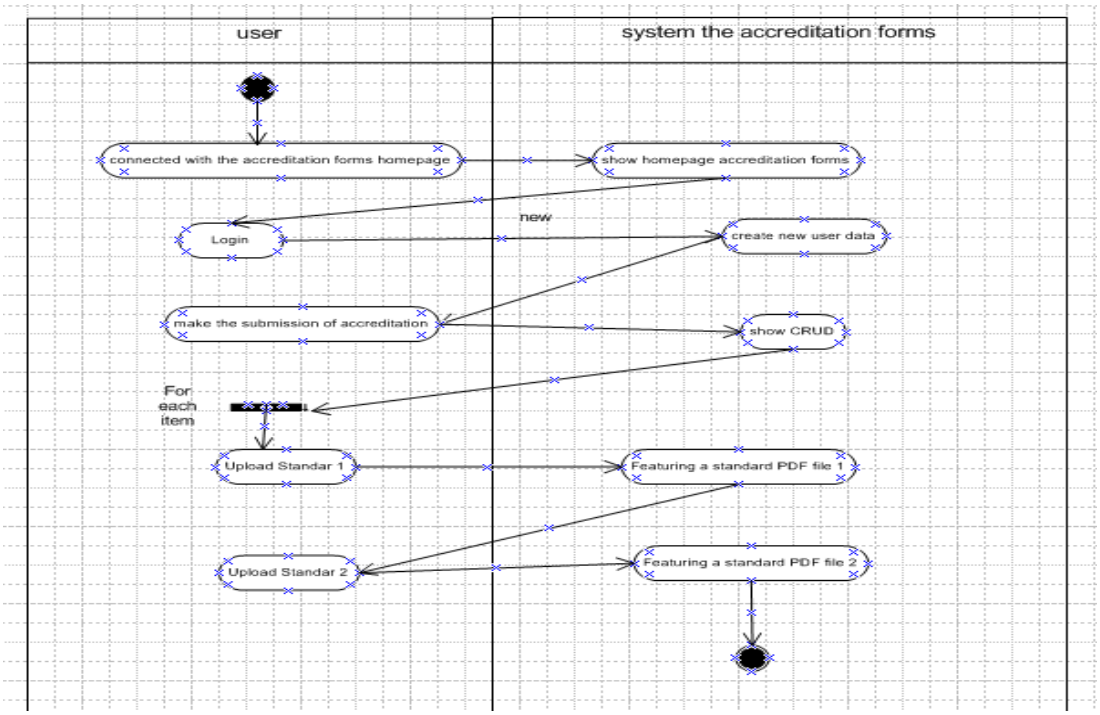

Figure 2. Activity Diagram at User Level

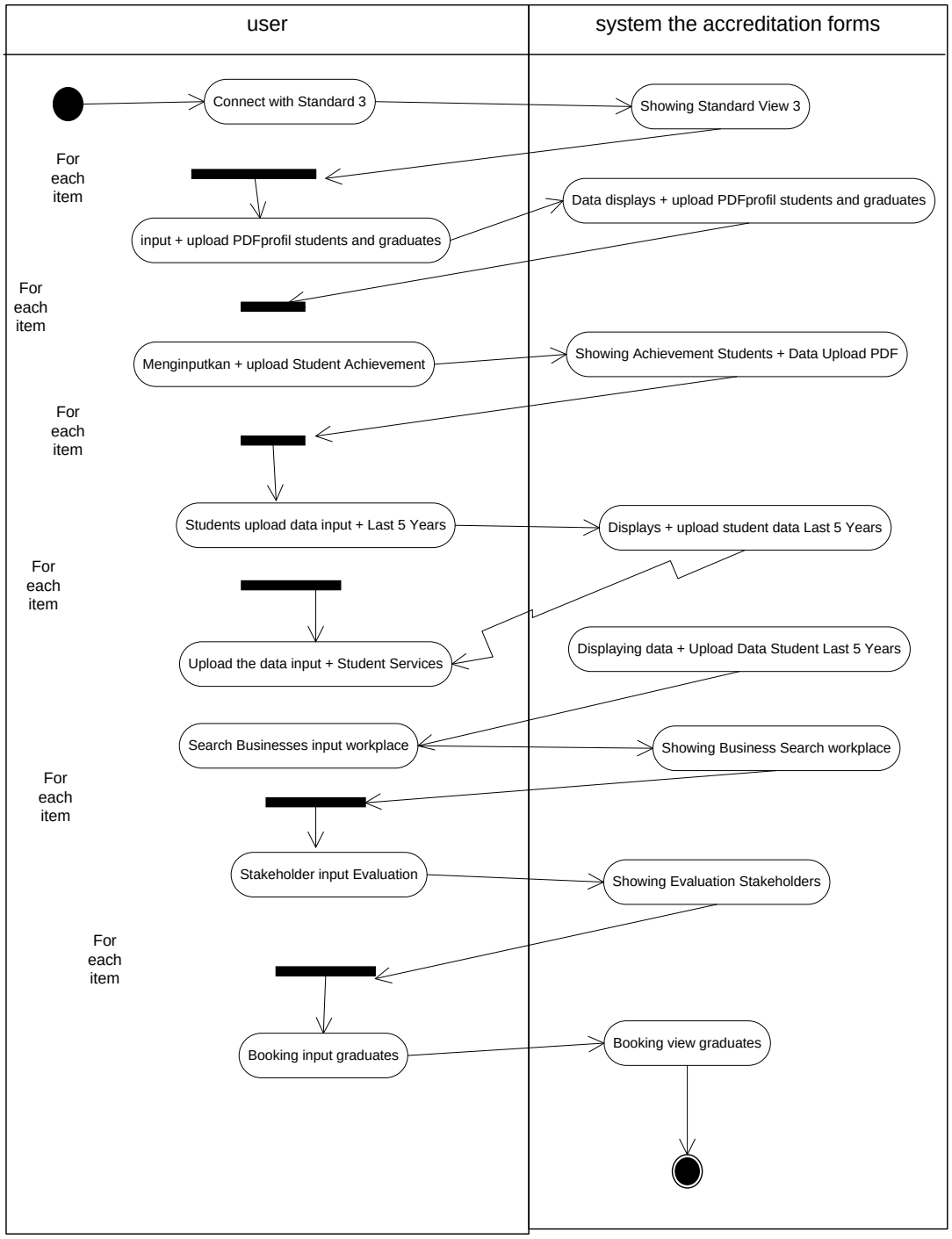

