

## **DEVELOPMENT OF AN ANDROID-BASED DAILY PRAYER LEARNING APPLICATION**

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### **ABSTRACT**

The growing accessibility of information technology offers significant potential for developing educational applications, including those for religious learning. One pressing need is for effective tools to learn daily prayers, essential in Muslim life. This article details the creation of an Android-based daily prayer learning application designed to aid users in learning and memorizing these prayers. The application was developed in four stages: user needs analysis through surveys and interviews, intuitive user interface design, application development using Android Studio with Java, and rigorous testing via Black-box Testing and user trials. Key features include complete prayer texts with translations, audio recitations, and explanations of prayer contexts and benefits. Testing results were positive, with users praising the app's effectiveness, user-friendly interface, and high-quality content. By leveraging Android's popularity and affordability, this application provides an accessible and interactive learning platform, addressing the urgent need for a practical medium to enhance daily prayer knowledge and skills among Muslims.

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## **1. INTRODUCTION**

The rapid advancement of information technology has significantly impacted various aspects of human life, including education (Astriana et al., 2024). The widespread use of smartphones and mobile applications has revolutionized how people access and interact with educational content (Hajri, 2023). In the context of religious education (Anita et al., 2022), particularly within the Muslim community, there is a growing demand for digital tools that facilitate the learning and memorization of daily prayers, which are essential components of Islamic practice (Bakry et al., 2022). Daily prayers hold a vital place in the life of Muslims, serving not only as acts of worship but also as means of spiritual connection and reflection. However, the traditional methods of learning these prayers, such as through books or oral

instruction, can be limiting in terms of accessibility and engagement, especially for the younger generation. To address this gap, an innovative approach leveraging mobile technology can offer an effective solution (Sholichah & Laili, 2024).

The application provides prayer texts in Arabic accompanied by translations, helping users grasp their meanings (Baldwin et al., 2016). Audio recitations are included to guide proper pronunciation and intonation, while contextual explanations enhance users' understanding of the benefits and appropriate usage of each prayer (Tabbaa & Soudan, 2015). To make the learning process more engaging, the application incorporates interactive features such as quizzes, progress tracking, and gamification elements, encouraging consistent use and sustained learning. By leveraging these features, the learning application transforms traditional prayer education into a more efficient, engaging, and accessible experience, allowing users to learn anytime and anywhere using their Android devices (Almuqren et al., 2024).

Android, being one of the most widely used mobile operating systems globally, presents an ideal platform for developing educational applications due to its accessibility, user-friendly interface, and extensive reach (Baylari & Montazer, 2009). An Android-based application dedicated to the learning of daily prayers can provide users with interactive and engaging content, making the learning process more efficient and enjoyable (Husnayain & Lukismawati, 2024). This article presents the development process of an Android-based application aimed at facilitating the learning of daily prayers for Muslims (Fikri & Risnawati, 2024). The application is designed to be a comprehensive tool that includes prayer texts, translations, audio recitations, and explanations of the context and significance of each prayer. By leveraging modern technology, this application seeks to make the learning of daily prayers more accessible and engaging for users of all ages. The following sections of this article will detail the background and significance of the project, the methodologies employed in the development process, the features and functionalities of the application, and the results of user testing and feedback. Through this comprehensive overview, we aim to demonstrate how this application can serve as a valuable resource in the religious education of Muslims, fostering a deeper understanding and practice of daily prayers.

## **2. RELATED WORKS**

The development of educational applications, particularly those focusing on religious education, has seen significant growth in recent years. Various studies and projects have explored the potential of mobile applications to enhance religious learning and practice. For instance, the study by (Galioto & Bellolio, 2023) demonstrated the effectiveness of mobile applications in teaching Quranic recitations, showing a marked improvement in users' recitation skills through interactive and multimedia content. Similarly, the work by (Aidulsyah, 2023) highlighted the positive impact of Islamic educational apps in engaging young learners, particularly in the memorization of Quranic verses and daily prayers.

Another relevant project is the development of the "MyDuaa" application, which provides a comprehensive collection of Islamic supplications (duas) along with translations and audio features. This application has been well-received for its user-friendly interface and extensive content, offering users a valuable tool for learning and practicing daily prayers. However, while "MyDuaa" focuses on providing a broad range of supplications, it lacks interactive elements that could enhance user engagement and retention.

The study by (Pang & Ruan, 2024) examined the role of mobile applications in religious education within the Muslim community. Their findings underscored the importance of integrating multimedia elements such as audio and video to create an immersive learning experience. They also emphasized the need for applications to be accessible and easy to navigate, especially for users who may not be tech-savvy. The work by (Liu et al., 2019) explored the use of gamification in religious education apps, demonstrating that incorporating game-like features can significantly increase user motivation and engagement. This approach has been particularly effective in encouraging younger users to regularly interact with the app and complete learning tasks.

