

Validation Information System Munaqasyah Exam Registration Based Android

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Abstract: The information systems study program (SI Study Program) Faculty of science and technology is one of the study programs at the State Islamic University of North Sumatra, Medan. Based on the Decree of the Chancellor of the State Islamic University of North Sumatra Medan Number 417L of 2016 concerning the Enforcement of SOPs for the Implementation of the Munaqasyah Exam. The Munaqasyah exam is the last test that must be passed by State Islamic University of North Sumatra, Medan students before obtaining a bachelor's degree (S1) about being responsible for scientific work which is the result of research that has been done. The registration process for the Munaqasyah exam in the information systems study program uses google forms so that students have difficulty getting information about the registration status and the information systems study program must first collect data and student registration documents and carry out validation. By doing this, the registration and validation process for the Munaqasyah exam will be no more effective and efficient. The purpose of this study is to build an android-based information system that can be used to register for the Munaqasyah exam and validate the registration. The system development method used is Extreme Programming (XP) while in designing the system the author uses UML (Unified Modeling Language). In the development of information systems, the author uses Kodular framework and google spreadsheet databases. With the information system, it is hoped that the registration process and registration validation will be more effective and efficient

Keywords: Registration; Munaqasyah; Extreme Programming (XP); Android; Kodular; Google Spreadsheet

INTRODUCTION

Technological growth from time to time continues to be rapid, marked by many existing innovations such as smart devices that can be carried anywhere in the palm. With the development of technology, daily activities, whether in industry, universities, or schools, have become easier and save time (Sidik and Rahmawati 2018).

Android smartphone is one of the developments in information technology that is being widely used by humans. Android has the main goal of advancing mobile phone innovation so that users can explore capabilities and add more experiences compared to other mobile platforms. Currently, Android-based mobile applications on mobile devices are growing rapidly and are one of the technologies that are mostly needed by all users of Android-based mobile devices (Putera, Irwansyah, and Sukanto 2017). By utilizing the internet network, Android smartphones are becoming very popular devices nowadays as a medium for communicating, obtaining information, and assisting in completing human work in various fields, one of which is education.

Faculty of science and technology is one of the study programs at the State Islamic University of North Sumatra, Medan. Based on the Decree of the Chancellor of the State Islamic University of North Sumatra Medan Number 417L of 2016 concerning the Enforcement of SOPs for the Implementation of the Munaqasyah Exam. The Munaqasyah exam is the last test that must be passed by State Islamic University of North Sumatra, Medan students before obtaining a bachelor's degree (S1) about being responsible for scientific work which is the result of research that has been done. Before taking the Munaqasyah exam, students are required to register first in the study program and complete the documents needed in the registration process (Universitas Islam Negeri Sumatera Utara 2016).

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The registration process for the Munaqasyah exam in the information systems study program uses google forms so that students have difficulty getting information about the registration status and the information systems study program must first collect data and student registration documents and carry out validation. By doing this, the registration and validation process for the Munaqasyah exam will be no more effective and efficient.

Based on these problems, we need a solution that can solve these problems. Therefore, the authors conducted research by building an android-based information system uses Kodular framework and google spreadsheet databases that can be used to register for the munaqasyah exam and validate the registration for the munaqasyah exam. With this information system, it is hoped that it will make it easier for students to register and obtain registration status information regarding the Munaqasyah exam and help the information systems study program to validate registration easily and quickly via an Android smartphone.

LITERATURE REVIEW

According to (Hariyanto and Prasetyo 2019) an information system is a unit of several devices which consist of hardware, computer software, and human devices so that later the data obtained by these devices is processed using hardware and software. According to (Wahyudi and Ridho 2019) the information system is better and the data processing process can be more accurate. Symbol Information System Flow is several components where the components are interconnected with each other to achieve an expected goal. Meanwhile, according to (Anjelita and Rosiska 2019) information system is a relationship between data and methods and uses hardware and software in conveying useful information. Based on the above opinion, it can be concluded that an information system is a unit of several devices which consist of hardware, computer software, and human devices where the components are interconnected with each other to achieve an expected goal.