Figure 3. Activity Diagram at Standard 3

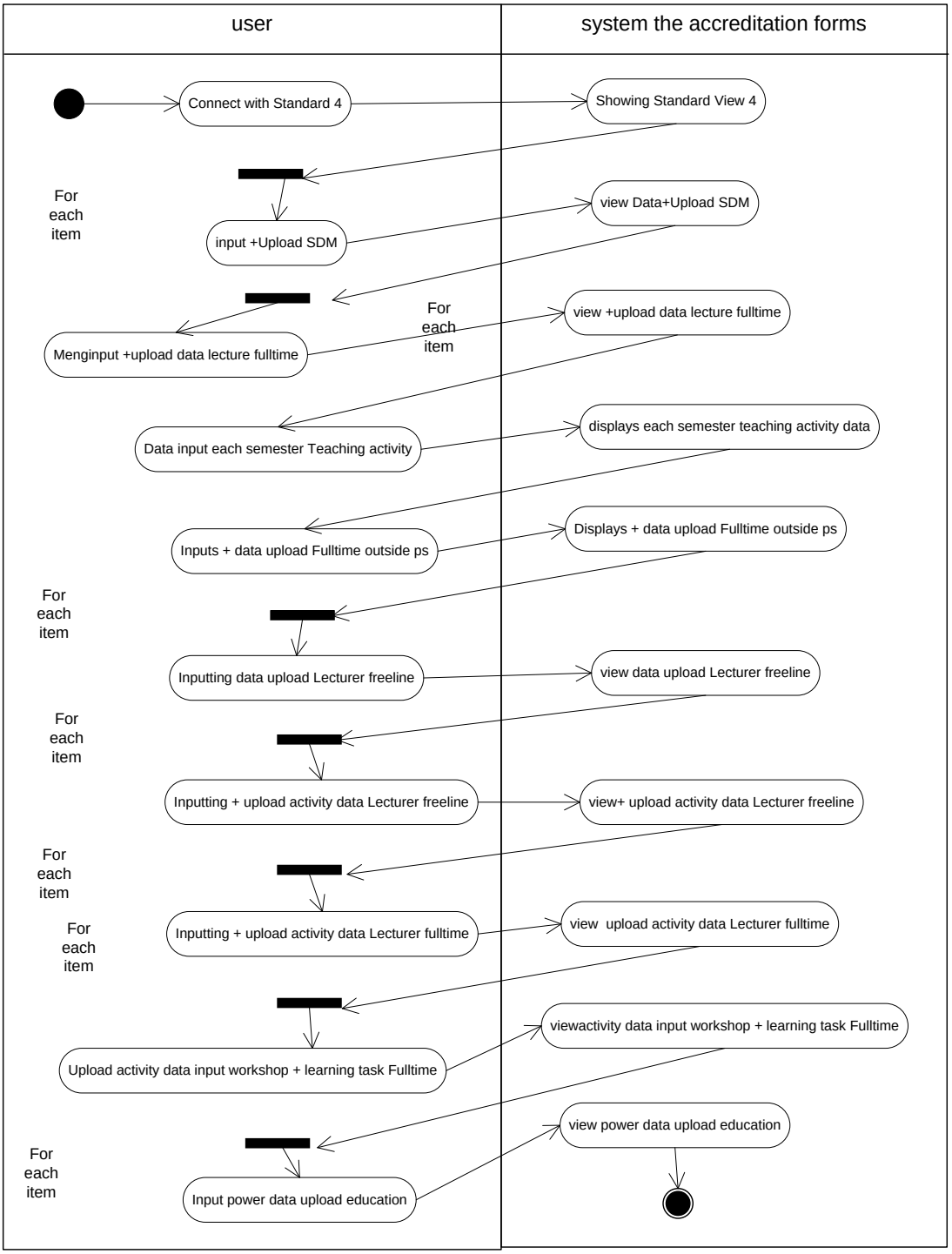

Figure 4. Activity Diagram at Standard 4

