



Implementation of The Information Service Application Portal for Registration of Prospective Santri and Recording of School Activities Using The Extreme Programming Method

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ABSTRACT

For Islamic boarding schools, the website functions as a medium of information and school introduction to the public. In order for prospective students to register easily, complete information is needed so that the boarding school can easily manage the data of prospective students. Apart from teaching and learning, teachers and students also have other activities at school. The categories of activities carried out by teachers are training, teaching, RPP (Learning Implementation Plans), and clubs or CCA (Co-Curricular Activities), while the categories of activities carried out by students are extracurricular activities, organizations, and competitions. All information on teacher and student activities requires data to be stored properly for a certain period of time. This study aims to build an information service application for registration of prospective students and recording of school activities using the extreme programming method. This application is made using the PHP programming language with the CodeIgniter framework, a MySQL database, and extreme programming as an application development method. Based on the tests carried out, this application can run on various browser applications, such as Google Chrome, Mozilla Firefox, and Microsoft Edge.

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1. Introduction

An information system, which is a collection of several components that manage data so that the processed data can be used as meaningful information and can help achieve organizational goals [1]. Currently, utilization or usage (especially website-based) is not only for the government or companies. However, with the development of technology, the use of website-based information systems has also expanded, including in the field of education. The provided website facilities can be optimized for school profiles, providing information about the achievements that have been achieved by the school, which makes people interested in entering and even attending school there. Even website facilities can be maximized to build an online PSB (New Student Acceptance) system. Through online acceptance of new students, registration can be done quickly and according to the specified time. [2].

Registration is the process of recording the identity of the registrant into a storage medium that is used in the process of registering or accepting new students [3]. Acceptance of New Students, abbreviated as

PPDB, is a routine activity held every new school year by the school. This activity includes the registration process, the selection, and the conditions that apply at school. However, in the implementation of PPDB at Islamic boarding schools, prospective students generally do not know information online. This is because the PPDB information service is not optimal, which can cause prospective students to be dissatisfied with the implementation of PPDB [4]. This is also due to the fact that not many schools in Indonesia have implemented an online student admission system [5]. The new student admission system still uses a manual system, namely prospective students must come directly to the school to register [6, 7].

Islamic boarding schools are the oldest educational institutions in Indonesia, which accommodate students and are fostered so that they have abilities, intelligence, and skills, as well as religion [8], so that educational goals are achieved. Islamic boarding school regulations require students to live in the boarding school while studying there, causing parents of students to come all the way to the boarding school to see the results of their son's academic development. The pesantren manager provides information about the development of the students' learning process in the boarding school to parents, by means of which parents have to come to the boarding school to see their son's academic development because the information provided by the students' parents is still done conventionally [9].

Monitoring and evaluation of the implementation of learning activities that must be monitored include teacher activities in carrying out learning activities. Therefore, in the process of monitoring teacher activity, it can be done by recording activities. The teacher's main task is to teach, while the student's task is to study [10]. Besides teaching and learning, teachers and students also have activities at school. The categories of activities recorded in teachers are teacher training, teaching, RPP (Learning Implementation Plans), and Club or CCA (Co-curricular activities), while the categories recorded in students are extracurricular activities, organizations, and competitions. All information on teacher and student activities requires well-stored data that contains activities carried out by teachers and students within a certain period of time.

Not all schools have a system that can record school activities in which there is data on teacher and student activities, so this can make it difficult for schools to record, access, and archive information regarding activity records. Then the recording process is still done manually, so the data collection process will take a long time. Therefore, an information service application for registration of prospective students and recording of Islamic boarding school activities was created. This application is a website-based application that can be accessed anywhere and anytime as long as it is connected to the internet. This website-based application will help prospective students find out registration information and carry out the registration process. It can also make it easier for the boarding school to manage and record teacher and student activities. The design of this system is done using the Extreme Programming (XP) method.