The munaqasyah process (thesis exam) is the last forum for students to maintain and account for the research process that is carried out. In addition, munaqasyah is a place to assess the quality of the results of research conducted and to test students' understanding of the methods used (Lumaauridlo 2019).

Android is an operating system for Linux-based mobile devices that includes an operating system, middleware, and applications. Android provides an open platform for developers to create their applications. Initially, Google Inc. buy Android Inc. which is a newcomer that makes software for cell phones/smartphones. Android is a new generation of the mobile platform that provides development to carry out development as expected. The operating system underlying Android is licensed under the GNU General Public License version 2 (GPLv2), often known as a "copyleft" license where any third-party repairs must continue to fall under the terms. Android is distributed under the Apache Software License (ASL/Apache2), which allows for a second and subsequent distribution (Nurhidayati and Nur 2021).

Kodular is a derivative application of App Inventor. Kodular has the same concept of cooperation as App Inventor, namely by using a block approach to form applications so that it is very easy to use by anyone, especially those who do not know the Java language or find it difficult to learn the Java language. The difference between Kodular and App Inventor is that the components available in Kodular are more complex and complete than in App Inventor (Kadir 2018).

A spreadsheet is an application or computer program used to manipulate, capture, and display data arranged in columns and rows. A spreadsheet is also a sheet of paper that contains data in the form of rows and columns in accounting. The spreadsheet itself has functions to create financial reports, sales, purchases, calculate formulas, create worksheet tables, and much more (Saputra 2022).

According to (Suwanto, Sany, and Indriani 2018) Unified Modeling Language is a diagram and supporting texts about a system that uses visual language as modeling and communication. while according (Permana, Astriyani, and Sari 2018) to UML (Unified Modeling Language) is an object-oriented paradigm system modeling language for specifying, and visualizing software systems, including involving modeling business rules. Based on the theoretical narrative above, it can be concluded that UML is a visual model that can visualize the specifications on the system.

Similar research has been conducted (Erwana and Handoyo 2017) with the title "Sistem Informasi Tugas Akhir Berbasis Web (Studi Kasus: Sekolah Tinggi Teknologi Ronggolawe Cepu)". This study discusses the development of a web-based final project information system, this information system can be used for the title submission process, the guidance process and the scheduling of the Munaqasyah exam. Similar research has been conducted (Eryc et al. 2021) under the title "Perancangan dan Implementasi Aplikasi Sistem Pendaftaran Sidang KP, Skripsi dan Tesis Online dengan Metode Scrum". The research discusses the process of developing a web-based application using the Laravel framework, bootstrap, and MySQL database. This application can be used to register for KP trial, Thesis, and Thesis online, while the system development method uses the scrum method. The Scrum method is a method that helps to increase flexibility and speed in the system development phase. The difference between the research conducted by the author and the research that has been done before is that the author builds an android-based information system and uses a spreadsheet database. The information

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system built by the author can be used to carry out the registration process for the munaqasyah exam by students and validation of registration and documents that have been submitted by students.

METHOD

The system development method used by the author in this study was carried out based on the stages - of resistance contained in the Extreme Programming (XP) model. Extreme Programming (XP) is a software engineering process that tends to use an object-oriented approach and the target of this method is a team built on a small to medium scale this method is also suitable if the team is faced with unclear requirements or changes occur. very fast requirements (Supriyatna 2018).