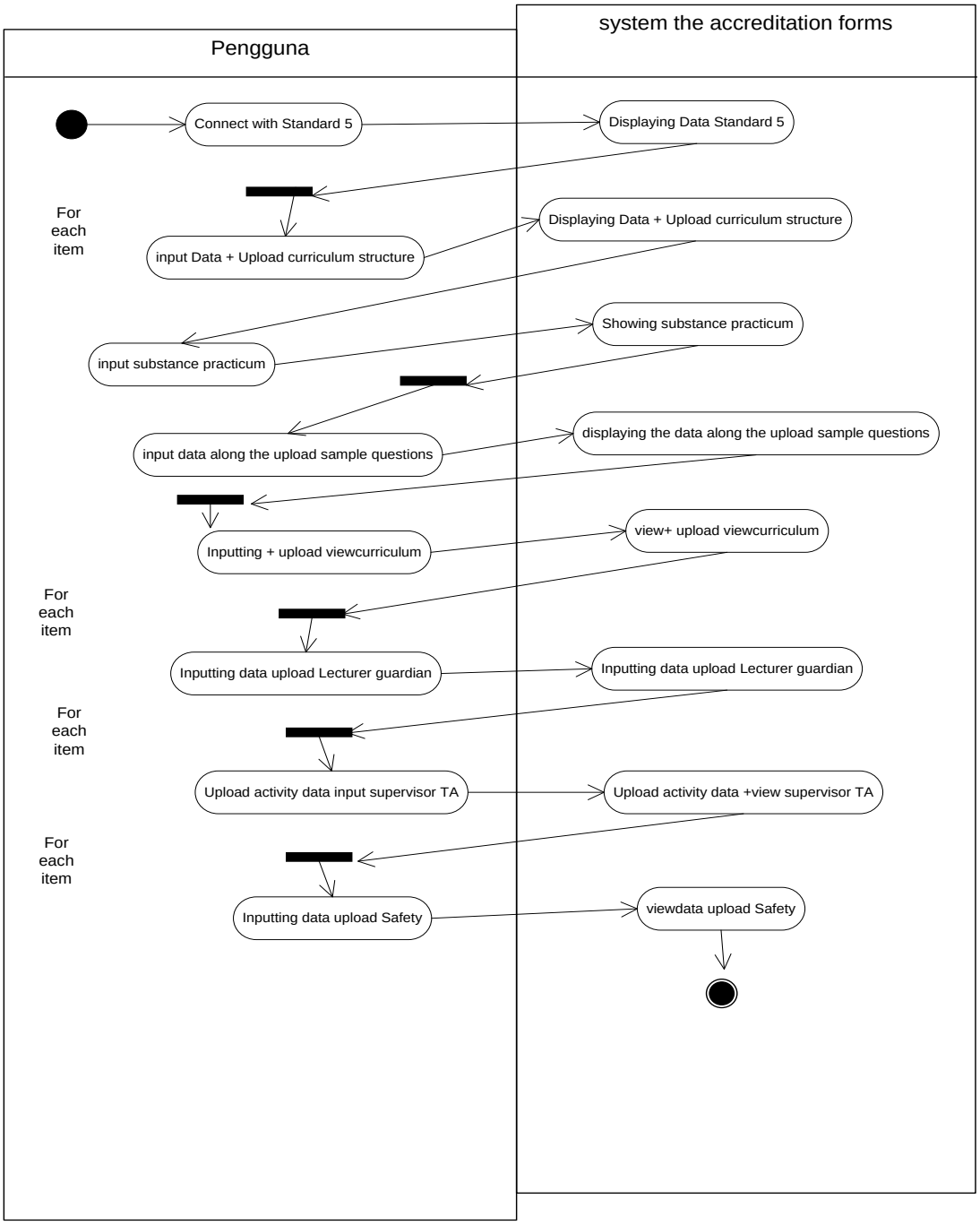

Figure 5. Activity Diagram at Standard 5

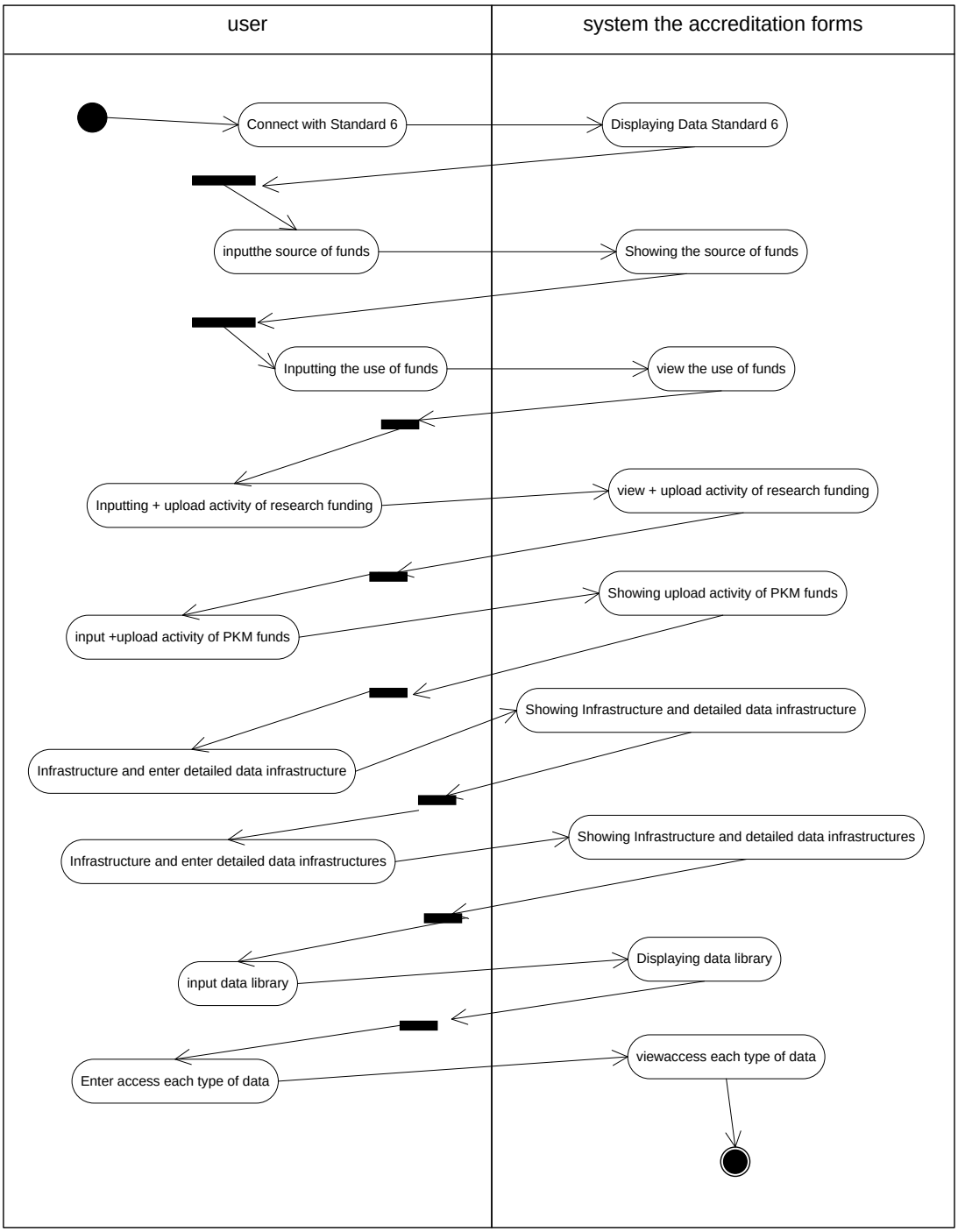

