

Design and Implementation of a Mobile-Based Islamic Book Study Information System Using API Architecture and Flutter Framework at Dayah Aqil Al-Farisi

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ABSTRACT

The development of mobile-based Islamic learning applications has become a solution to support independent study at Dayah Aqil Al-Farisi, especially for students and community members who are often unable to attend in-person study sessions due to daily activities. This application, built using the Flutter framework and Laravel as the backend, provides digital access to classical Islamic texts (kitab), prayers, Islamic jurisprudence (Fiqh), and the biography of the Prophet Muhammad SAW. The system utilizes an API architecture to enable seamless communication between the mobile app and the server, allowing users to access study materials anytime and anywhere via smartphones. The design and implementation process include requirement analysis, system modeling with Data Flow Diagrams (DFD), UI/UX design, and integration with a MySQL database. The application also features an admin panel for managing content such as kitab, news, prayers, and Fiqh materials. The result is a user-friendly platform that facilitates self-paced learning and helps preserve traditional Islamic education in a modern digital format. This study concludes that the mobile application effectively addresses attendance issues and enhances accessibility to Islamic teachings.

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I. Introduction

In the modern digital era, Islamic education institutions are increasingly adopting technology to enhance learning accessibility and effectiveness[1]. One such effort is the development of mobile-based Islamic study applications that allow users to access religious materials anytime and anywhere. This approach is particularly beneficial for traditional Islamic boarding schools or dayah, where students (santri) and community members (jamaah) often face challenges attending in-person study sessions due to daily obligations[2].

At Dayah Aqil Al-Farisi, located in Aceh Besar, Islamic learning is conducted through structured classes where students study classical Islamic texts known as kitab. These include foundational works on theology (tauhid), jurisprudence (fiqh), ethics (akhlaq), and the biography of the Prophet Muhammad SAW[2], [3]. However, frequent absences caused by personal commitments have led to gaps in knowledge acquisition and retention among learners[4]. To address this issue, a mobile application has been developed to digitize these kitab and provide an accessible platform for independent study.

This application, built using the Flutter framework for the frontend and Laravel with MySQL for the backend, enables users to read and understand kitab along with their translations. The system communicates via an API architecture, allowing seamless data exchange between the mobile app and



the server. Additionally, it supports supplementary content such as prayers (doa-doa), recitations from daily prayers (bacaan shalat), Islamic jurisprudence lessons (fiqh Islam), and the biography of the Prophet (Sirah Nabawiyah)[5].

The primary objective of this research is to design and implement a mobile-based Islamic study application that facilitates self-paced learning and reduces dependency on physical attendance at study sessions[6]. It also aims to preserve traditional Islamic education by integrating it into a modern technological platform.

By offering flexible access to kitab and related materials, this application contributes to the continuity of Islamic learning and ensures that students and community members can continue their religious education regardless of time and location constraints.

II. Method

This section outlines the objectives, requirement analysis, and system design used in the development of the mobile-based Islamic book study application for Dayah Aqil Al-Farisi [7]. The methodology is structured into three main phases: goal determination, requirement analysis, and system design.

A. Goal Determination

The primary objective of this research is to modernize the traditional kitab study system at Dayah Aqil Al-Farisi by developing a mobile application that allows users to access Islamic learning materials remotely. This aims to overcome attendance issues caused by daily obligations and facilitate self-paced learning through digital technology[8],[9],[10].

Specific goals include:

- Providing digital access to classical Islamic texts (kitab) along with their translations.
- Enabling independent learning without the need for direct guidance from instructors.
- Preserving traditional Islamic education in a modern technological format.

B. Requirement Analysis

To ensure the application meets user needs effectively, both functional and system requirements were identified through direct observation and interviews with stakeholders at Dayah Aqil Al-Farisi.