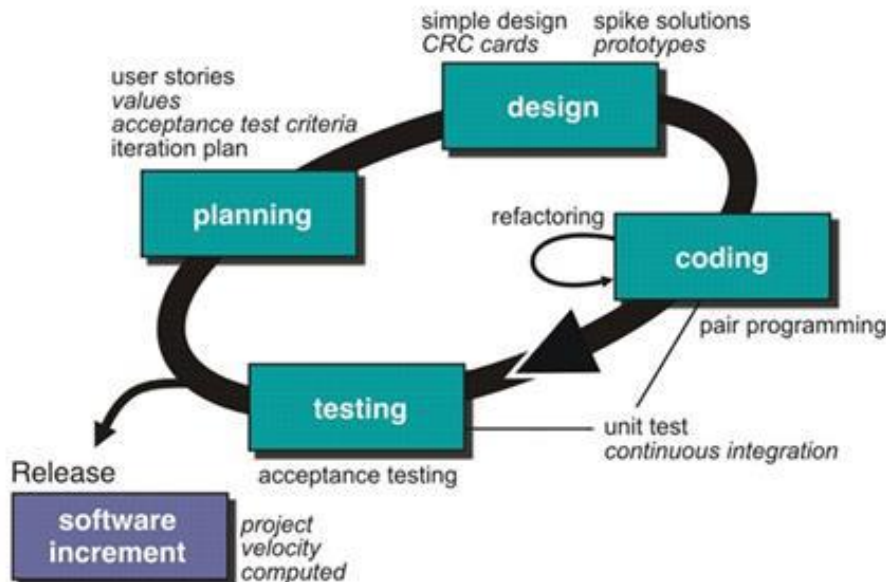


Fig. 1 Extreme Programming (XP) Models

The stages contained in the Extreme Programming method are as follows:

Planning

In this stage, the initial needs of the user are collected or in XP it is called user stories. This is necessary so that developers can understand the content business, system output requirements, and the main features of the developed application. This stage is carried out to analyze the needs of the system so that it can be used by user requirements or user stories.

Design

The design of the system in this study is described by a UML model in the form of use case diagrams, sequence diagrams, activity diagrams, and class diagrams. Designing on XP still prioritizes the principle of Keep it Simple (KIS). The design in this model is a representation of the system to make it easier for developers to build the system. This design is intended to facilitate the development of the system in the future.

Coding

This stage can also be called the application development stage. At this stage the author translates the results of the design into the form of the programming language used. In translating the results of the author's design using a coded application and a spreadsheet database.

Testing

This stage will use the unit tests that have been previously created. Because the creation of unit tests is the main approach of XP. In conducting the test, the author uses a testing technique, namely black box testing. At the black box testing stage, each unit test is tested, which means testing the integration between the input and the appropriate output results should occur.

while the method used by the author to collect the data needed in this research activity is as follows:

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Observation

The author made direct observations at the research site, namely the Information Systems Study Program, Faculty of Science and Technology, State Islamic University of North Sumatra, to observe the problems that occurred in the registration process for the Munaqasyah exam.

Interview

The author conducted questions and answers to the study program admin and students regarding the registration process for the Munaqasyah exam and the problems faced in the process.

Literature Study

The author looks for reference sources needed in the process of research and development of information systems, both from books, journals, the internet, and other sources.

RESULT

Problem Analysis

At this stage, the author analyzes the current system regarding the registration process for the Munaqasyah exam at the Information Systems Study Program, Faculty of Science and Technology, State Islamic University of North Sumatra. So far, the registration process for the thesis munaqasyah exam is carried out using google forms. Meanwhile, the registration process for the colloquium of journal articles is still done manually. Doing this way, there are still some obstacles and problems that occur, including Students have difficulty seeing the status of the registration that has been done, Students cannot check uploaded files, It is difficult for the study program admin to validate the registration for the Munaqasyah exam that has been carried out by students, and Admin of study program has difficulty in conveying information regarding registration status.

System Requirements Analysis

The Registration Validation Information System for the Android-Based Munaqasyah Exam Information System Study Program at State Islamic University of North Sumatra Medan is intended to assist registration officers and students in validating registration data for the munaqasyah exam. In its development, this system will be built with various service features that students can use later. But basically, this system is intended to help students register for the Munaqasyah exam by the final project chosen by the student such as a thesis or journal article by uploading various documents needed and provided by the system later. After the conditions are uploaded, with the existing data, the registration officer can easily validate the data and provide output, whether the data is accepted or not.