Figure 6. Activity Diagram at Standard 6

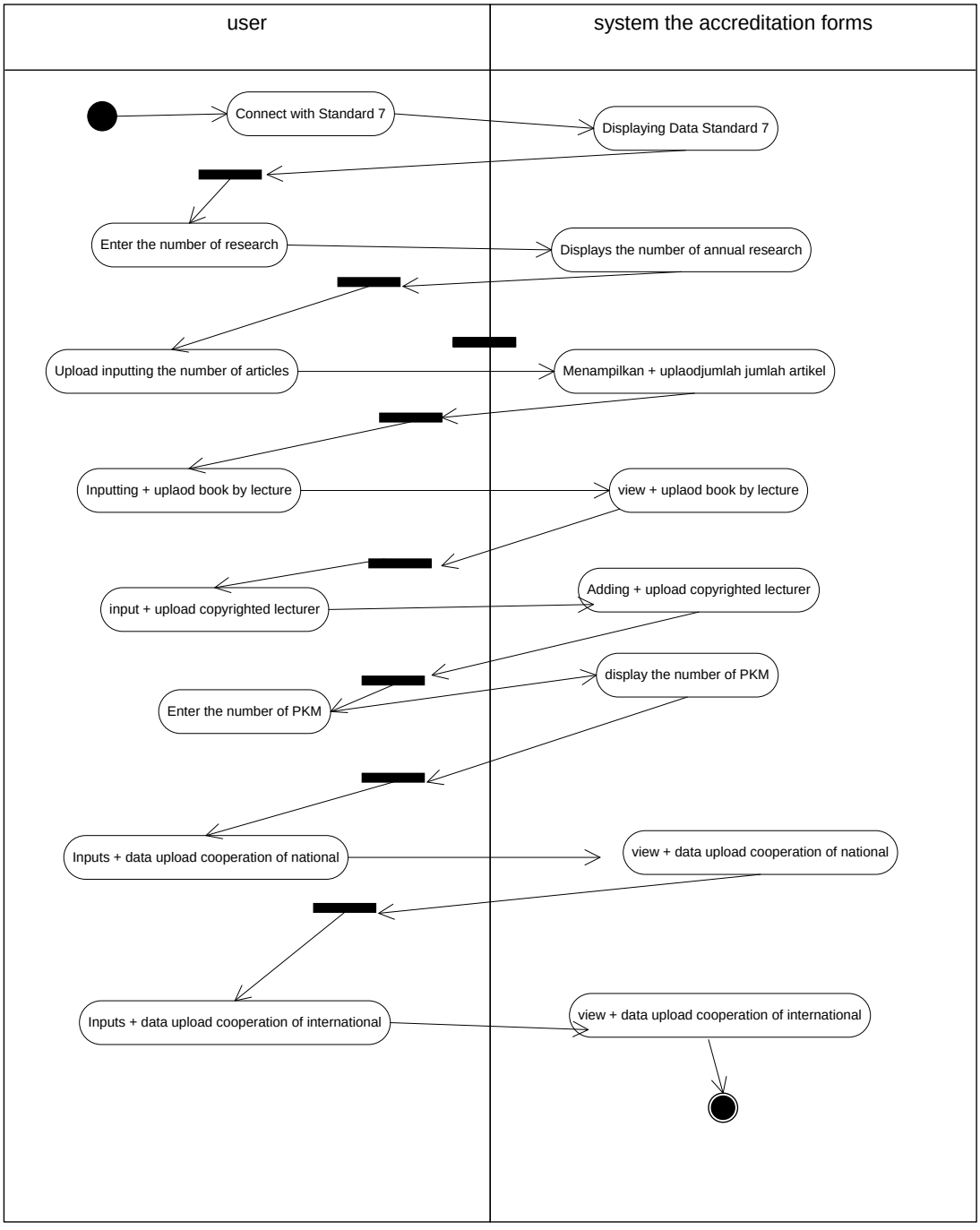

Figure 7. Activity Diagram at Standard 7

The module of the accreditation form application can be seen from Figure 8 up to Figure 13.

