

ANDROID-BASED LECTURE ROOM SCHEDULING APPLICATION (CASE STUDY : STMIC PRINGSEWU CAMPUS)

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Abstract

Technological developments are increasingly rapid and fast, especially and communication technology. For all fields, starting the fields of buying and selling, education, health, and others. The communication and information technology very helpful in various ways from the word of lecturers, campus staff, and students. STMIC Pringsewu still use manual, student still have to see schedule of waiting room of STMIC Pringsewu. Application development using php script. The method used to develop this system is by System Development Life Cycle approach with stages and design using Data Flow Diagram modelling. Based on the results of system testing, Application and Scheduling Applications are designed in accordance with the expected, it can be concluded that the application design courses and lecture room based on Android is work and function.

Keyword: *Scheduling, Android, STMIC, Pringsewu.*

1.0 INTRODUCTION

1.1. Background

Technological development is increasingly rapid and fast, especially information and communication technology. Almost all fields carry out activities or work using information technology. Starting from the field of buying and selling services, education, health, and many more. In the field of education (especially STMIC Pringsewu Campus) communication and information technology is very helpful in various ways, from the work of lecturer, campus staff, and students. However, from the technology, STMIC Pringsewu Campus did little to implement it, there are still small obstacles that affect the smooth running of teaching and learning activities and students. Some of the students are often confused with the lecture room they will use when there are lecture hours. One of the factors is the limited schedule of lectures from the campus. A survey conducted by Google Indonesia in 2015, the percentage of smart phone users is much higher than pc users, 62 % and 17 % respectively. Indonesian people spend an average of 5,5 hours in front of the phone and an average of 1,8 hours in front of the pc. The late date of 2017 from We Are Social revealed that the high activity of Indonesian people in cyberspace[1].

Based on the results of the statement of several students of STMIC Pringsewu Campus, that two separate buildings are quite difficult to find out about the lecture schedule, because the lecture schedule is only displayed on the main campus monitor STMIC Pringsewu. So students often go back and forth to see the classrooms schedule. Students who get the morning lecture schedule (at 08:00) often find the monitor screen schedule on the main campus in conditions not lit. This situation is quite disturbing student activities. Based on the research of Ginanjar Tegar Sanjaya, Budhi Sumboro (2015) from STMIC AUB Surakarta that the

development of web based lecturing scheduling system using PHP and MySQL is done by through several improvements to avoid schedule clashes[2]. Based on the results of I Wayan Eka Purnama Putra, I Gede Mahendra Dharmawiguna, I Made Gede Surnaya (2016) from Ganesha Singaraja University Of Education, Bali, the Android application development for classroom usage information is represented using QR Code[3]

Based on the research of Heri Budi Iswanto (2012) from Veterans National Development University Of East Java that web-based and Android-based scheduling application to provide and obtain course schedule information for lecturers and students in department of informatics[4]. From the results of research described above, the researchers wants to develop an Android Room-based lecture scheduling applications, where this application contains the course schedule information and lecture room for all majors. Because Android smartphone users have been widely used and the majority of STMIK Pringsewu students have it.

Based on the description above, the development of scheduling application helps in making it easier to provide course schedule information, lecture rooms, and avoid schedule clashes. and the use of Android smartphones is superior to the pc for now, so researchers want to develop an Android-based mobile application is an Android-based lecture scheduling application for STMIK Pringsewu students can find out the classroom information wherever they are through their respective smartphone through the application, without must go to the main campus to see the schedule on the monitor. Development of application scheduling courses and lecture-based Android is expected to facilitate students (especially students STMIK Pringsewu in checking the schedule of courses and lecture room through applications on their respective smartphones.

1.2. Formulation Of The Problems

Based on the description of the problem, then it can be formulated a problem as follows: "How to build and realize an Android-based mobile application that can be used to find out schedule information for course and lecture rooms.

1.3. Purpose and Benefits Of Research

The benefits of the developing the Android-based lecture room scheduling application are:

- a. Make it easier for students in checking the schedule of courses and lecture rooms.
- b. Facilitate the management of campus STMIK Pringsewu lecture schedules, in provide course schedule information and lecture rooms for students.

2.0 THEORETICAL

2.1. Scheduling

Barker (1974) scheduling is the activity of allocating resources or machines to run a set of tasks within a certain period of time. Conway, et, al. (1967) scheduling is the process of sorting thoroughly product manufacturing on several machines[5]. Siti Nurmiati (2017) scheduling is an important activity to manage all activities within a company so that the goal is achieved[6].