System Design

Use Case Diagram

Use case diagrams or use case diagrams are diagrams to model the behavior of a system that will be designed by describing the interaction between one or more actors who will use the system (Hutabri and Putri 2019).

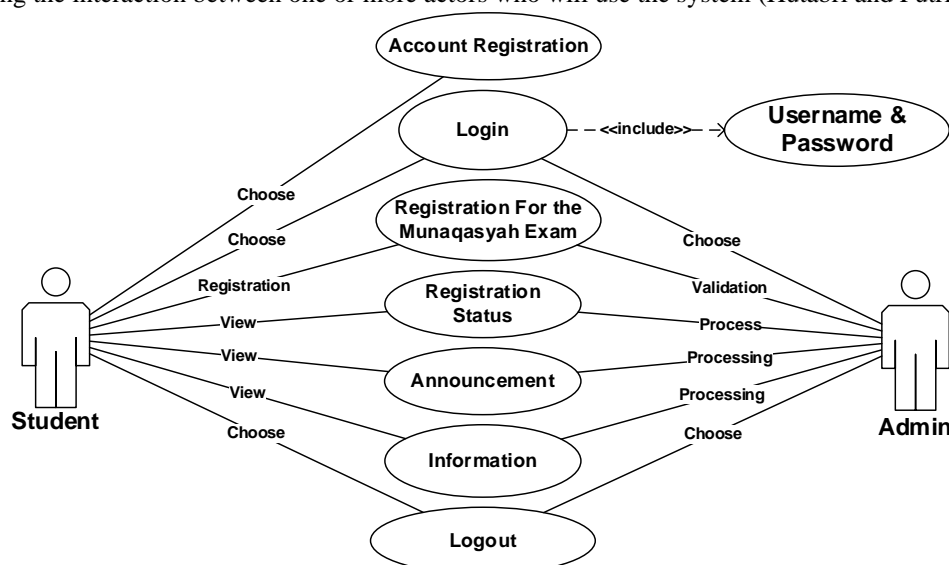


Fig. 2 Use Case Diagram

Sequence Diagram

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Sequence diagrams are UML diagrams that provide an overview of object connections arranged in a time request. A sequence diagram is a piecemeal depiction, including a sequence (succession) of consistent changes that occur must be done to provide appropriate use case diagrams (Widarma and Kumala 2018).