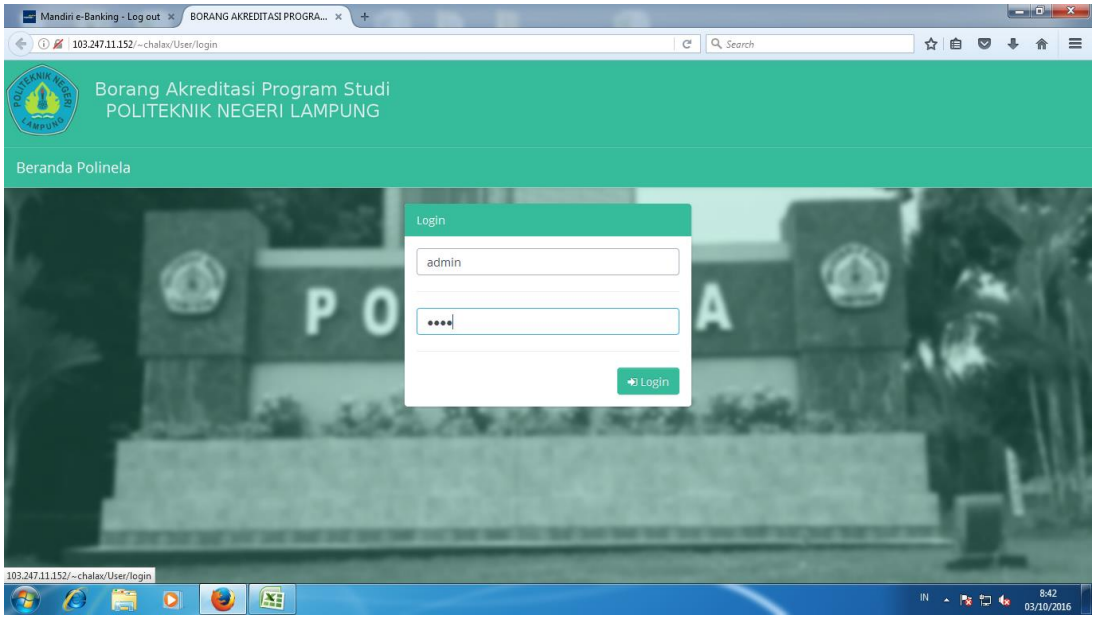

Figure 8. Admin Login

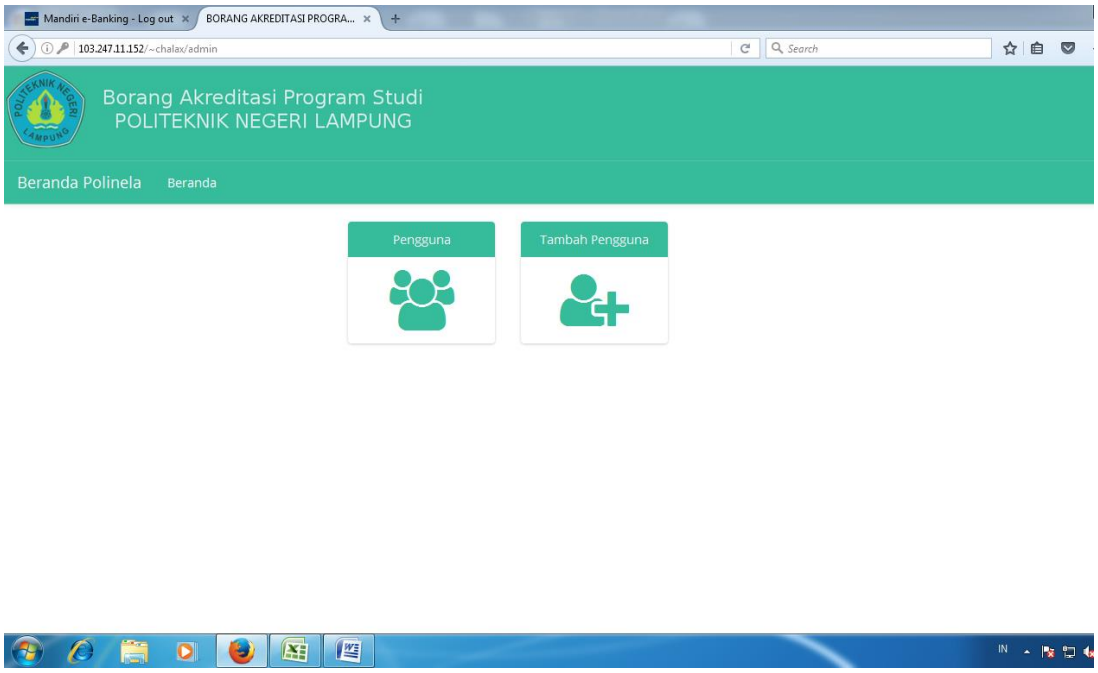

Figure 9. Feature and Addition of Users

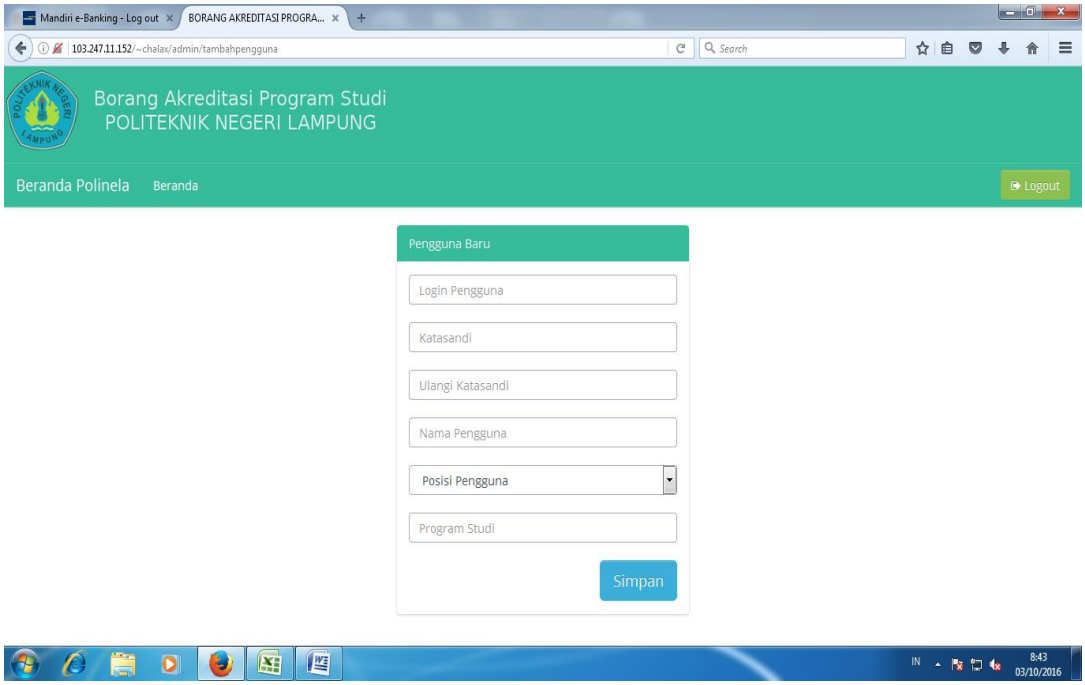

Figure 10. Registration for New users

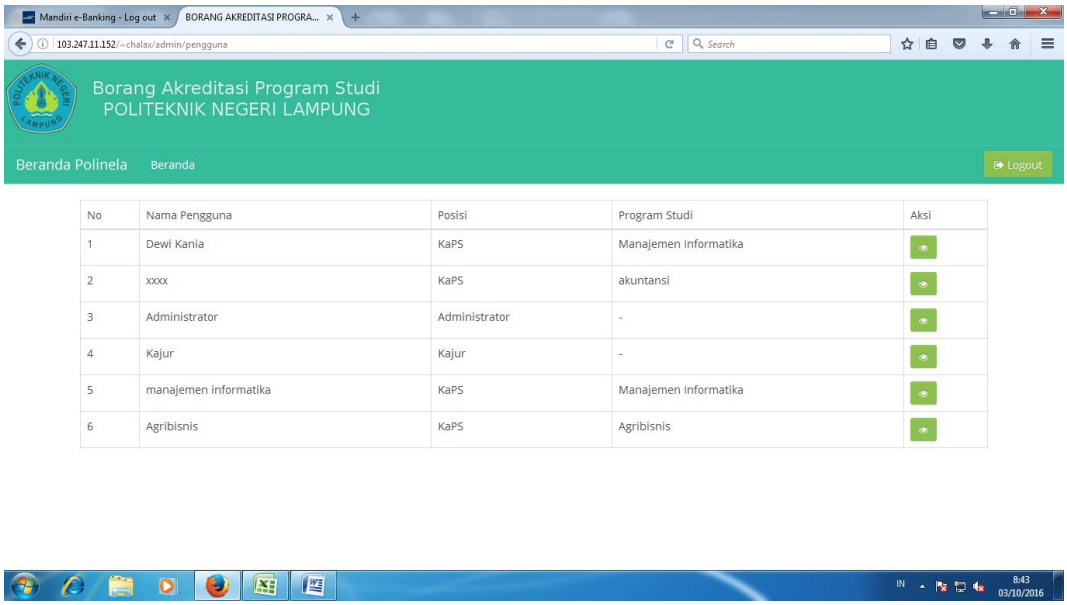

Figure 11. Feature of Overall Users

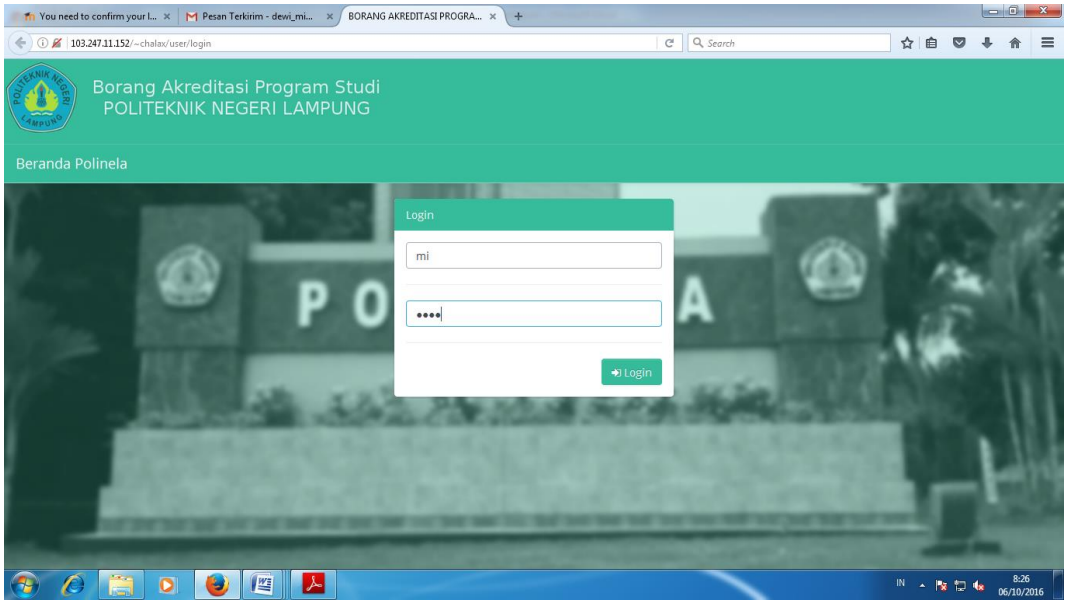

Figure 12. Feature of Login Program at Informatics Management Study

