

Models and Features of Student Exam Scheduling Services Using Website Information Technology

Argiyan Dwi Pritama¹, Rois Apriantoni², Virgiawan³

¹ Information System Departement, Universitas Amikom Purwokerto, Indonesia

¹argiyandwi@gmail.com

^{2,3} Informatic Departement, Universitas Amikom Purwokerto, Indonesia

²rois.apriantoni@gmail.com, ³virgi12345awan@gmail.com

ARTICLE INFO



History :

Submit on 16 September 2022

Review on 19 October 2022

Accepted on 28 November 2022

Keyword :

Model,
Feature,
Schedule,
Website

ABSTRACT

One indicator of student progress in a tertiary institution is the implementation of seminar exams and one of the implementation techniques is seminar exams. In the current seminar exam scheduling system, the scheduling process still uses Microsoft Excel which makes sending and receiving data less real-time. The confirmation process carried out by the study program for the examining lecturers also seemed to be burdensome for the study program because the department was required to contact the selected lecturers one by one. Therefore, this study aims to create an information system for scheduling seminar exams which is expected to help academic administration and study programs in scheduling seminar exams. Data collection methods used are literature study, interviews and observation. While the system development method used is Prototyping. The results of this study are in the form of a university website prototype that is devoted to scheduling seminar exams by having a send confirmation feature to lecturers who will test via email.

Copyright © 2022 by Author

The copyright of this article belongs entirely to the author

Corresponding Author:

Virgiawan

Faculty of Computer Science, Informatic Departement, Universitas Amikom Purwokerto

Email : virgi12345awan@gmail.com

INTRODUCTION

Scheduling is a decision-making process related to allocating limited resources for tasks from time to time with the objective of optimizing one or more objectives[1][2]. Goals can also take many forms. The schedule is aimed at determining allocations according to needs and plots in order to produce maximum results[3]. One organization's scheduling goal may be to minimize the time needed to complete a task, while another organization's scheduling goal is to reduce the number of tasks completed after the due date[4][5].

A significant difference between lecture and exam schedules is that there is exactly one exam for each course, while each course may need to be held several times per week[6]. Another example illustrating the difference between a lecture schedule and an exam is obtained by observing that exams can be scheduled into one room or divided into several rooms[7]. This is of course unacceptable in scheduling courses, because one course must be scheduled in exactly one room.

One indicator of student learning progress in a tertiary institution is the implementation of a series of exams that must be passed by the student[8]. One of these tests is an oral exam, such as a practical assignment exam. Practical assignments are courses that must be taken by students in the final semester[9]. There are several techniques for carrying out this practical assignment, one of which is by conducting a practical assignment seminar exam, in which students make a project either individually or in groups and later present it individually in front of 2 examiners and at least 5 students present at the practical exam seminar.

Based on the results of interviews that researchers conducted with the Academic Administration Section and the Study Program Section, there are several problems with the process of scheduling practical work seminars that are currently running, including the current exam schedule being made using manual table data collection so that it still depends on the role of the schedule maker, namely the administration section. Academic and study program departments are in the process of scheduling exams, but because the excel data sending process requires a third party such as email, this can cause data exchange between academic administration to study programs and vice versa not in real-time[3][10]. This non-real-time system can affect the smooth preparation of seminar exam schedules.

The existence of other factors such as the confirmation process for lecturers who will act as examining lecturers also influences the smoothness of the preparation of this practical work seminar schedule[11]. Even though it has been through social media, the department is still carrying out the confirmation process manually one by one for selected lecturers which can actually cause the confirmation time to be longer if there are a large number of lecturers whose confirmation is needed[12].

The system is a collection of elements that interact to achieve a certain goal. This system describes a real event and entity is a real object, such as places, things, and people who really exist and happen[13]. An information system is any organized combination of people, hardware, software, computer networks and data communications, and databases that collect, transform and disseminate information within an organizational form[14]. In the case of scheduling this seminar exam, the use of an information system is needed. this reflects the level of readiness of a tertiary institution in serving students. So that it will also be seen the level of effectiveness and efficiency achieved[15].