The current project builds on these existing works by integrating best practices from previous studies and addressing some of their limitations. Our Android-based daily prayer learning application aims to combine comprehensive content with interactive features, such as audio recitations and contextual explanations, to enhance user engagement and learning outcomes. By drawing on the successes and lessons learned from related works, this application aspires to provide an improved and effective tool for the religious education of Muslims.

### **3. METHOD**

The development of the Android-based daily prayer learning application was carried out through a systematic and structured approach, divided into several key phases: requirement analysis, design, development, and testing. Each phase was crucial in ensuring the final product met the users' needs and provided an effective learning tool.

#### **3.1. Requirement Analysis**

In the initial phase, we conducted a comprehensive analysis to understand the needs and preferences of the target users. This involved:

- Surveys and Interviews: We distributed surveys and conducted interviews with a diverse group of potential users, including students, educators, and general users, to gather insights on their learning habits, challenges, and expectations from a daily prayer learning application.
- Literature Review: We reviewed existing literature and similar applications to identify best practices and gaps that our application could address.

#### **3.2. Design**

Based on the insights gathered from the requirement analysis, we proceeded with the design phase, which included:

- User Interface (UI) Design: We focused on creating an intuitive and user-friendly interface. Wireframes and mockups were created to visualize the application's layout and user flow. Key design principles such as simplicity, consistency, and accessibility were prioritized.
- Feature Specification: The core features of the application were defined, including text and audio for each prayer, translations, contextual explanations, and interactive elements like quizzes and progress tracking.



Figure 1: Design MyDuaa

### 3.3. Development

The development phase involved the actual creation of the application using the following technologies and tools:

- Android Studio and Java: The application was developed using Android Studio as the integrated development environment (IDE) and Java as the programming language. These tools were chosen for their robustness and compatibility with the Android platform.
- Database Integration: SQLite was used for local data storage to manage and retrieve prayer texts, audio files, and user progress data efficiently.
- Multimedia Components: Audio recitations were recorded and integrated into the application to provide an immersive learning experience. Additionally, visual aids and contextual information were embedded to enhance understanding.

### 3.4. Testing

To ensure the functionality and usability of the application, a rigorous testing phase was conducted, which included:

- Black-box Testing: This method was used to test the application's functionality without considering the internal code structure. Various test cases were executed to verify that the application met the specified requirements and performed as expected.
- User Testing: The application was distributed to a group of beta testers who provided feedback on usability, design, and overall user experience. Their feedback was instrumental in identifying and addressing any issues or areas for improvement.
- Performance Testing: We assessed the application's performance in terms of loading times, responsiveness, and stability across different Android devices and versions.

### 3.5. Evaluation

After the testing phase, an evaluation was conducted to measure the effectiveness of the application. This involved:

- - User Satisfaction Surveys: Post-testing surveys were administered to gather user feedback on their satisfaction with the application's features and overall experience.
- - Learning Outcome Assessment: Users were asked to complete quizzes and tasks within the application to assess their learning progress and retention of the prayers.

Through these systematic phases, the development of the Android-based daily prayer learning application was aimed at creating a comprehensive, interactive, and user-friendly tool that effectively supports users in learning and memorizing daily prayers.

#### 4. RESULT AND DISCUSSION

The development and implementation of the Android-based daily prayer learning application yielded significant positive outcomes across various aspects, from user satisfaction to learning achievements.

The application's user interface was praised for its clean and intuitive design, making navigation straightforward and features easily accessible. The simplicity and consistency of the design principles contributed to a positive user experience, ensuring users could engage with the content without difficulty.

Table 1: User Interface and rating

User Interface Aspect	User Rating	Description
Clean Design	Excellent (85%)	Users appreciated the clean and uncluttered appearance of the interface.
Ease of Navigation	Excellent (90%)	Users found it easy to locate and access app features.
Consistency in Design	Good (80%)	Consistent design across the app contributed to a seamless user experience.
Simplicity	Excellent (88%)	Simple design aided users in focusing on content without visual distractions.
Accessibility of Features	Excellent (92%)	Main features were easily accessible without extensive navigation steps.
Interface Responsiveness	Good (85%)	Interface responded quickly to user inputs.
Overall User Experience	Excellent (87%)	Users reported an overall positive and enjoyable experience.

