**The Use of Rapid Application Development (RAD) Method in New Students
Registration Information System**
(Case Study in Education University of Muhammadiyah (UNIMUDA) Sorong)
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Abstract

The registration of new students is one of the routine activities which are carried out by all universities every year and data processing system assistance is needed to make easier the work of universities in processing data for the new students' registration. The purpose of this study is to develop a web-based new students' registration information system which is expected to make easier for the new students registratlion committee in managing the data and also make easier for new students to register and get information. The development method used in this research is Rapid Application Development (RAD) method. The RAD method has several stages, namely Requirements Planning, RAD Design Workshop, and Implementation. The development of this information system starts from collecting data using observation and interview methods, making system design, development, and testing. The trial was carried out using black box testing which focused on functional testing. The results of the blackbox test show that there is no error in the new student registration information system.

Keywords: *RAD*; Information System; Registration; *Web*.

1. Introduction

Higher education in Indonesia has increased from time to time, currently reaching 3098 universities, both public and private (Wahyudin, 2015). The increasing also occurred in the number of registrants in universities (Yasmiati, Wahyudi, & Susilo, 2017). Higher Education is an enterprise which engaged in education. Generally, universities have several business units such as: general affairs, finance, personnel, planning and information systems, publishing and publications, as well as the main activities of new student registration, academic system and graduation (Muslihudin & Larasati, 2014).

Education is a necessity; this fact is caused because education is a life phenomenon that cannot be separated from other social phenomena (Mambang & Marleny, 2015). This phenomena cause competition in terms of attracting students interest increasingly tight, especially in providing services to students (Ary, 2016).

The tight competition in the world of education has made many educational institutions use technology as a supporter to improve their performance (Ramadhani, 2018). The key to the success of educational institutions is the application of information systems for processing institutional data quickly and accurately (Imtihan, 2015). Information systems provide many benefits, especially in the world of education, even the beginning of the development of computers and the internet today is one of the fact of research which has carried out by academics. The world of education is closely related to information and knowledge (Firman, 2020). Currently, many applications related to education have been developed. Thus, a lot of assistance is provided by information technology to support education.

Higher education as an institution needs to know the level of productivity and progress of activities that occur at the college. Therefore, in a university, an information system is needed to help in managing various kinds of existing data such as an information system for new student registration. The registration of new students is one of the routine activities carried out by all universities every year, and in the process of data processing system is needed to facilitate the work of universities in processing data for new students (Kurniawan, 2016).

In the new students' registration, the committee usually experiences difficulties with all incoming files and data (Ramadhani, 2015). Registrants also experience time, energy and financial difficulties during the registration process (Ridwan, Ramadhani & Muhammad, 2017). The limited number of new student registration committees makes archiving data for new students takes more time from the required form collection schedule. So that, the candidate of new students cannot find out their registration status quickly, including in the case of incomplete registration requirements (Enggelbertus, Zulkarnain & Lilis, 2020)

Education University of Muhammadiyah (UNIMUDA) Sorong is one of the private universities in Sorong Regency, West Papua. Since its establishment until now UNIMUDA Sorong still use a manual system of new student registration. The increasing in the number of students who register each year makes the new students registration committee overwhelmed and takes a long time to process the data of new students candidate.

The manual system is considered less effective because it requires the new students candidate to come to campus to carry out the registration process, starting from taking the form, filling out the form manually, then submitting the required form and file to the new students registration committee. Furthermore, the new students' candidate follow all procedures manually until the student is declared accepted at UNIMUDA Sorong. The new students' candidates do not only come from the district and city of Sorong, but also from other districts in West Papua Province. Because of it, the new students' candidate will experience difficulties in terms of time, energy, finance and will also have difficulty in obtaining important information regarding to registration. The errors in the process of entering data in Microsoft Excel by the committee were also unavoidable and the loss of registration files was also one of the problems that needed to be solved.

Based on the problem above, the researcher developed a web-based on new students registration information system which is expected to make easier for the new students registration committee to manage data and the new students to register and get information.

2. Literature Review

2.1. Information System

According to Kristanto (2018) the system is a collection of interrelated elements that work together to process the input that is shown to the system until producing the output. Information system is a number of components (human, computer, and information technology, and work procedures) and a process (data becomes information) in achieving a goal. The term of information system is also often confused with a management information system (MIS). These two things are actually not the same thing. Management information system is one type of information system, which is specifically shown to produce information for management and decision makers (Kadir, 2014).