1) User Requirements

There are two main types of users in this system: **general users** (*santri* and *jamaah*) and **admin users**. Their respective functionalities are as follows:

a) General Users

General users can:

- View home page and select class levels and related kitab .
- Access Islamic learning materials such as:
 - Daily prayer recitations (bacaan shalat)
 - Prayers (doa-doa)
 - Islamic jurisprudence (fiqh Islam)
 - Prophet's biography (Sirah Nabawiyah)
- View information about Dayah Aqil Al-Farisi.

b) Admin Users

Admin users have full CRUD (Create, Read, Update, Delete) capabilities over content and can:

- Log in securely to the admin dashboard.
- Manage data including:
 - Class levels and kitab
 - News articles
 - Prayer texts
 - Daily prayer recitations
 - Fiqh materials
 - Sirah Nabawiyah content

- About section
- Admin account management

2) *System Architecture*

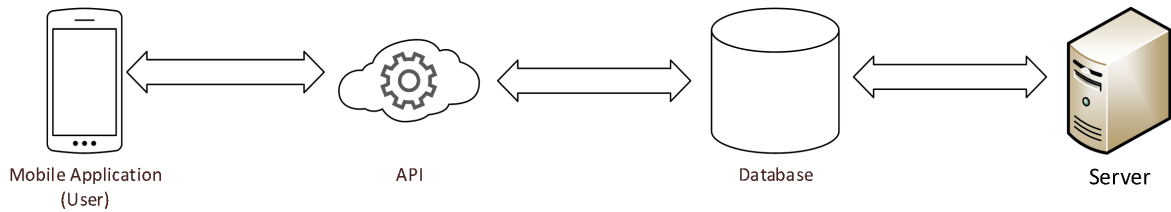


Fig. 1 System Architecture

The system uses an API-based architecture to enable communication between the mobile application and the backend server. As illustrated in Figure 1 (to be inserted), the flow of data is as follows:

- Users access data via the mobile application.
- The app sends requests to the API layer.
- The API forwards the request to the database server.
- Once processed, the response is sent back to the API and then delivered to the user.

This architecture ensures efficient data handling and allows for scalability and flexibility in future updates.

C. *System Design*

System design encompasses the overall structure and data flow of the application. It includes Data Flow Diagrams (DFD) Level 0 and Level 1, which illustrate how data moves between users and the system components.

a) *Data Flow Diagram (DFD) Level 0*

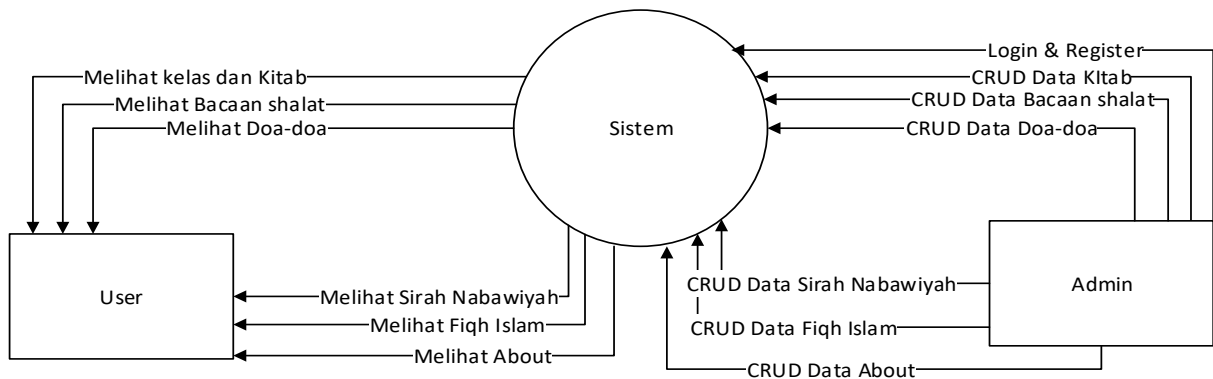


Fig. 2 DFD Level 0

Figure 2 illustrates the DFD Level 0, which shows two main entities:

- **User:** Can view classes, *kitab*, prayers, and other Islamic learning materials.
- **Admin:** Can manage all content types, including kitab, news, prayers, and more.