From the problems discussed above, this research will design a website-based seminar exam scheduling information system model which is expected to help academic administration and the Study Program Section arrange seminar schedules for student practical work exams to be more effective and efficient where the website created is divided into two views, namely the admin view for academic administration and department sections and the user view for students and lecturers which is packaged in

the form of a university web prototype specifically for the seminar exam scheduling process.

METHOD

In order for this research to be more focused and easier to discuss, it is necessary to have problem boundaries, namely the Website-Based College Practical Work Seminar Scheduling Information System. This will be created with a separate database and uses the CodeIgniter framework which includes:

- data collection on the academic administration section, Department of Study Programs, college students and lecturers,
- seminar examination registration process by students,
- verification of seminar exam registration by the academic administration section,
- scheduling practical work seminars or seminar exams by the department and sending confirmation messages to selected lecturers to test,
- the process of confirming the examiner whether he agrees or disagrees with the schedule to be tested.

The research concept is a relevant work step and aims to solve the problem. Based on the background that has been described and in order to assist in the preparation of this research, it is necessary to have a clear framework with stages. This framework is the steps that will be taken in solving the problems that will be discussed. The framework in this study looks like the following figure:

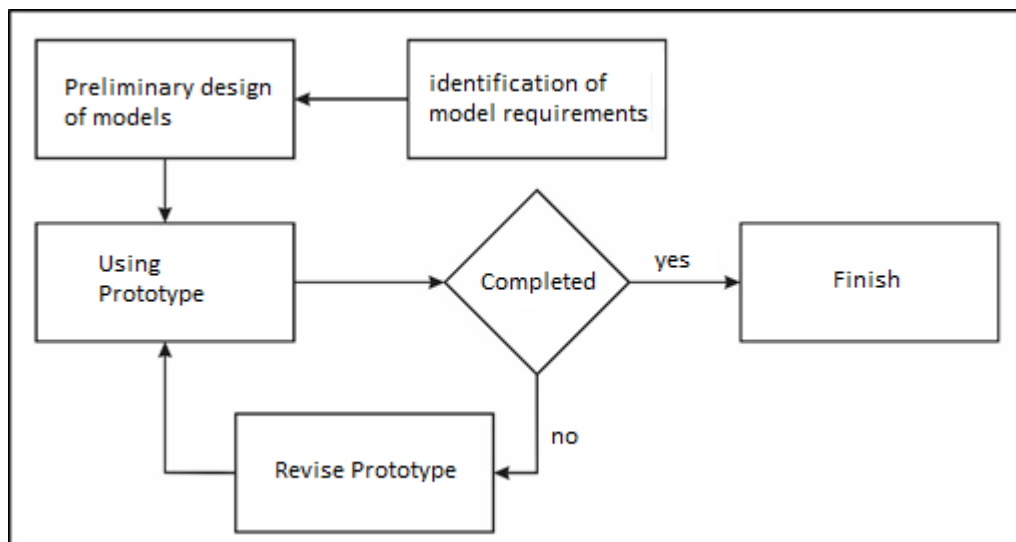


Figure 1, System model development flow

RESULT & DISCUSSION

In starting to find out the level of effectiveness in the service for scheduling this exam, the authors conducted an initial analysis of 5 university respondents in the Semarang area, Central Java. The following is the number of respondents who contributed:

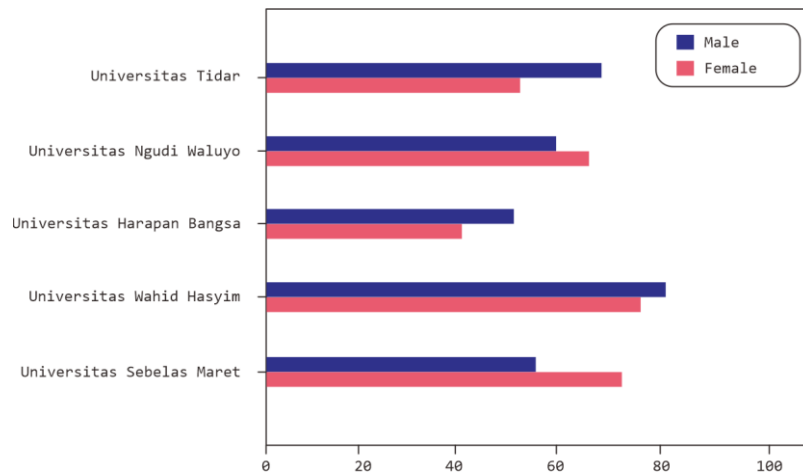


Figure 2, Contributor by University Respondents.