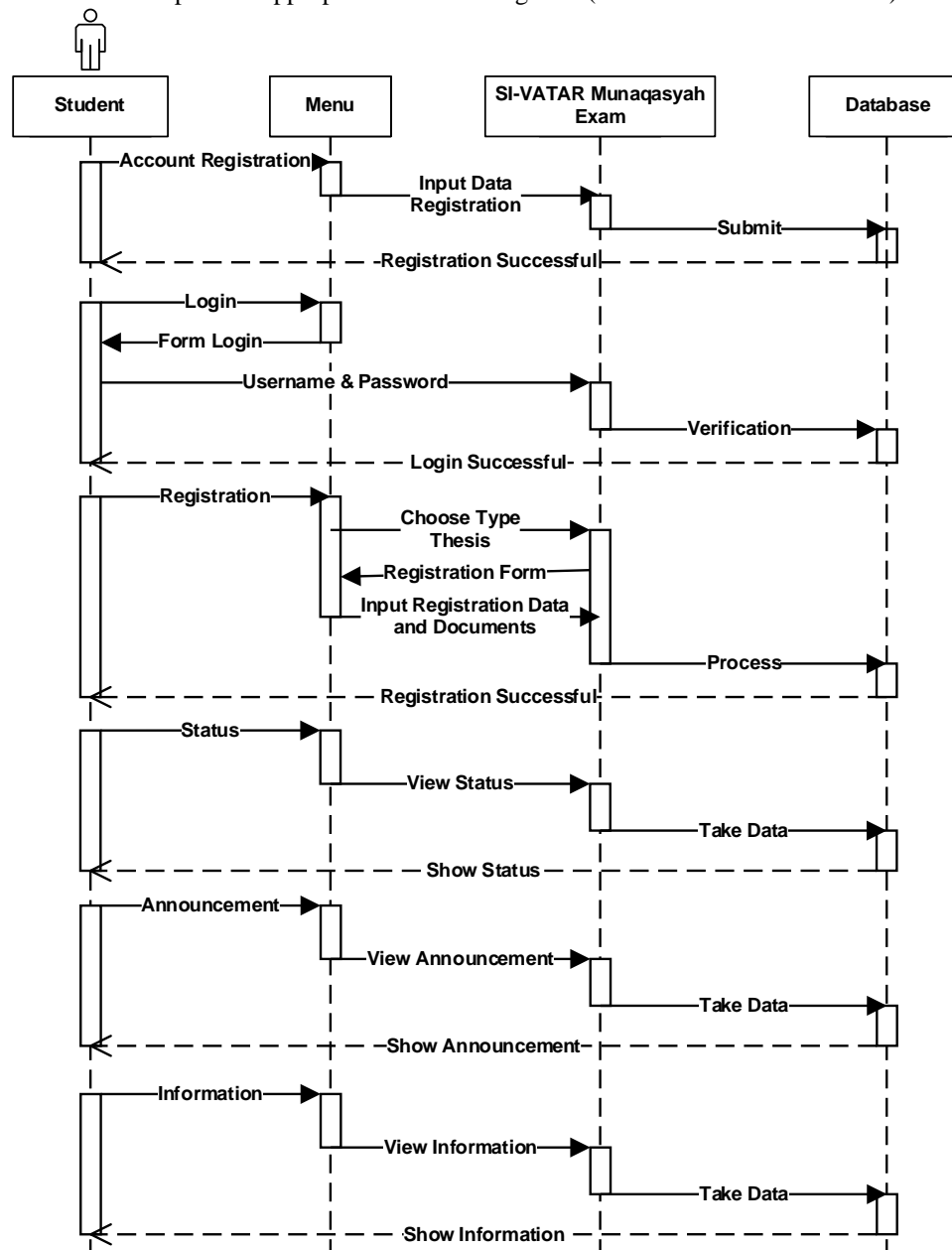


Fig. 3 Sequence Diagram

Activity Diagram

Activity Diagram depicting the workflow or activities of a system that is in the software (Rachman 2018). The activity diagram of the information system that will be built describes how the activities of the information system when carrying out the functions selected by the user. The function of the information system consists of the account registration process, the login process, the munaqasyah exam registration process, displaying status, announcements, and information