2.2. Application

Nugroho B. (2009) The Application comes from the word application which means application, usage. In term of application is a ready-made program designed to carry out a function for other users or applications and can be used by the intended target. The main example of application software is word processors, spreadsheets, and media players[7].

2.3. Android

Mulyadi (2010) explains that Android is a subset of software for mobile devices that include operating systems, middleware, and applications released by Google[8]. Lara Silvia (2017) Android is a platform for mobile devices that are increasingly popular. Even some research companies have crowned Android as a champion of smartphones over other platforms like Symbian or Apple iOS[9].

2.4. Xampp

Bunafit Nugroho (2011) Xampp is an Open Source-based PHP (Hypertext Preprocessor) package developed by an Open Source community. By using XAMPP, there is no need to install other programs because all the needs have been provided by XAMPP. Some of the packages that have been provided are Apache, MySQL, PHP, FileZilla, and Phpmyadmin[10].

2.5. Mysql

M. Rudyanto Arief (2011) MySQL is one type of database server that is very popular and widely used to build web applications that use the database as a source and data management. MySQL is open source and free (no need to pay to use it) on various platforms. MySQL is more often used to build web-based applications, generally developing applications using the PHP script programming language Development environment[11].

3.0 METHODOLOGY

3.1. Data Collection

In this study the data needed is the old system that being used, and data collection using a method as follows:

a. Observation

Observation is to observe directly in STMIK Pringsewu, with students, and with the system being used, in order to obtain the information needed.

b. Interview

Interview is doing an interview to the students, and ask directly to the server that handles STMIK Pringsewu Campus scheduling.

c. Library

Library is collecting data obtained from books, journals, internet, and course-related lectures.

3.2. Development Method

Muhammad Muslihudin and Oktafianto (2016) SDLC (System Development Life Cycle, System Life Cycle) or System Life Cycle, in system engineering and software engineering, is the process of creating and altering systems and the models and methodologies used for developing these systems. SDLC is also a pattern taken to develop a software system consisting of stages: planning, analysis, design, implementation, testing and maintenance[12]. The following development methods are used:

a. planning System

At the planning stage of the system, an observation of the current course schedule delivery system, limited course schedule and lecture information is only displayed on the main campus monitor screen. Therefore, the development of an application scheduled courses and lecture room based on Android, is expected to facilitate students in checking the schedule of courses and lecture rooms via mobile phones.

b. Systems Analysis

At the analysis stage, the scheduling system currently in use is still a powerpoint display on the monitor screen and is located only on the main campus while STMIK Pringsewu Campus has two separate buildings, so it is quite difficult for the students in knowing the classroom that will be used, an application scheduling courses and lecture rooms that can support with Android phones, is expected to facilitate students in checking the schedule of courses and lecture space on Android phones each and everywhere.

c. System Design

The benefit of a system design is to provide an overview of the application design. In this research modeling system using Data Flow Diagram (DFD). Data Flow Diagram itself is divided into three levels, namely Context Diagram, Zero Diagram (Level 0), and Detail Diagram (Level 1).

d. System Creation

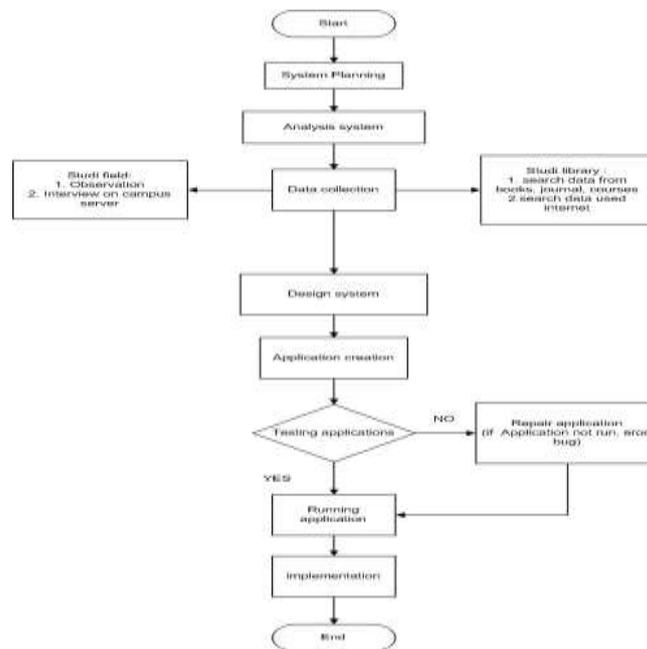
The stage where to begin to make the application program scheduling courses and lecture rooms. The first step to do is to create dynamic web, in making dynamic web there are some things that must be prepared, such as Xampp, xampp is a PHP package (Hypertext Preprocessor) which has been provided Apache web server, MySQL database server, MySQL database manager application phpMyAdmin . PHP (Hypertext Preprocessor) is a programming language designed to create dynamic web. MySQL is used as the place of the database. Web editor is a place to type PHP commands or scripts, web editor used is Notepad ++. Create dynamic website, then website uploaded to hosting server. The third step is to convert website to Android application by using website named Web2APK.