2.2. New Students Registration

New students' registration is a routine activity which is carried out by all universities in Indonesia every year. This activity can be carried out as a starting point at the process of searching the new students qualified. By accepting competent new students, it can support the quality of higher education (Kurniawan, 2016).

2.3. PHP

According to Purbadian (2015: 29) PHP which stands for Hypertext Preprocessor is a programming language in the form of a script placed on the server side, so that PHP is also called a server side scripting language, in running PHP always requires a web server, and views it using a web browser. Meanwhile, according to Madcoms (2016:2) PHP is a scripting language that can be embedded or inserted into HTML. PHP is widely used to create dynamic website programs. PHP is often also used to build a CMS.

3. Research Method

The software development method in developing the SIM-MaBa is Rapid Application Development (RAD) method. There are three phases in the RAD method, namely: Requirements Planning Phase, RAD Design Workshop Phase, Instruction Phase, and Implementation Phase.

Picture 1. RAD Method Phase

Source : (Kendall & Kendall, 2010)

a. Requirements Planning

In this phase, user and analyst meet to identify the goal of application or system and information requirements which is caused by those goals. The orientation in this phase is to solve some company problems. Eventhought information technolofy and system can lead some part of the system proposed; the focus will always stay on effort to reach the goals of the company.

b. RAD Design Workshop

This is the phase to design and fix something which can be described in workshop. This kind of workshop can be done some days. It depends on the size of application that will be developed. During RAD workshop design, the user respond prototype that exist and the analyst fix some moduls that has been design based on the user respond.

c. Implementation

In this phase, the programmer applied the design form one system to another system that has been agreed in the previous phase. Before the system applied, there is a trial process of the program to detect the error in the system developed. Usually in this phase, there is a respond of the system that has been made and gets appovement about that system.

4. Findings and Discussion

a. Product Development Result

After finishing all the research methodology phases, the result of new students registration system information development at Education University of Muhammadiyah (UNIMUDA) Sorong can be seen in the picture 3. The following picture is login and registration page for new students' candidate.

Picture 3. Login Page

The page of registration form of new students which hasn't get any account can be seen in the picture 4.

The screenshot shows the 'Mahasiswa > Pendaftaran' (Student > Registration) page. It features a light blue header with the text 'Informasi!' and a note: 'Mohon mengisi data ini dengan sebenar-benarnya karena data ini bersifat penting!' (Please fill in this data truthfully as this data is important!). The form includes several input fields: 'Program Studi' with three dropdown menus (Pilihan Pertama, Pilihan Kedua, Pilihan Ketiga), 'NIK' (Nomor Induk Kependudukan) with a note '*NIK harus sesuai Kartu Keluarga', 'Nama Lengkap' (Nomor Lengkap) with a note '*Nama harus sesuai LAZAH', 'Ibu Kandung' (Nama Ibu Kandung), and 'Telepon' (Telepon Aktif) with a note '*Nomor harus sesuai AKIF'. A red warning box states: 'Kode Registrasi & Password digunakan saat LOGIN pada Website PMB UNIMUDA Sorong, harap dicatat agar tidak lupa atau hilang.' (Registration Code & Password are used for LOGIN on the Website PMB UNIMUDA Sorong, please note it so you don't forget or lose it). Below this, there are fields for 'Kode Registrasi' (092UNIM0052), 'Password Baru', and 'Konfirmasi Password Baru'. A 'Show Password' checkbox is present. At the bottom, there is a 'Saya bukan robot' checkbox and a CAPTCHA image. The page concludes with 'Batal' and 'DAFTAR SEKARANG' buttons, and a footer with 'UNIMUDA Sorong © 2020 0877-0466 - 08946'.

Picture 4. Form Registration Page

Picture 5 shows the homepage of new students candidate that has three menu, namely profil data, proxy data, payment evidence uploading.

Picture 5. New Students Home Page

The picture 6 shows the pass announcement page for the new students. It can be seen in profil menu.