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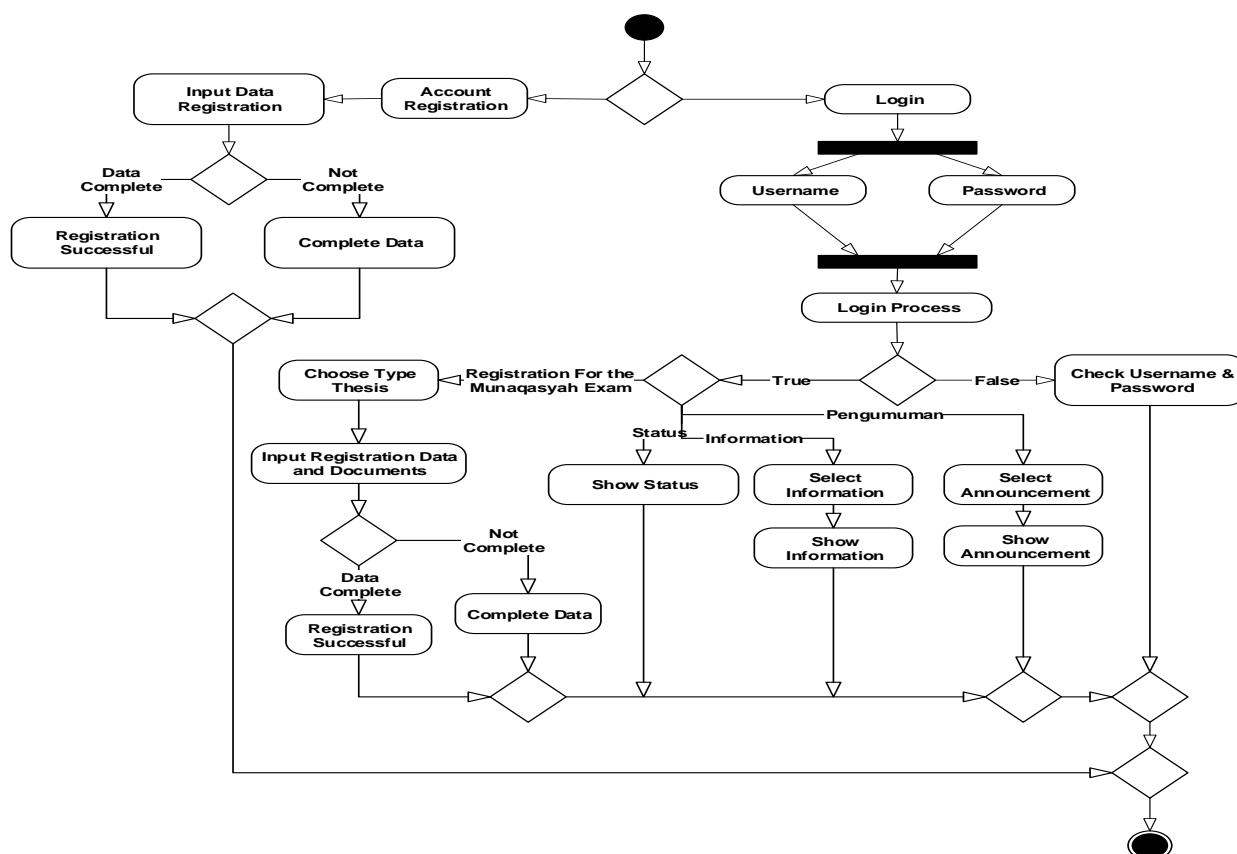


Fig. 4 Activity Diagram

Class Diagram

The class diagram shows the rules and responsibilities of the entities that determine the behavior of the system. During the design stage, the class diagram plays a role in capturing the structure of all the classes that make up the architecture created (Wendi and Ardiansyah 2018).