e. System Implementation

Implementation is the stage where the results of the entire process of analysis and system design are made represented in a program.

3.3. Research Mindset

In this research using flowchart flowchart thought flow, as in the following picture:



Picture 1.1 : The flow of thinking in scheduling research studies

The explanation of the flowchart above:

1. System planning, the initial stage in which defining the approximate needs.
 2. Followed by needs analysis, research stage of the system being used. That is the campus scheduling system which is still a powerpoint display on the monitor screen.
 3. Then the collection of data where there are two methods of data collection is the library method and field method, this is an important stage to obtain a lot of information as a material base of system development.
 4. System design and application model design, is a stage to give an overview of the system design and application image to be created or prototype.
 5. Creation of applications, is the stage where begin to make the application image into the real application. from start to convert web to apk Android until the application successfully running.
 6. Testing the application, the stage after creating the application, when the application is running it will be forwarded at the implementation stage, if not because there is still an error, it will be repaired and tested again until the application is running.
- Implementation stage, stage consisting of provision of application support and application testing needs.

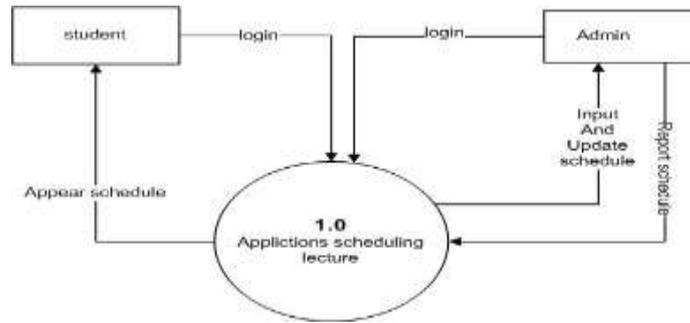
4.0 RESULTANTS AND DISCUSSION

4.1 Design System

Data Flow Diagram (DFD) is a diagram that uses notations to describe the flow of system data, whose use is helpful to understand the system logically, structured and clear. DFD is a tool in describing or explaining the work process of a system[3].

1. Context Diagram

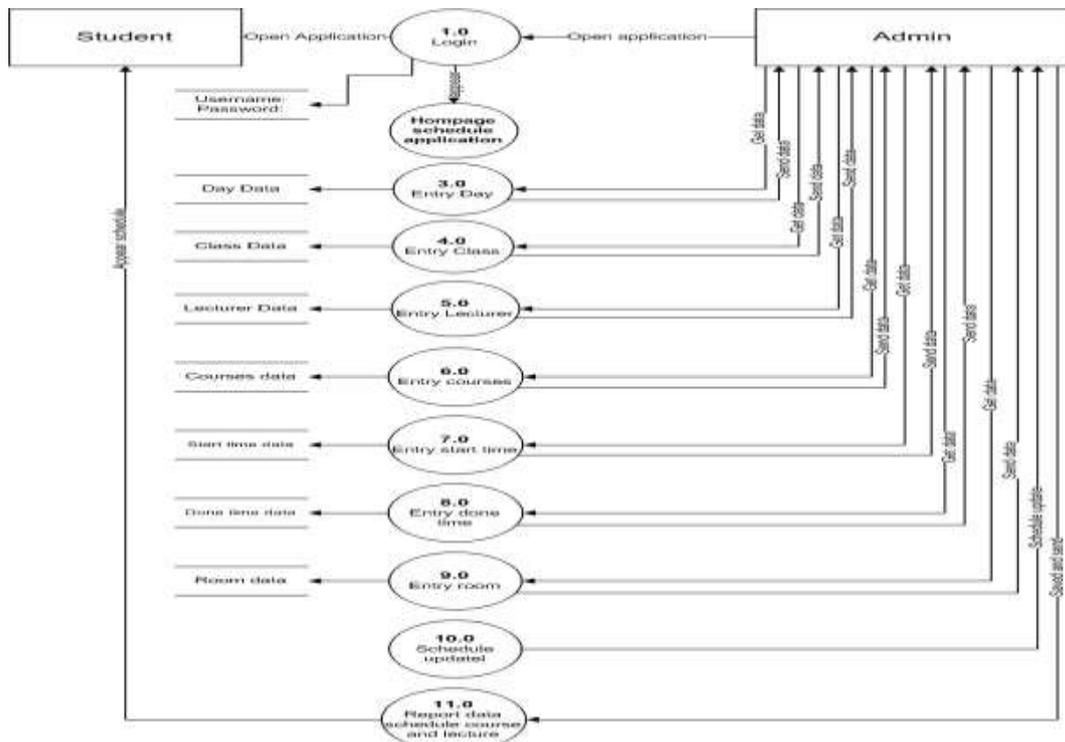
The context diagram illustrates a large circle representing the entire process. Where users log in and enter into the scheduling application.