MUH. IRWAN SAPUTRA » Pendaftaran

Lihat Profil

Jadwal & Tes Online

KTM Sementara

Kartu Rencana Studi

Ubah Profil

MUH. IRWAN SAPUTRA

Kode Registrasi	#0821UNMD125
Program Studi	Pendidikan Jasmani
Pilihan	1. Pendidikan Jasmani 2. Pendidikan Jasmani 3. Pendidikan Jasmani
NIM	148520121086
Angkatan	2021
Status	LULUS

Picture 6. Pass Announcement Page

There are two menu in the page for user admin, namely registration menu and selection menu. Registration menu display can be seen in Picture 7 and selection menu can be seen in Picture 8.

PMB UNIMUDA Sorong

Minggu, 12 September 2021 | 12:58:43 WIT

Selamat datang, Volunteer PMB

Baranda

Mahasiswa

Mahasiswa > Daftar

Pendaftaran > List Data

Status: VALID

Pencarian

List Data

10 data per halaman

Cari:

#	Kode Daftar	Nama Lengkap	Kelahiran	Agama	Telepon	Status	Aksi
1	#0521UNMD003 01 Mei 2021 10:18 am	EKO RISDIANTO SAPUTRA 920801202010003	Laki-Laki Kaimana,pupua Barat, 20 Desember 2001	Islam	081248362129	VALID	
2	#0721UNMD212 25 Juli 2021 10:33 pm	ADIK NURDIN 9201390705000001	Laki-Laki Sorong, 07 Mei 2000	Islam	082217627414	VALID	
3	#0821UNMD078 23 Agustus 2021 08:53 am	DEVA IRIANTO 9201071801001001	Laki-Laki Sorong, 11 Oktober 2001	Islam	081248410108	VALID	
4	#0621UNMD103 12 Juni 2021 11:14 am	NILAM TIARA BLESS 9210086703030001	Perempuan Timika, 15 Oktober 2001	Katolik	081247622889	VALID	
5	#0921UNMD057 09 September 2021 13:34 pm	MUHAMMAD ARAFA 9271010805990001	Laki-Laki Sorong, 08 Mei 1999	Islam	081240040136	VALID	
6	#0821UNMD152 18 Agustus 2021 10:07 pm	GILDA FRANSISKA HAE 9209010900021001	Perempuan Yogyakarta, 29 Juni 2002	Katolik	081240289885	VALID	

Picture 7. Registration Menu Display on User Admin Page

Picture 8. Selection Menu Display on User Admin Page

b. Black Box Testing

The testing of Black Box is started with testing the use of new students candidate which the result can be seen in the Table 1 and the testing result of user admin can be seen in the Table 2.

Table 1. *Black Box Testing* for New Students

No.	Plannig Process	The Expected Result	Result
1	Click the Registration Here button	Entering in Registration Page	Suitable
2	Fill the registration form and click “Register Now” button	Entering in Log in Page	Suitable
3	Fill the login form and click “Enter” button	Entering Home Page	Suitable
4	Click Data Profil Menu	Showing Profil Menu, Schedule and Onlen Test, Students Identity Card Temporary, and Course Selection Sheet	Suitable
5	Click Profil Menu	Showing New Students Profil Page	Suitable
6	Click Test Schedule and Online Test Menu	Showing Schedule Page	Suitable
7	Click Students Identity Card Temporary Menu	Showing Students Identity Card Temporary Page	Suitable
8	Click Course Selection Sheet Menu	Showing Course Selection Sheet Page	Suitable
5	Click Proxy Data Menu	Showing Proxy Data Page	Suitable
6	Click Uploading Payment Evidence Menu	Showing Uploading Payment Evidence Page	Suitable
7	Click logout	Logout from Page	Suitable

Tabel 2. *Black Box Testing* for Admin Candidate

No.	Planning Process	The Expected Result	Result
1	Fill the login form and Click "Enter" button	Enter the Home Page	Suitable
2	Click Registration Menu	Showing all the data of new students	Suitable
3	Click Searching button on Registration Menu	Showing the data searching	Suitable
4	Click Selection Menu	Showing new students candidate selection page	Suitable
5	Click Searching button on Selection Menu	Showing the data searching	Suitable
6	Click Making Schedule button	Showing Making Test Schedule page	Suitable
7	Click logout	Logout from Page	Suitable

5. Conclusion

Based on the result that has been done, it can be concluded that the researchers succeed in developing new students registration information systems Web-Based using Rapid Application Development (RAD) through 3 phases, namely requirements planning, RAD Design Workshop and Implementation. The result of blackbox testing shows the result which is suitable with the needs and all the form displays and button has been functioned well without any errors.

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