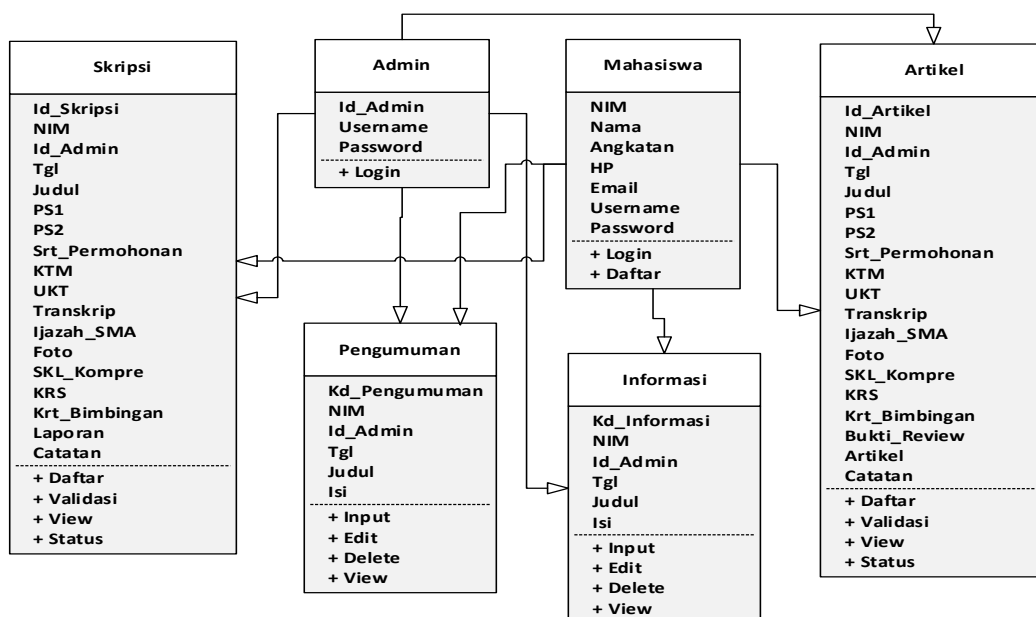


Fig. 5 Class Diagram

*name of corresponding author

System Testing

Testing the information system that is built is user-oriented. The test is carried out on a smartphone device that is used by the user. The test variables are based on the smartphone brand and operating system. The testing process is carried out to see the performance of the information system when used on smartphone devices that have different brands and operating systems. Smartphones used in the testing process consisted of twenty-one devices with different brands and operating systems. The twenty-one devices are divided into seven types based on the operating system, including three Android version 6 devices, three Android version 7 devices, three Android version 8 devices, three Android version 9 devices, three Android version 10 devices, and three Android version 11 devices. and three android devices version 12

Table 1. Information System Test Table

Devices	Android Version	Information System Display	Information System Process	Information System Performance
Samsung Galaxy S5	Android 6	Success	Success	Success
Xiaomi Redmi 2 Prime	Android 6	Success	Success	Success
Asus Zenfone 2	Android 6	Success	Success	Success
Samsung Galaxy J2 Pro	Android 7	Success	Success	Success
Xiaomi Redmi 5	Android 7	Success	Success	Success
Xiaomi Note 5A Prime	Android 7	Success	Success	Success
Infinix Hot 6 Pro X608	Android 8	Success	Success	Success
Xiaomi Redmi 6A	Android 8	Success	Success	Success
Vivo Y71	Android 8	Success	Success	Success
Infinix Smart 3 Plus	Android 9	Success	Success	Success
Samsung Galaxy A10	Android 9	Success	Success	Success
Realme 3 Pro	Android 9	Success	Success	Success
Vivo X27	Android 10	Success	Success	Success
Xiaomi Redmi Note 8	Android 10	Success	Success	Success
Xiaomi Mi 8 Pro	Android 10	Success	Success	Success
Xiaomi Redmi 10	Android 11	Success	Success	Success
Oppo Reno 5 4G	Android 11	Success	Success	Success
Vivo V20	Android 11	Success	Success	Success
Vivo V60 Pro	Android 12	Success	Success	Success
Oppo Find X3 Pro	Android 12	Success	Success	Success
Redmi 10 Prime	Android 12	Success	Success	Success

From the test results, it can be concluded that the information system built can run and be accessed properly on Android smartphones that have Android version 6 and above, from the display of the information system, the processes contained in the information system, the process of uploading documents and so on. The information system has been running well by the author's expectations and user needs

System Implementation

An android-based munaqasyah exam registration validation information system in the information systems study program, North Sumatra State Islamic University was built using a Kodular framework and a Google spreadsheet database. The following is a page display of the android-based munaqasyah exam registration validation information system which consists of a login page, account registration page, munaqasyah exam registration page, announcement page, and information page.

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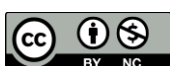


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Fig. 6 Login Page


Fig. 7 Account Registration Page

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SI_VATAR



**Sistem Informasi Validasi Pendaftaran
Sidang Munaqasyah**

SIDANG MUNAQASYAH

Nama	Nur Fadilah		
NIM	0702182117		
Angkatan	2018		
Judul Skripsi	Pengembangan Sistem Informasi Perpustakaan Berbasis Android		