After the authors get a number of respondents, then conduct a survey related to these services. This survey is related to the scheduling system that the campus provides whether it is satisfactory or not. The results of this survey can be seen in the following diagram:

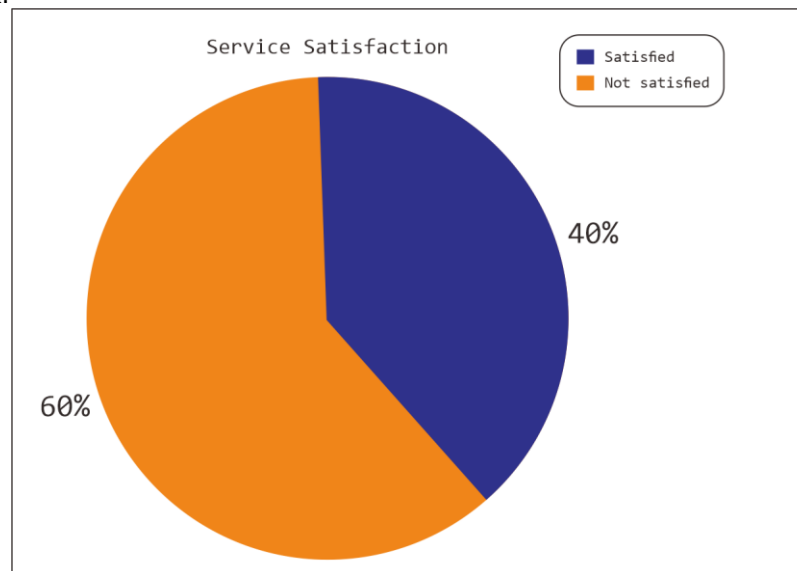


Figure 3, Survey Service Satisfaction of Scheduling Examine.

The survey results stated that 60% of respondents were not satisfied with the scheduling service due to the following factors:

- Time
- Administration
- Examiner Eligibility

Before entering into the discussion of the project, the author first looks at the model that has been running, then tries to suggest a model to be developed. Universities in Indonesia in general, to illustrate this practical work exam seminar, students are required to follow the procedures set by the tertiary institution with the flow of implementation depicted in the following flowchart:

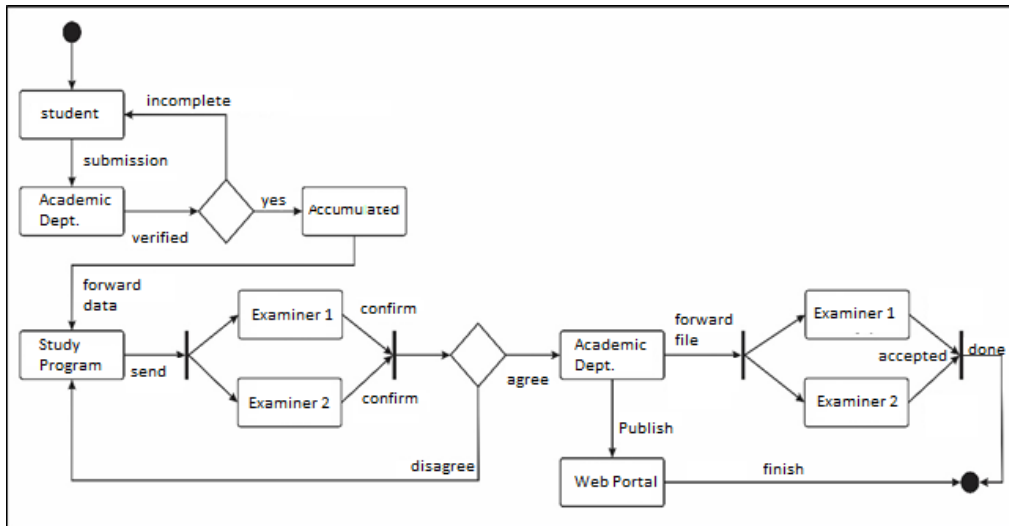


Figure 3, The process model features old systems in colleges.