This diagram provides a high-level overview of how data flows between users and the system.

b) *Data Flow Diagram (DFD) Level 1*

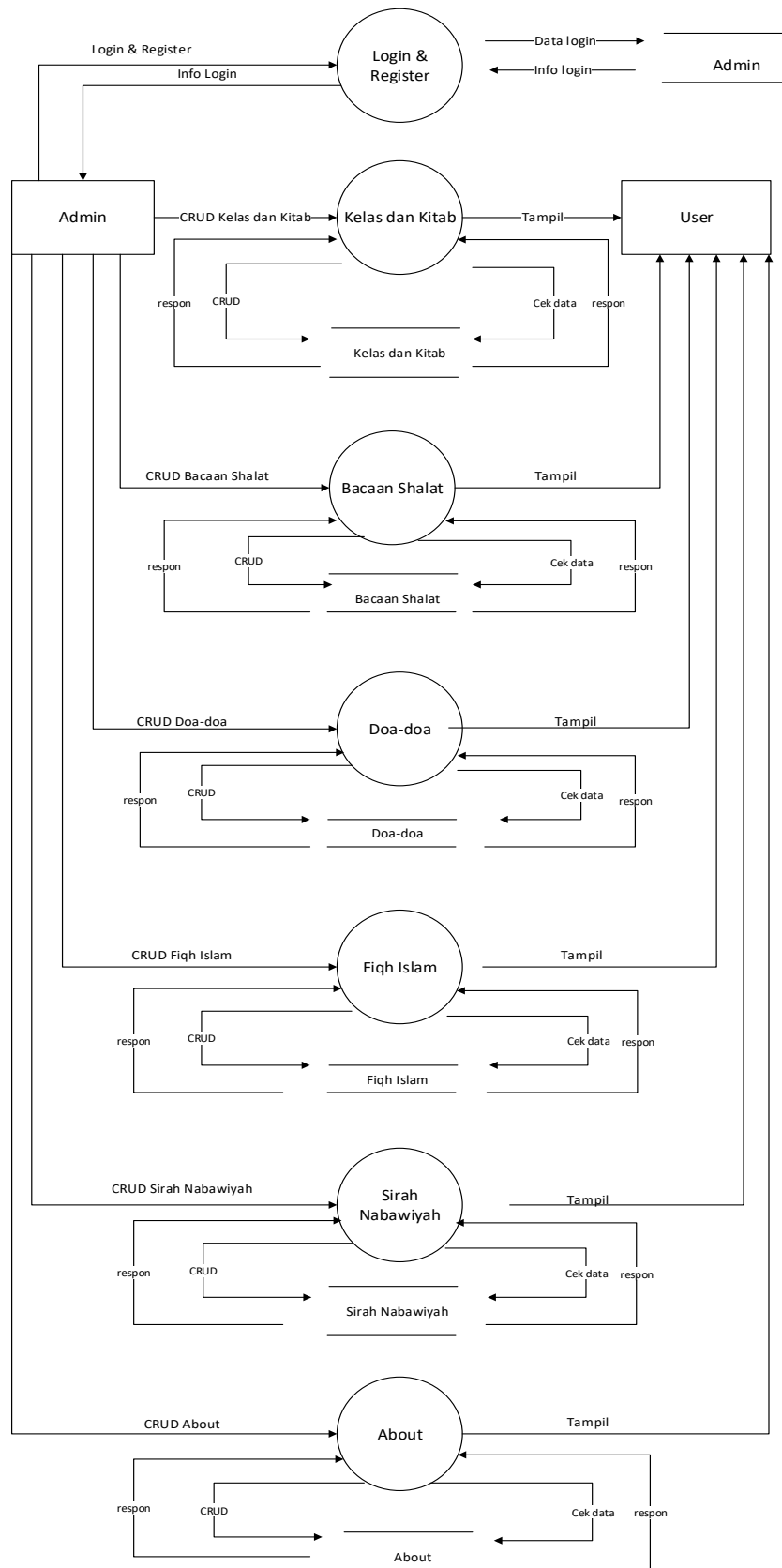


Fig. 3 DFD Level 1

Figure 3 presents a more detailed breakdown of the system processes:

- **Login & Registration:** For secure admin access.
- **Class & Kitab Management** CRUD operations on class and *kitab* data by the admin; display for users.
- **Daily Prayer Recitations, Doa-doa, Fiqh Islam, Sirah Nabawiyah:** Admin can add, edit, or delete content, while users can view it.
- **About Section:** Admin manages descriptive content about Dayah Aqil Al-Farisi.