Pembimbing 1	Ali Ikhwan. M.Kom	▼
Pembimbing 2	Muhamad Alda. S.Kom..	▼

Surat Permohonan	<input type="button" value="Browse"/>	<input type="button" value="Upload"/>	<input type="button" value="View"/>
/SIVATAR Munaqasyah/Surat Permohonan.pdf			
	✓		
KTM	<input type="button" value="Browse"/>	<input type="button" value="Upload"/>	<input type="button" value="View"/>
/SIVATAR Munaqasyah/KTM.pdf			
	✓		
UKT	<input type="button" value="Browse"/>	<input type="button" value="Upload"/>	<input type="button" value="View"/>
/SIVATAR Munaqasyah/UKT.pdf			
	✓		
Transkrip Nilai	<input type="button" value="Browse"/>	<input type="button" value="Upload"/>	<input type="button" value="View"/>
/SIVATAR Munaqasyah/Transkrip Nilai.pdf			
	✓		
Ijazah SMA	<input type="button" value="Browse"/>	<input type="button" value="Upload"/>	<input type="button" value="View"/>
/SIVATAR Munaqasyah/Ijazah SMA.pdf			
	✓		
FOTO	<input type="button" value="Browse"/>	<input type="button" value="Upload"/>	<input type="button" value="View"/>
/Blucampus/Images/Foto.jpg			
	✓		
SKL_Kompre	<input type="button" value="Browse"/>	<input type="button" value="Upload"/>	<input type="button" value="View"/>
/SIVATAR Munaqasyah/SKL Kompre.pdf			
	✓		

Fig. 8 Munaqasyah Exam Registration Page

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Fig. 9 Announcement Page

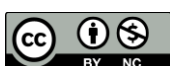


Fig. 10 Information Page

DISCUSSIONS

The android-based information system that has been built by the author can assist students in registering for the munaqasyah exam and assist the admin of the information systems study program in validating the registration for the munaqasyah exam that has been carried out by students. The information system can be accessed by two users, namely students and admins. On the student menu, students can register for an account to get the username and password needed to log in to the information system. After the student has successfully logged in and entered the information system, the student can choose the available menus, including the Munaqasyah exam, information, announcements, and status. On the Munaqasyah exam menu, students can choose the type of student final project, namely a thesis report or journal article. After students choose the type of final project, students register for the Munaqasyah exam by entering data and uploading the documents needed in the registration process. In addition, students can choose the announcement menu and the information menu. In this menu, students can see announcements or information that has been submitted by the study

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program admin regarding the munaqasyah exam. And students can also choose the status menu to view information on the status of the registration that has been done.

In the admin menu, the admin can log in to the information system by entering the specified username and password. After the admin has successfully logged in, the admin can choose the available menus, namely the validation menu, announcements, and information. On the validation menu, the admin can choose registration for the Munaqasyah exam that has been done by students. Admin can see and check the data and registration requirements documents that have been done by students. After that, the admin can make changes to the status of student registration. In the announcements and information menu, the admin can perform data processing consisting of input, editing, deleting and convey it to students.

CONCLUSION

After conducting this research, the authors conclude from the research that has been done regarding the development of an android-based munaqasyah exam registration validation information system in the information systems study program, at North Sumatra State Islamic University that has been built. The Extreme programming (XP) method used in this study produces an information system that runs well according to user needs to be based on the stages contained in the Extreme programming (XP) method.

The information system that has been built can assist students in registering for the Munaqasyah exam and obtaining information about the status of the registration that has been carried out. Students also find it easier to see announcements or information related to the Munaqasyah exam that has been submitted by the study program admin. In addition, this information system can also help the admin of the information system study program to check and validate the registration for the munaqasyah exam that has been carried out by students and convey information or announcements to students easily and quickly via an android smartphone.

Before using this information system, students are advised to complete the required documents in the registration process, smartphone devices according to the required specifications, such as a minimum operating system version 6.0, RAM of at least 2 GB and ensure a supported internet network because the information system is accessed online via a smartphone. android. This information system can be used for other purposes, such as registration of proposal seminars, comprehensive exams, and so on.

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