The XP method is a methodology in software engineering and is also part of the agile software development methodology. In general, Extreme Programming (XP) can be a software development approach that tries to increase the efficiency and flexibility of a software development project by combining various simple ideas without reducing the quality of the software to be built [11].

For website development to be faster and more structured, a CodeIgniter (CI) framework is needed, which is a framework that uses the PHP programming language with the fastest execution and uses the basic MVC model, namely Model, View, Controller, to help develop dynamic and open-source web-based applications. [12, 13], which produces information for consumers about products sold by manufacturers, displays available products, displays retailer data along with the products they sell, displays the location of the wet cake manufacturers, and displays dynamic ratings and reviews.

The previous research related to website-based applications for santri services was entitled Web-Based Santri/Santriwati Registration Application at the As'adiyah Belawa Baru Islamic Boarding School. The application was developed using the Waterfall model of the SDLC (System Development Life Cycle) method. Designed using the UML method, it produces a login design, registration approval page, requirements information management page design, user home page design, prospective student registration page design, requirements information view page design, acceptance announcement page design, teacher data page design, and contact page design. The online registration system that was built helps prospective new students register [14].

Another study, entitled Design of Islamic Boarding School Registration Information System for Modern Islamic Boarding School Daarul Muttaqien 1 Tangerang, which helps in the process of accepting and registering new students. The results obtained from this study show that with this new student admissions system, prospective students do not have to come to school to register and make payments, but rather access the online student admissions system web application by filling out the forms and attachments available in the application. And with this information system for accepting new students, it can be helpful and beneficial for the school, prospective students, and all partners concerned in the system [15].

In the research entitled Design and Development of a Web-Based Student Activity Monitoring Information System at SMA Muhammadiyah 3 Surabaya, conducted by Wulandari in 2017, self-development

activities are educational activities outside the subject as part of the school or madrasah curriculum. Self-development activities are efforts to shape the character and personality of students through extracurricular activities that are concerned with personal problems and social life [16].

Meanwhile, this study discusses information services for registering new prospective students and recording teacher and student activities, in which there are features where teachers and students can input and record what activities they participate in and prospective students can register online without logging in.

2. Research Method

The research method used in this study is the Extreme Programming method, where software development is a structured, fast, and efficient system development process. The research location for conducting research on the creation of an information service information system for registering new prospective students and recording school activities is at Pondok Modern Nurul Hidayah, Bantan District, Bengkalis Regency. Data collection was obtained through an interview process with the parties involved. To ensure that the data meets user needs, observation was also applied to this study. For the design of the information service portal application for registration of new prospective students and recording of school activities, researchers used the Extreme Programming (XP) method, while the language used was PHP with the CodeIgniter framework. The XP method is a widely used model for software development that performs multiple stages flexibly and adaptively in a simple manner and is considered a lightweight method that focuses on cost savings and can help small teams [17, 18]. The stages of the Extreme Programming method consist of four stages, which can be seen in Figure 1 [19].

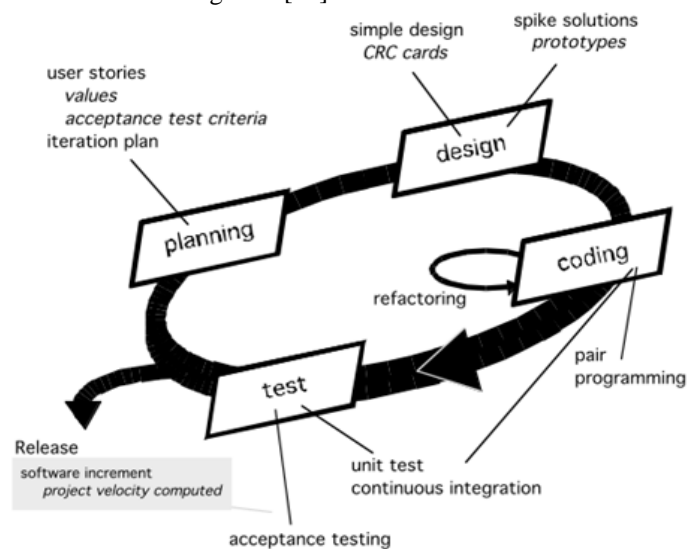


Figure 1. Extreme Programming (XP) Method

1) *Planning*

This stage begins with identifying the activity requirements of a system related to PGRI data and analyzing the existing system and the new system flow for the needs of the system to be built.