Picture 1.2 : Context Diagram

2. Zero Diagram (Level 0)

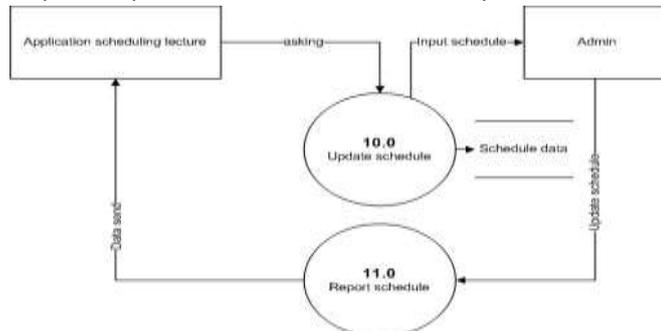
The zero diagram is a breakdown of the context diagram that contains data storage. Where the process penginputan schedule data by admin described in this diagram.



Picture 1.3 : Zero Diagram (Level 0)

3. Detailed Diagram (Level 1)

Detailed diagrams are diagrams that describe the process in the zero diagram. In this system is to describe the update process schedules made by the admin user.



Picture 1.4 :Detailed Diagram (Level 1)

4.2. Interface Design

Interface design is used to provide an overview of the application being designed or created. The application interface design on this system is as follows:



The screenshot shows a login page titled "Halaman Login". Below the title, it says "Silahkan masukkan Username dan Password". There are two input fields: "Username" and "Password". Below these fields is a "Masuk" button.

Picture 2.1 : Display Page Design 'Login'



The screenshot shows a page titled "Jadwal Mahasiswa". Below the title is a "Tambah Jadwal" button. Below that is a table with the following columns: No, Hari, Kelas, Dosen, Nama Mahasiswa, Jam Mulai, Jam Selesai, and Ruangan.

Picture 2.2 : Display Page Design 'Homepage' before inputted on login 'admin'



The screenshot shows an "Input data jadwal" form. It contains the following fields: Hari, Kelas (dropdown), Dosen, Nama Mahasiswa, Jam Mulai (dropdown), Jam Selesai (dropdown), and Ruangan (dropdown). At the bottom are three buttons: "Bergas", "Reset", and "Kembali".

Picture 2.3 : Display Page Design 'Input Schedule'

No	Hari	Kelas	Dosen	Nama Mata Kuliah	Jam Mulai	Jam Selesai	Ruangan
1	Senin	Lina 1	Nora Yolanda	Sistem Informasi	10:00	12:00	Java

Picture 2.4 : Display Page Design 'appear schedule/output schedule'

No	Hari	Kelas	Dosen	Nama Mata Kuliah	Jam Mulai	Jam Selesai	Ruangan
1	Senin	Lina 1	Rana	Sistem Informasi	10:00	12:00	Java

Picture 2.5 : Display Page Design 'Logout'

4.3. Implementation Of The Program

Based on the steps that have been done at the stage of analysis and system design, the results obtained in the form of application scheduling courses and lecture room based on Android. Here's screenshot app scheduling using sony experia T3 phone with Android operating system version 4.4.4 (Android KIT KAT).

a) Login Page

Is the first page that appears when user open the application.



Picture 3.1 : Display Login Page

b) Homepage of the application schedule

Is a page that appears after a login process. Picture below is user login as admin that has the right to schedule input and schedule update.



Picture 3.2 : Display Schedule Homepage On Login 'Admin'

c) Input Schedule Data Page

Is a page used by admin for input schedule data.



