Automatic calculation of form accreditation as internal assessment simulation in Electrical Department of Manado State Polytechnic

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Abstract. The form filling system in the Department of Electrical Engineering, Manado State Polytechnic is still manual both in filling data and in making the final report. This situation makes it difficult to collect and report accreditation data because the stored data cannot be easily accessed by the accreditation data manager. Therefore, it is very much made an information system for filling accreditation forms that can regulate and store accreditation forms completeness data. Thus it will greatly facilitate the team to fill accreditation forms in inputting data and evaluating the lack of accreditation forms data. In this research, an application for filling accreditation forms was made using XAMPP which is a tool that can create a Web-based application. Thus this information system can be easily and flexibly used by all users / users. In this information system the user is limited to the Admin, Study Program Leaders, Internal Accreditation Assessment Team and the Accreditation Form Compilation Team. As the final result of the application, the Accreditation Forms Drafting Team can collect data very easily and the internal assessment team can evaluate quickly and accurately so that the study program leader can find out the value of accreditation.

1. Introduction

The existence of a good information system for filling accreditation forms will help the team / admin of accreditation forms makers, it is very helpful in the effectiveness and efficiency of the performance of these forms. With this information system will accelerate the making of accreditation forms so that the results will be more thorough and save budget, time and costs. In addition, the results of the accreditation forms can be predicted accurately because the accreditation forms evaluation parameters can be done in the system. So before the final data is made for the accreditation assessment we can already complete all the shortcomings. The archiving of supporting data will be even better because we can upload and download soft copies of all supporting data in the accreditation form. Thus it is necessary to have an information system for making accreditation forms in this case at the Manado State Polytechnic Electrical Engineering Department. This information system is an application created to facilitate the team for accreditation forms. in compiling and editing data on 9 accreditation forms of higher education standards. The right of access to this information system is divided into: admin, accreditation form compilation team, study program leaders, and internal assessment team. By

using a Web-based tool that is XAMPP makes this information system more dynamic and flexible in data collection / collection, reporting and in the evaluation of items.

2. Literature review

Information systems are a combination of information technology and the activities of people who use that technology to support operations and management. In a very broad sense, the term information system that is often used refers to interactions between people, algorithmic processes, data, and technology. In this sense, the term is used to refer not only to the use of information and communication technology (ICT) organizations, but also to the ways in which people interact with this technology in supporting business processes. The purpose of information systems is to produce information. Information system is data that is processed into a form that is useful for the wearer. Data that is processed alone can not be enough to say as information. To be useful, information must be supported by three pillars as follows: right to the person or relevant (relevance), timely and appropriate value or accurate Outputs that are not supported by these three pillars cannot be said to be useful information, but it is rubbish.

Accreditation is a form of government recognition of a private or government agency based on established assessment standards. The National Higher Education Accreditation Agency (BAN-PT) is the only accreditation body that has the authority of the Ministry of Technology Research and Higher Education of the Republic of Indonesia in improving the quality of higher education, introducing and disseminating new paradigms in the management of higher education, and increasing the relevance, academic atmosphere , institution management, efficiency and sustainability of tertiary education. In carrying out accreditation BAN-PT establishes a checklist containing information from a tertiary institution which will determine the value of the tertiary institution called Accreditation Form. The 2019 Higher Education Accreditation Form consists of Assessment Standards consisting of :

- Visi, Mision, Goal dan Target
- Tata Pamong and Coorporation
- Student
- Human Resource
- Finanance, Advice and Resources
- Education
- Research
- Community service
- Output and Achievement

Higher Education Accreditation Forms Assessment System consists of 100 list of values which are assessed with numbers from 0 to 4. So the maximum total score is 400. With accreditation qualifications:

361 – 400 = Accreditation of A
301 – 360 = Accreditation of B
200 – 300 = Accreditation of C
< 200 = No Accreditation

3. Result

3.1 Information system requirements

The entities in this information system consist of:

- Admin
  Consisting of information system administrators who can determine who are the users and access rights, can also develop this application.

- The leaders of study program's.
  It Consists of the Chair of Department and the Chair of Study Program. The head of the study program has access rights to compile data into the system and can also view and print reports.
- Accreditation form compilation team.
  This team can compile data in the form of pdf files as evidence of companion data, and also can answer verbal contents and words into the form.
- Internal form assessment team.
  This team will assess accreditation forms that are made manually.

3.2 Data flow diagram

One of the initial stages of designing an information system is to make a data flow diagram of the system called a Data Flow Diagram (DFD). DFD consists of processes, dataflow, warehouse and terminator. While the notation that is most often used to use data flow diagrams is the De Marco notation which includes input / output, function, flow and database. To make the DFD an interview process is conducted with the head of the Study Program by looking at user access rights and activities that can be carried out with the information system.