Each process ensures modular handling of specific functionalities within the system.

III. Results and Discussion

The mobile application developed for Dayah Aqil Al-Farisi provides an integrated learning platform designed to support self-paced Islamic education. The application consists of two major components: a mobile frontend for students and a web dashboard for administrators.

A. Mobile Application Interface

Upon launching the application, users are welcomed by a splash screen, offering a clean introduction to the app's branding (Fig. 4).

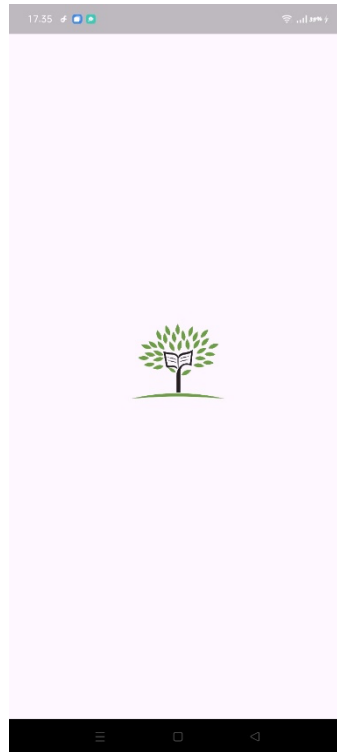


Fig. 4 Splash screen of the application

After the splash screen, the home page displays key features such as a list of class levels (Kelas 1–6 and Jamaah), news updates, and bottom navigation to access Kitab, Islamic Learning, and About sections (Fig. 5).

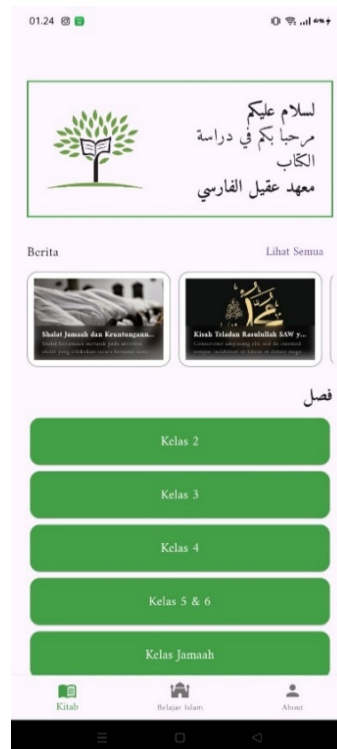


Fig. 5 Home page displaying class levels and main navigation

Each class level provides a curated list of Islamic books. For instance, Kelas 2 contains Kitab Ibadah, Akhlaq, Tauhid, and more (Fig. 6). This structure supports tiered learning based on user levels.



Fig. 6 Book list displayed in Kelas 2 menu

When users select a book, they are presented with scanned pages of the kitab along with an interactive tafsir feature. Tapping on a page opens a pop-up with contextual explanation, helping users understand the content independently (Fig. 7).



Fig. 7 Kitab display with pop-up tafsir feature

In addition to kitab study, the "Belajar Islam" section offers categorized learning materials on daily practices. The menu includes doa-doa (prayers), bacaan shalat (prayer recitations), fiqh Islam (Islamic jurisprudence), and sirah nabawiyah (Prophet's biography) (Fig. 8).



Fig. 8 . Main menu of Belajar Islam

B. Admin Web Dashboard

To manage the application content, a Laravel-based web dashboard is implemented. It includes a secure login page for administrators (Fig. 12).