Picture 3.3 : Display Page Input Schedule

d) Output/Appears Schedule Page

Is a output/ appears schedule page after input schedule data.



Picture 3.4 : Display Output/ Appear Schedule

e) Page Appears Schedule on Student Login

Is the first page that appears when user as student login.



Picture 3.5 : Display Page 'Appear Schedule' On Student User

- f) Page Menu Navigation Logout
Is a page to exit the application schedule homepage.



Pictuter 3.6 : Display Page Logout

4.4. Analysis Of Research Result

Test program scheduling application functionality by students and campus admin from Pringsewu start installing application in mobile phone, opening application, login user, input data for user admin, and logout user. Based on the results of system testing and filling out questionnaires that have been carried out by 21 people, consists of students and campus admin STMIK Pringsewu, with Android phones are different sony experia, samsung, xiaomi, lenovo, and oppo. So it can be concluded that the application runs in accordance with the expecting and application scheduling courses and lectures based on Android has been successful.

5.0 CONCLUSION

5.1. Conclusion

Based on the research and development of scheduling applications that have been done in accordance with the steps and from the results of application testing by students and admin STMIK Pringsewu Campus, it has been obtained the conclusion that the design of application scheduling courses and lectures based on Android has been successful and function in accordance with which are expected. This application is implemented using the Android mobile phone operating system and can also be accessed through the website by visiting the website link app scheduling on the browser.

5.2. Suggestion

This application is still far from perfect word, so for further researcher please develop this application scheduling course and lecture room based on Android by adding other information in the application such as schedule for final exam of semester or add other features in application.

REFERENCES

- [1] Course-Net, "Data Persentase Android."
- [2] B. S. Ginanjar Tegar Sanjaya, "Rancang Bangun Aplikasi Penjadwalan STMIK AUB Surakarta Berbasis Web," *J. Ilm. Go Infotech*, vol. 21, no. 1, pp. 37–42, 2015.
- [3] I. M. G. S. I Wayan Eka Purnama, I Gede Mahendra Darmawiguna, "Pengembangan Aplikasi Android: Classroom Schedule And Activity Information Menggunakan QR Code," vol. 5, 2016.
- [4] H. B. Iswanto, "Aplikasi Jadwal Mata Kuliah Berbasis Web Dan Android," 2012.
- [5] A. D. Prasetiyo, C. Rahmad, T. Informasi, and P. N. Malang, "PERANCANGAN APLIKASI SCHEDULE REMINDERS MENGGUNAKAN METODE EUCLIDEAN DISTANCE," vol. 2015, pp. 126–128, 2015.
- [6] S. Nurmiati, P. Studi, and S. Informasi, "Sistem Informasi Penjadwalan Fasilitas Berbasis Web Studi Kasus Pada Institut Sains dan Teknologi Nasional," vol. 2, no. 1, pp. 38–46, 1945.
- [7] F. A. Sianturi, "Perancangan Aplikasi Pengamanan Data Dengan Kriptografi Advanced Encryption Standard (AES)," vol. 4, no. 4, pp. 42–46, 2013.
- [8] T. Ramadhan and V. G. Utomo, "RANCANG BANGUN APLIKASI MOBILE UNTUK NOTIFIKASI JADWAL KULIAH BERBASIS ANDROID (STUDI KASUS: STMIK PROVISI SEMARANG)," pp. 47–55.
- [9] L. Silvia, N. Dengen, and U. Hairah, "FAKULTAS ILMU KOMPUTER DAN TEKNOLOGI INFORMASI BERBASIS ANDROID (STUDI KASUS: FAKULTAS ILMU KOMPUTER DAN TEKNOLOGI INFORMASI)," vol. 2, no. 2, pp. 2540–2542, 2017.
- [10] D. E. Hendrianto, "Pembuatan Sistem Informasi Perpustakaan Berbasis Website Pada Sekolah Menengah Pertama Negeri 1 Donorojo Kabupaten Pacitan," vol. 3, no. 4, pp. 57–64, 2014.
- [11] A. M. Rudyanto, *Pemrograman Web Dinamis menggunakan PHP dan MySQL*, Ed. I. Yogyakarta: CV Andi Offset (Penerbit ANDI), 2011.
- [12] O. Muhamad Muslihudin, *Analisis dan Perancangan Sistem Informasi Menggunakan Model Terstruktur dan UML*, Ed. I. Pringsewu-Lampung: CV Andi Offset (Penerbit ANDI), 2016.