2) *Design*

The design stage is a step for modeling the PGRI data monitoring system based on the results of the needs analysis that have been obtained. System modeling is done using UML (Unified Modeling Language), which consists of use cases and activity diagrams. In addition, at this stage, we also make use of database modeling (Database) to figure out the relationship between data. For database modeling using ERD (Entity Relationship Diagram).

3) *Coding*

The coding stage is the implementation step of the model design that was previously made into program code. The PGRI data monitoring system uses the PHP programming language with the CodeIgniter Framework, and the database used is MySQL.

4) *Testing*

The testing stage is the last step of the PGRI data monitoring information system, which is the testing phase to find out whether the system being built can run according to user needs. Testing was carried out using the Blackbox Testing method [20, 21].

3. Result and Discussion

Based on the current system problems, the registration of new prospective students is carried out online, but not optimally, and in carrying out activities to record the activities of teachers and students, Microsoft Excel is still used in carrying out the process of inputting the data, the process of taking data, adding, checking, and printing data. All of this is done by the operator for the report needs of prospective students and teacher and student activities. Based on this problem, it is necessary to have an information service system for registering new prospective students as well as recording teacher and student activities using the PHP programming language and MySQL database to help data managers for prospective students, teachers and students, and school operators in viewing available data, such as information. prospective students (from school, medical history, and address), see the activities of teachers and students, check teacher and student data on a monthly basis, and find out which teachers or students are carrying out activities. The results of this study are in the form of new student registration information services and web-based recording of teacher and student activities using the XP and CI methods, which can make it easier for the admin to find information related to new students, teachers, and students. The following is a discussion of the XP stages:

3.1 Planning Stage

Explaining the new student registration information service system and recording the activities of teachers and students by involving several users, namely :

a. Admin

Able to manage the online registration information service system for new students and record school activities as a whole, both in the process of input, update, delete, view data, and approve teacher and student registration.

b. User Teachers and Students

Can register, log in, and CRUD personal data, such as identity and what activities are carried out. For more details about the flow of the proposed system, see figure 2.

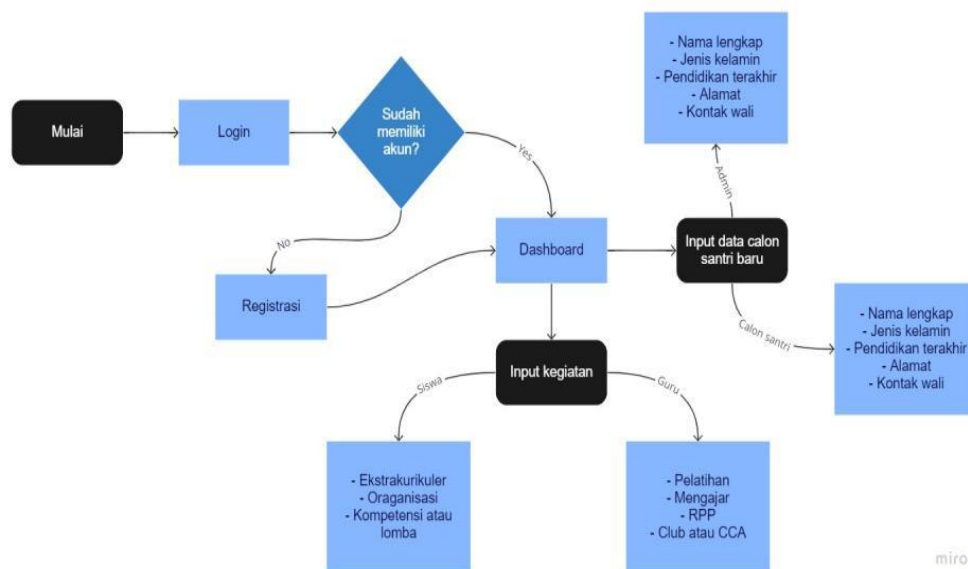


Figure 2. New Santri Registration Service Information System Flow andRecording of School Activities (New System)