Based on the results of interviews with the Study Program Section, in the currently running system the confirmation process seems to make the Study Program more difficult because the Study Program has to confirm one by one to the lecturers who will be testing. A process like this will be more burdensome if students submit files simultaneously in close time or even simultaneously, causing the Study Program to arrange seminar exam schedules and will carry out the confirmation process to examiner lecturers because they work more at the same time.

Therefore, this website-based Practical Work Seminar Scheduling System was created as a medium that will provide a special place for scheduling seminar exams so that the process of sending and receiving data from the Academic Administration Section to the Study Program or vice versa can be faster. It also includes a confirmation process via email as a reminder and a bridge for the confirmation process from the lecturer to the study program so that the confirmation process can run faster. we propose a development model that will be built using a website basis. The following models were developed:

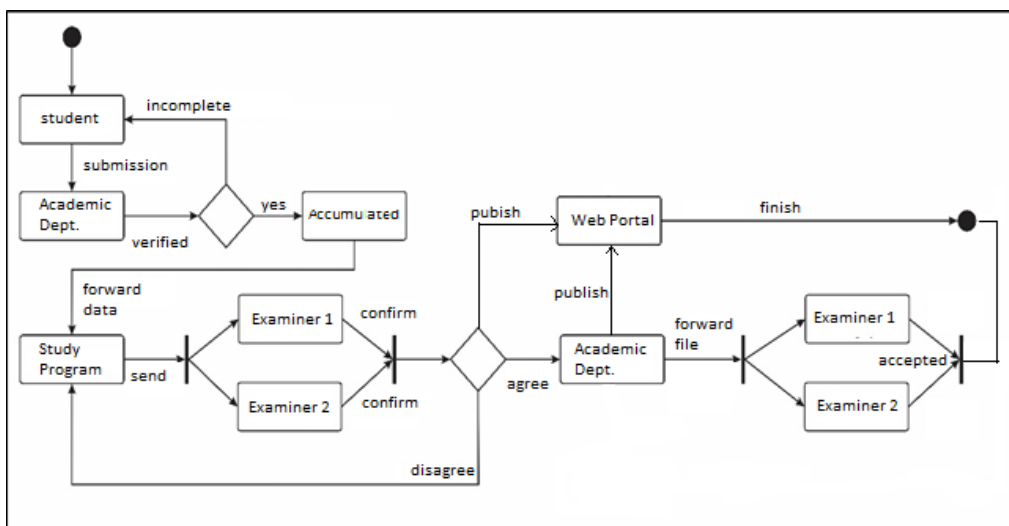


Figure 4, Model changes developed.

From what has been disclosed in the discussion, the author finally determines that the system development process will use a website basis. Reasons that can be accepted with this website model are:

- a. The system runs realtime.
- b. It is possible to use IoT technology.
- c. Graphics are considered more dynamic and comfortable for users to understand.
- d. Access can be arranged from various sides.

CONCLUTIONS

Based on the results of research that has been conducted in tertiary institutions regarding the creation of a website-based seminar exam scheduling information system, it can be concluded that, (1) the researcher succeeded in creating a seminar exam scheduling information system based on a website where this system is a special place for the administration section Academic and Study Programs arrange practical work seminar schedules. (2) The website prototype of the information system for scheduling exams for seminars has a feature to send confirmation of ability to test submitted from the Study Program Section to the examiner. (3) Based on the results of the alpha test conducted on the academic administration section and study program, the prototype of this seminar exam scheduling system is in accordance with the access rights needed by academic administration and study program and is considered to be able to help the academic administration section and study program in compiling more seminar exam schedules efficient.

Acknowledgement

The author would like to thank the support in designing this model specifically to the Educollabs.Org information system service provider, then the institution in the Diponegoro University software engineering laboratory service, as well as all fellow students who have helped compile this program.