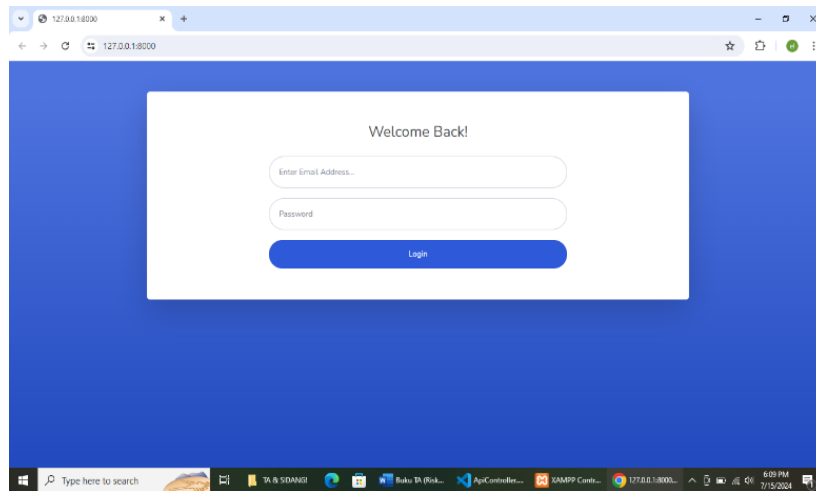


Fig. 9 Admin Login Page

Upon login, administrators can perform CRUD operations on classes, books, prayers, news, and more. The dashboard is designed for simplicity and scalability (Fig. 13).

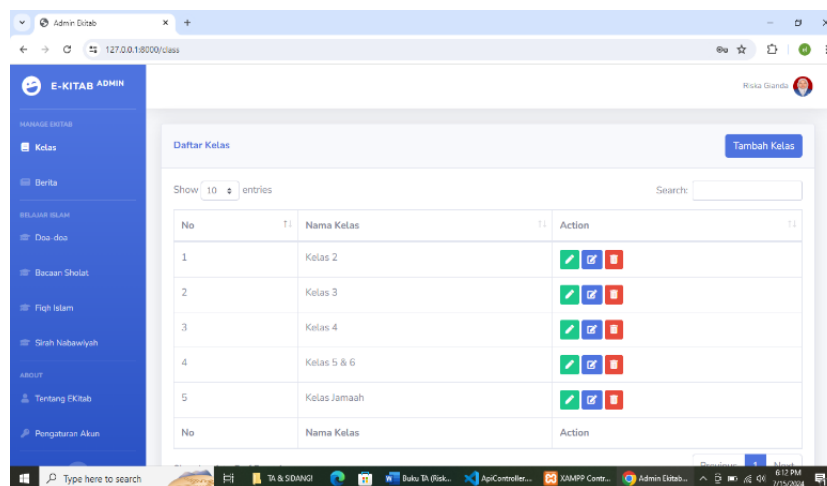


Fig. 10 Admin panel for managing Kitab and class data

C. System Design and Communication

The system is designed using API-based architecture, enabling seamless communication between frontend (Flutter) and backend (Laravel + MySQL). This allows real-time updates to learning materials, while maintaining data integrity and access control.

Data Flow Diagrams (DFD Level 0 and Level 1), included in the design phase, illustrate the interaction between users, admin, and the system. The use of RESTful API ensures that both mobile and web clients stay synchronized.

IV. Conclusion

This study has successfully developed a mobile-based Islamic book study application designed to modernize the traditional learning process at Dayah Aqil Al-Farisi. The application enables santri and jamaah to access Islamic learning materials—such as classical kitab, prayers, and fiqh—anytime and anywhere via smartphone.

By leveraging Flutter for the frontend and Laravel-MySQL with API architecture for the backend, the system ensures responsive performance, maintainability, and scalability. The tafsir pop-up feature and supplementary modules like Belajar Islam further enhance user experience, enabling independent learning without direct instructor presence.

Moreover, the integrated admin dashboard supports efficient content management, ensuring sustainability of the application in daily educational use. In conclusion, this application not only addresses attendance issues but also contributes to the continuity and preservation of Islamic education in the digital era.

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