3.2 Design Stage

System design uses UML to create Use Case Diagrams and Activity diagrams, while databases use ERD (Entity Relationship Diagram).

a. Use Case Diagrams

The use case diagram of the application Information Service for Registration of Candidates for Santri and Recording of School Activities is an illustration of the relationship between the user and the system [22]. Use cases can explain the relationship and management between actors and users of the system [23]. The system users involved are admin, teachers, and students, which can be seen in Figure 3.

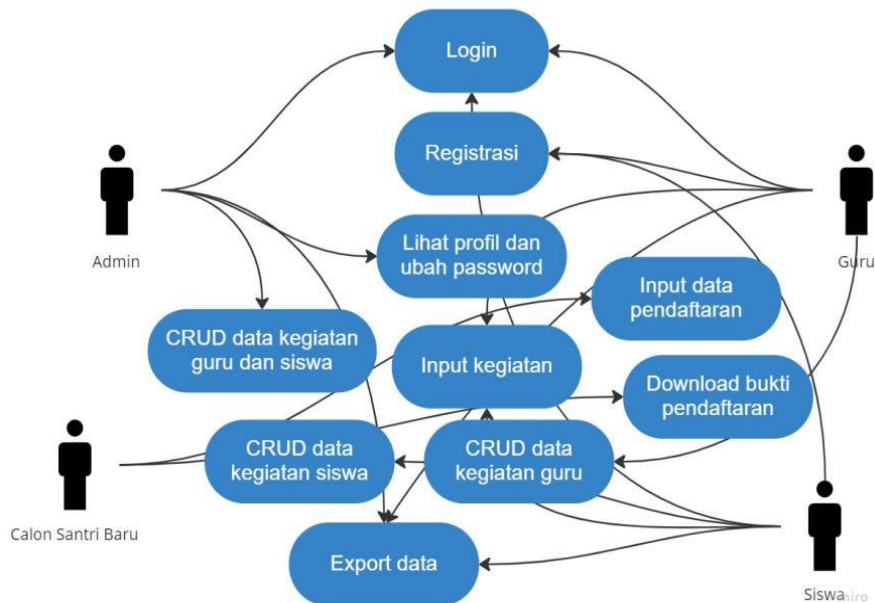


Figure 3. Use case diagram of the New Santri Registration Service Information System and Recording of School Activities

b. Activity Diagrams

Activity diagrams are modeling carried out on a system and illustrating the running system activities [24], as seen in Figure below:

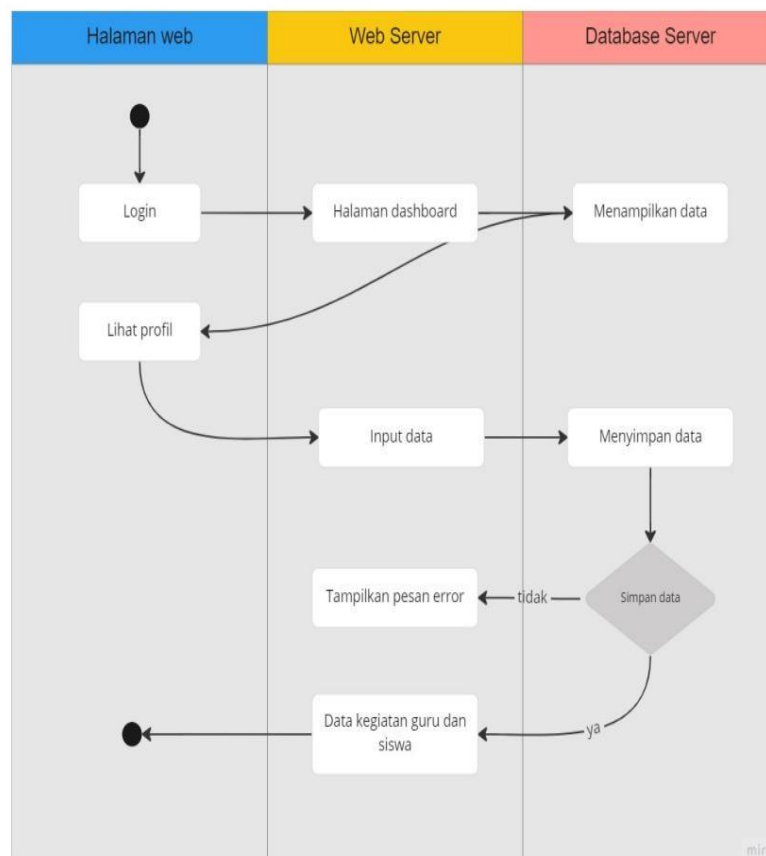


Figure 4. Admin Activity Diagram for CRUD Teacher and Student Activity Data

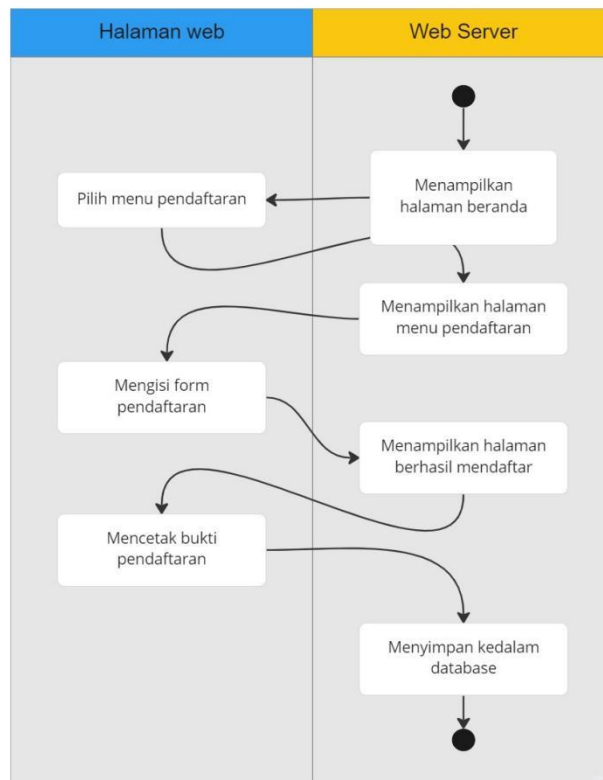


Figure 5. Activity diagram of prospective students registering

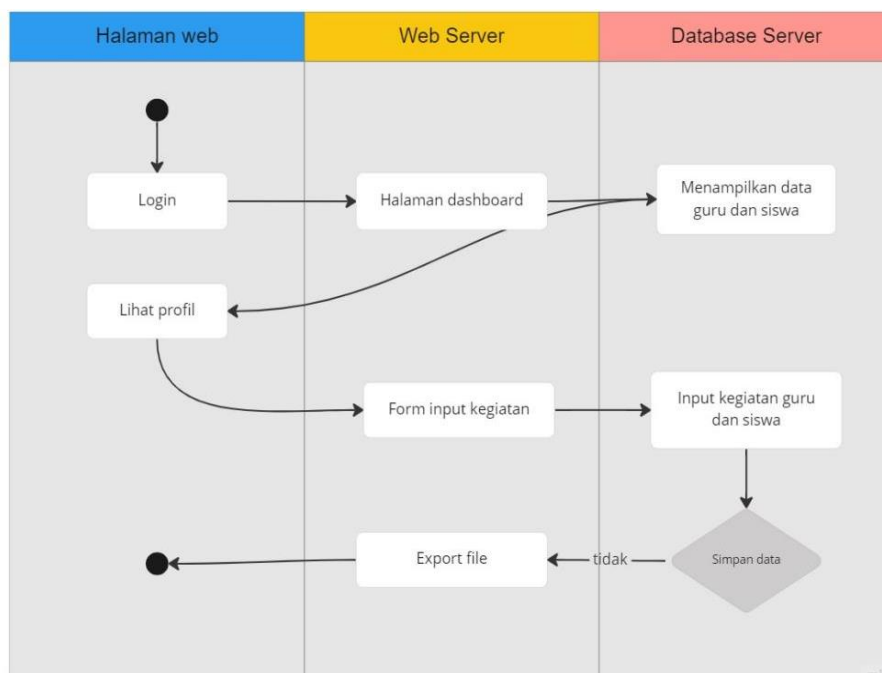


Figure 6. Teacher and student activity diagrams for input activities

c. Entity Relationship Diagram (ERD)

Entity Relationship Diagram (ERD) is an approach technique model that states or illustrates the relationship of a model. The main relationship of ERD is to show data objects (entities) and relationships (relationships), which exist in the next Entity [25]. ERD from the Information Service Information System for Registration of Prospective Students and Recording of School Activities can be seen in Figure 7.

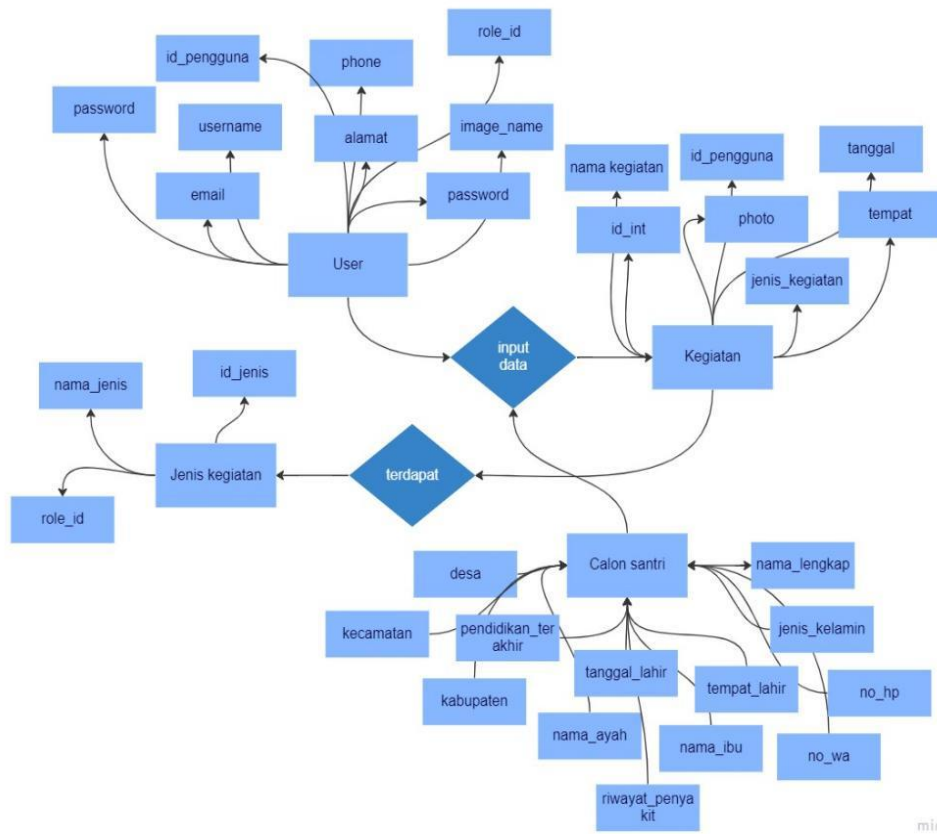


Figure 7. ERD Information Service Application for Registration of Prospective Santri and Recording of School Activities

3.3 Coding

At this coding stage, the application is made by compiling the source code according to the design that has been proposed. Figure 8 is a display of the input form for the login process.