REFERENCE

- [1] O. I. Popova, N. M. Gagarina, and D. A. Karkh, "Digitalization of Educational Processes in Universities: Achievements and Problems," *Int. Sci. Conf.*, vol. 437, no. Detp, pp. 738–742, 2020, doi: 10.2991/assehr.k.200509.131.
- [2] A. Althunibat, "Determining the factors influencing students' intention to use m-learning in Jordan higher education," *Comput. Human Behav.*, vol. 52, pp. 65–71, 2015, doi: 10.1016/j.chb.2015.05.046.
- [3] A. Hassanzadeh, F. Kanaani, and S. Elahi, "A model for measuring e-learning systems success in universities," *Expert Syst. Appl.*, vol. 39, no. 12, pp. 10959–10966, 2012, doi: 10.1016/j.eswa.2012.03.028.
- [4] J. Wang, D. E. H. Tigelaar, and W. Admiraal, "Connecting rural schools to quality education: Rural teachers' use of digital educational resources," *Comput. Human Behav.*, vol. 101, no. April, pp. 68–76, 2019, doi: 10.1016/j.chb.2019.07.009.
- [5] I. Santiko, A. Wibowo, and B. Warsito, "The Post-Covid-19 Pandemic Education Model Is Effective, Let's Compare: Online Versus Offline Learning," *Proc. - 2021 Int. Semin. Appl. Technol. Inf. Commun. IT Oppor. Creat. Digit. Innov. Commun. within Glob. Pandemic, iSemantic 2021*, pp. 212–216, 2021, doi:

10.1109/iSemantic52711.2021.9573238.

- [6] W. Li, "Research on teaching management based on smart campus platform and smart classroom," *ACM Int. Conf. Proceeding Ser.*, pp. 279–283, 2021, doi: 10.1145/3482632.3482690.
- [7] J. Torres-Sospedra *et al.*, "Enhancing integrated indoor/outdoor mobility in a smart campus," *Int. J. Geogr. Inf. Sci.*, vol. 29, no. 11, pp. 1955–1968, 2015, doi: 10.1080/13658816.2015.1049541.
- [8] J. Gil-Flores, J. Rodríguez-Santero, and J. J. Torres-Gordillo, "Factors that explain the use of ICT in secondary-education classrooms: The role of teacher characteristics and school infrastructure," *Comput. Human Behav.*, vol. 68, pp. 441–449, 2017, doi: 10.1016/j.chb.2016.11.057.
- [9] F. Aburub and I. Alnawas, "A new integrated model to explore factors that influence adoption of mobile learning in higher education: An empirical investigation," *Educ. Inf. Technol.*, vol. 24, no. 3, pp. 2145–2158, 2019, doi: 10.1007/s10639-019-09862-x.
- [10] F. Fatkullina, E. Morozkina, and A. Suleimanova, "Modern Higher Education: Problems and Perspectives," *Procedia - Soc. Behav. Sci.*, vol. 214, no. June, pp. 571–577, 2015, doi: 10.1016/j.sbspro.2015.11.762.
- [11] O. Autio, "Elements in students motivation in technology education," *Procedia - Soc. Behav. Sci.*, vol. 29, pp. 1161–1168, 2011, doi: 10.1016/j.sbspro.2011.11.350.
- [12] T. Oktavia, Meyliana, H. Prabowo, R. Kosala, and S. H. Supangkat, "A conceptual social learning ontology for higher education in e-learning 2.0," *Proc. 2016 Int. Conf. Inf. Manag. Technol. ICIMTech 2016*, no. November, pp. 165–170, 2017, doi: 10.1109/ICIMTech.2016.7930323.
- [13] M. W. Kisworo, "Implementing open source platform for education quality enhancement in primary education: Indonesia experience," *Turkish Online J. Educ. Technol.*, vol. 2016, no. July, pp. 295–301, 2016.
- [14] D. Galego, C. Giovannella, and Ó. Mealha, "Determination of the Smartness of a University Campus: The Case Study of Aveiro," *Procedia - Soc. Behav. Sci.*, vol. 223, pp. 147–152, 2016, doi: 10.1016/j.sbspro.2016.05.336.
- [15] A. Lohr *et al.*, "On powerpointers, clickerers, and digital pros: Investigating the initiation of digital learning activities by teachers in higher education," *Comput. Human Behav.*, vol. 119, no. January, p. 106715, 2021, doi: 10.1016/j.chb.2021.106715.