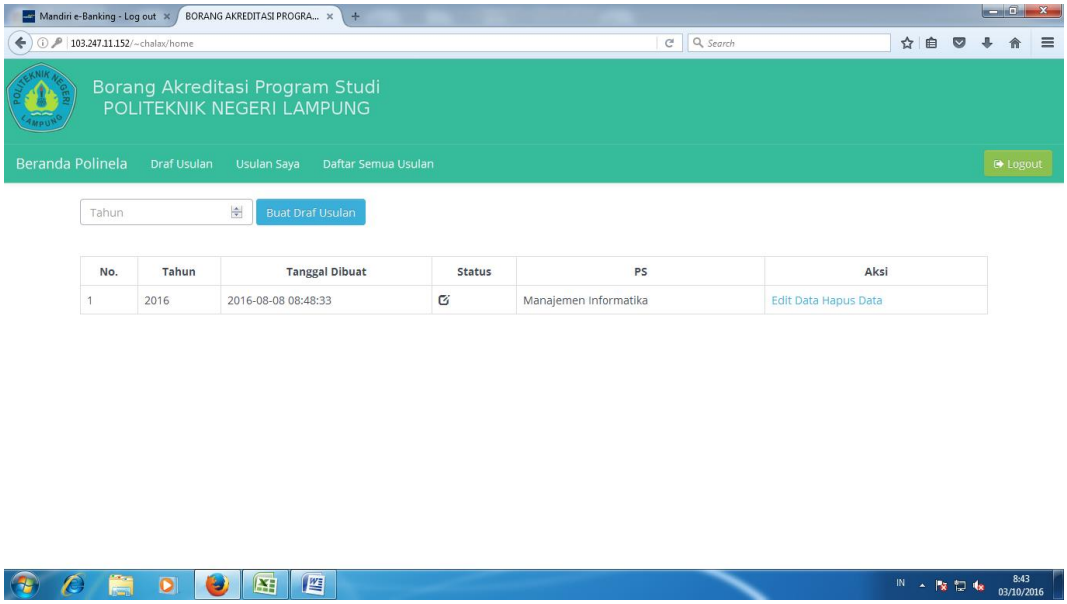

Figure 13. Entry Feature of the Informatics Management Study Program Form

4. Conclusion

This research has followed the phases of FAST (*framework Aplication of system thinking*) method, by building the application in the form of the application program of web-based accreditation form supporting data completed with the running system modeling, the suggested system and buildding the database by following the test normalization criteria, using white box testing. The tested module is described in the form of an activity diagram.

Suggestion

The development of this android-based accreditation form application equipped with the executive summary aimed at facilitating the decision making in the self-evaluation of the accreditation forms.

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