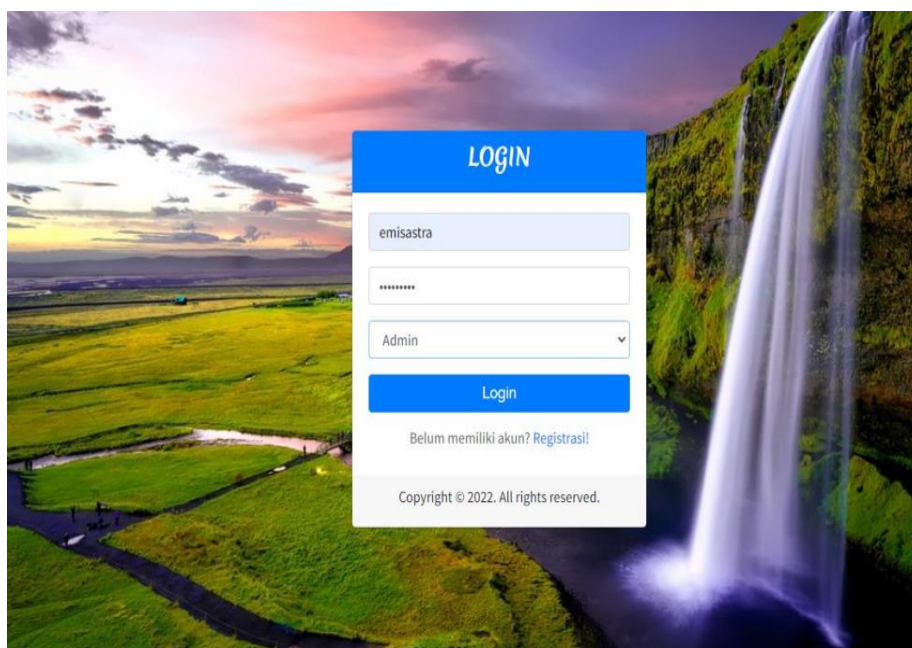


Figure 8. Login Form Display

```
//method untuk mengecek username dan password
public function validation()
{
    $username = trim($this->input->post('username'));
    $password = trim($this->input->post('password'));
    $role_id = trim($this->input->post('role_id'));

    $user = $this->db->get_where('users', array('username' => $username,
    'role_id' => $role_id))->row_array();
    //User ditemukan
    if ($user) {
        //cek password
        //Password Benar
        if (password_verify($password, $user['password'])) {
            $data = array(
                'user' => $user,
                'role_id' => $user['role_id'],
                'status' => 'login',
            );

            $this->session->set_userdata($data);
            redirect('dashboard');
        }
        //Password Salah
        else {
            $this->session->set_flashdata(
                'message',
                '<div class="alert alert-danger" id="alert-msg">
                <div class="fonta-raleway-medium"><i class="icon fas fa-ban"></i>Gagal!</h5>
                <div class="text-justify">
                Password Anda Salah.
                </div>
                </div>'
            );
            redirect('login');
        }
    }
}
```