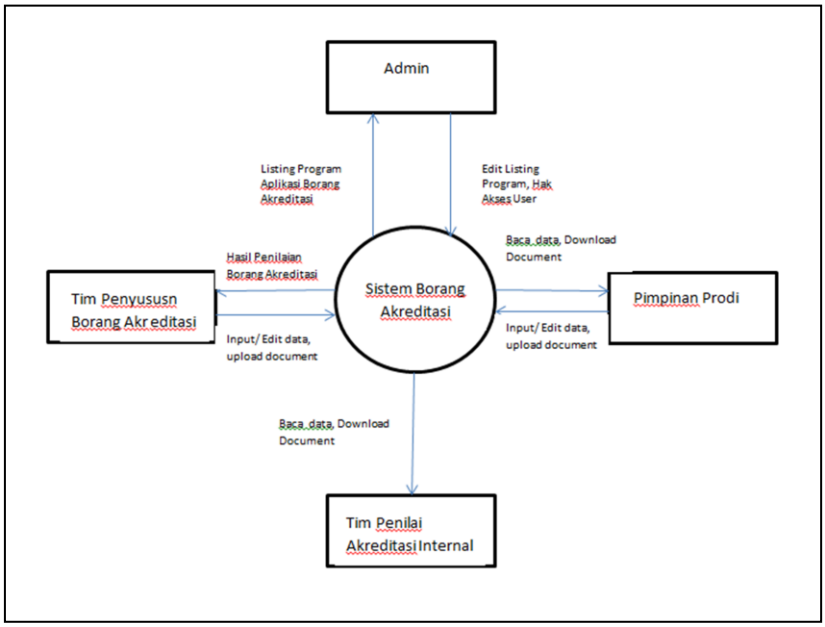

Figure 1. Data flow diagram.

Those three supervised learning algorithms would be compared whether the results are equally useful and accurate for the common malware and when applied to the detection of cryptocurrency mining malware.

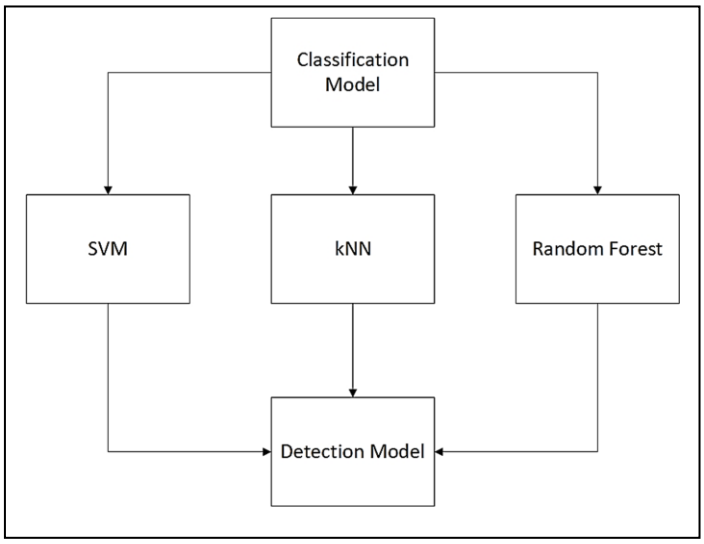

Figure 2. Details of a classification model.

3.3 Data collection method

For data collection used direct interviews with the head of the study program and the accreditation forms assessment team. In this interview data were obtained for system requirements and the relationship between users based on the access rights obtained to access the information system. Then for the standard data and assessment of accreditation forms is obtained from the guidelines and assessment of accreditation forms from the national accreditation board for universities (BANPT).

The method used in making the application is to directly translate all the contents in the Accreditation Form into the information system application. The assessment system is done automatically by using a formula for numerical data while for verbal data assessment is done by manual assessment.

3.3 Implementation of form accreditation application

The application program that is based on the data flow diagram above is to use XAMPP. Then we created the automatic calculation of the standard using the formula of assessment. The following are the results of the implementation of the accreditation forms made:

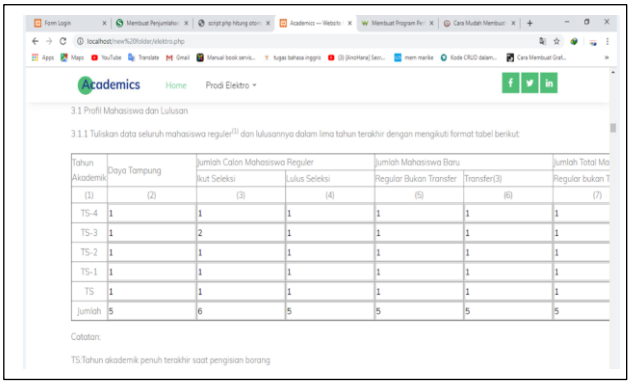

Figure 3. Input profile of students and graduates.

For the student profile based on Figure 2, it can be seen that in the system student data has been stored in the last 5 years along with the total number of all assessment elements carried out automatically.

4. Conclusions

With the application system for making accreditation forms, filling in the data that was manually can be made easier. The application system for making accreditation forms makes data collection process more accurate and thorough because the supporting files can be placed correctly to the correct file location. The results of the data collection can be printed and the results can be directly evaluated by the leadership of the college and the internal accreditation team. In this information system for automatic assessment is still limited to the assessment of numbers using existing formulas. As a suggestion for developing this application an assessment can be made on the verbal explanation field by using artificial intelligence. Likewise this information system can be developed with a decision support system to get the right solution in increasing the value of accreditation. The result from calculation based on the manual formulation assessment is the same as the result from calculation from the automatic calculation application.

5. References

[1] Hadi A, et al. *Jurnal Teknologi Informasi dan Pendidikan* **10** 53-63
[2] Kadir A 2014 *Pengenalan Sistem Informasi* Yogyakarta: ANDI Offset
[3] BAN-PT 2019 *Buku III Form Akreditasi Perguruan Tinggi* Jakarta: Badan Akreditasi Nasional Perguruan Tinggi
[4] Tajuddin M 2017 *Sistem Informasi Perguruan Tinggi* Yogyakarta: Deepublish
[5] Hadi A, Budayawan K and Syukhri 2017 .*Jurnal Teknologi Informasi dan Pendidikan* **10** 53-63
[6] Kurniawan R and Arkan F 2016 *Jurnal Ecotipe* **3** 31-38

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