Figure 9. Source Code Login Form

Figure 10. Display of Teacher Activity Data Input Form

```
//method untuk menampilkan form tambah data
public function tambah()
{
    $data = [
        'title' => "Halaman Tambah Kegiatan Guru",
        'user' => $this->session->userdata('user'),
        'kategori' => $this->db->get_where('jenis', array('role_id' => 2))->result(),
        'guru' => $this->db->get_where('users', array('role_id' => 2))->result()
    ];

    $this->load->view('templates/backend/header', $data);
    $this->load->view('kegiatan-tambah', $data);
    $this->load->view('templates/backend/footer');
}

//method untuk menampilkan form edit data
public function edit()
{
    $kegiatan_id = $this->uri->segment(3, 0);
    $data = [
        'title' => "Halaman Tambah Kegiatan Guru",
        'user' => $this->session->userdata('user'),
        'kategori' => $this->db->get_where('jenis', array('role_id' => 2))->result(),
        'd' => $this->db->get_where('kegiatan', array('id' => $kegiatan_id))->row(),
        'guru' => $this->db->get_where('users', array('role_id' => 2))->result()
    ];

    $this->load->view('templates/backend/header', $data);
    $this->load->view('kegiatan-edit', $data);
    $this->load->view('templates/backend/footer');
}
}
```

Figure 11. Source Code Form Input Data Teacher Activities

Figure 12. Display of the Online Registration Form for Prospective Santri

```
function pendaftaran_user_sukses()
{
    $data = array(
        'title' => 'Pendaftaran Sukses'
    );
    $this->load->view('user/data_formulirpendaftaransukses', $data);
}

public function add()
{
    $data_formulirpendaftaran = $this->data_calonsantriwali_m;
    $validation = $this->form_validation;
    // Validation Rules
    $validation->set_rules('nama_lengkap', 'Nama Lengkap', 'trim|required');
    $validation->set_rules('jenis_kelamin', 'Jenis Kelamin', 'trim|required');
    $validation->set_rules('tempat_lahir', 'Tempat Lahir', 'trim|required');
    $validation->set_rules('tanggal_lahir', 'Tanggal Lahir', 'trim|required');
    $validation->set_rules('pendidikan_terakhir', 'Pendidikan Terakhir', 'trim|required');
    $validation->set_rules('desa_kelurahan', 'Desa/Kelurahan', 'trim|required');
    $validation->set_rules('kecamatan', 'Kecamatan', 'trim|required');
    $validation->set_rules('kabupaten_kota', 'Kabupaten/Kota', 'trim|required');
    $validation->set_rules('nama_ayah', 'Nama Ayah', 'trim|required');
    $validation->set_rules('nama_ibu', 'Nama Ibu', 'trim|required');
    $validation->set_rules('no_hp', 'No HP', 'trim|required');
    $validation->set_rules('no_wa', 'No WA', 'trim|required');
    $validation->set_rules('riwayat_penyakit', 'Riwayat Penyakit', 'trim');

    if ($validation->run()) {
        $data_formulirpendaftaran->save();
    }
}
```

Figure 13. Source Code Input Form Online Registration for Santri Candidates

3.4 Testing

At this stage, to see and check whether it is successful or not, see Table 1.

Table 1. Testing User Login Forms (Admin, Teachers, Students, and Prospective Santri)

Test Scheme	Taste Case	Expected results	Test result
Testing on the Registration Form	Teachers and students can register if they have not already.	The user has been successfully added if the registration has been done.	Successfully added user data
Testing on the Login Form	Teachers and students can log into the website.	The application will check the username, password, and role ID.	Login is running successfully.T
Testing Teacher and Student Activity Data Input	Teachers and students can input their activities.	The application will read the data entered by the user.	he data has been successfully entered and passed validation if there is no error message.
Input Data for Prospective Santri	Prospective students can input data for online registration.	The application will add the data entered by the user into the database.	Successfully added user data

4. Conclusion

Based on research findings on the New Santri Registration Information Service Application and School Activity Recording using the Extreme Programming approach and the CodeIgniter Framework, it can be said that this application can operate properly, including registering new students, entering teacher and student activity data, viewing data, and printing data in the form report. Recording and registering school events and registering new students have both benefited from the implementation of the Web Base information service application. to be able to offer more services, such as a function for creating accounts for new students who register.

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