Key features of the application, including the prayer texts with translations, audio recitations, and contextual explanations, were highly appreciated. Users found that the availability of both the original Arabic texts and their translations facilitated better understanding and memorization. The audio recitations, allowing users to play, pause, and repeat, were particularly beneficial for learning correct pronunciation and rhythm. Additionally, the contextual explanations for each prayer enhanced comprehension and engagement, providing users with a deeper understanding of the prayers' significance.

Interactive elements such as quizzes and progress tracking were effective in motivating users to regularly engage with the application and monitor their learning progress. Feedback from beta testers indicated a high level of satisfaction, with many reporting that the app helped them

learn and memorize prayers more efficiently than traditional methods. The interactive and multimedia elements were highlighted as especially valuable.

Table 2: Interactive Elements Impact

Interactive Elements Impact	User Feedback
Quizzes and Progress Tracking	Motivated users to engage regularly and monitor their learning progress.
User Satisfaction	High level of satisfaction reported by beta testers.
Efficiency in Learning	Many users found the app more effective for learning and memorization compared to traditional methods.
Value of Interactive and Multimedia Elements	Highlighted as valuable features contributing to a positive user experience.

Performance testing revealed that the application operated reliably across various Android devices and versions, with quick loading times and smooth transitions between features, contributing to an overall positive user experience. Assessments conducted through in-app quizzes demonstrated significant improvements in users' ability to recite and understand daily prayers. Most users showed marked progress in memorization and correct pronunciation within a few weeks of regular use.

Table 3: Performance Testing Metrics

Performance Testing Metrics	Findings
Device Compatibility	Reliable performance observed across diverse Android devices and versions.
Loading Times	Quick loading times reported, enhancing user engagement.
Transition Smoothness	Smooth transitions between features contributed to a seamless user experience.
Improvements in Recitation Skills	Significant enhancement observed in users' ability to recite prayers accurately.
Understanding of Prayers	Users demonstrated improved understanding of the meanings and contexts of prayers.
Progress in Memorization	Most users showed notable progress in memorizing daily prayers.
Pronunciation Accuracy	Users achieved better pronunciation through regular use of the application.

The successful development and positive reception of the application highlight several important aspects of educational technology and religious learning. The use of mobile technology, particularly Android-based applications, proved effective in making religious education more

accessible. The ability to learn anytime and anywhere, coupled with engaging multimedia content, significantly enhances the learning experience.

The integration of multimedia elements, especially audio recitations, addresses the limitations of traditional learning methods. Audio components provide a powerful tool for teaching correct pronunciation, crucial in learning prayers. Interactive elements such as quizzes and progress tracking not only engage users but also offer measurable indicators of learning progress. This gamification approach motivates users and sustains their interest in the learning process.

Table 4: Multimedia and Interactive Elements

Multimedia and Interactive Elements	Impact
Audio Recitations	Provides users with correct pronunciation guidance, enhancing learning.
Interactive Quizzes	Engages users actively in learning activities, promoting retention.
Progress Tracking	Offers measurable indicators of learning achievements, motivating users.
Gamification Approach	Sustains user interest through interactive and rewarding learning experiences.

The emphasis on user-centered design, involving thorough requirement analysis and iterative testing, was instrumental in creating a user-friendly application. Listening to user feedback and continuously improving the application based on this feedback ensures that the app remains relevant and effective. Despite the positive outcomes, challenges were encountered, including ensuring the accuracy and authenticity of the prayer texts and translations, necessitating careful verification. The development process also highlighted the need for ongoing updates and maintenance to address potential technical issues and incorporate user feedback.

Future enhancements could include expanding the range of prayers, adding more interactive features, and incorporating social elements to foster community learning. Integrating machine learning algorithms to personalize the learning experience based on individual user progress and preferences could also be explored. The Android-based daily prayer learning application successfully combines traditional religious education with modern technology, offering an effective and engaging learning tool. The positive feedback and measurable learning outcomes demonstrate its potential as a valuable resource for the Muslim community. By addressing user needs and continuously evolving, such applications can play a significant role in enhancing religious education in the digital age.

## 5. CONCLUSION

The development of the Android-based daily prayer learning application has successfully demonstrated the potential of mobile technology to enhance religious education. The application effectively addresses the needs of users by providing a comprehensive, user-friendly, and interactive platform for learning and memorizing daily prayers. Key features such as prayer texts with translations, audio recitations, and contextual explanations have been well-received, significantly aiding users in their learning process. User feedback and testing results have shown that the application not only improves the efficiency of learning but also makes the process more engaging and accessible. The incorporation of interactive elements like quizzes and progress tracking has proven to be motivational, encouraging regular use and facilitating measurable learning outcomes. The project's success underscores the importance of a user-centered design

approach, integrating thorough requirement analysis, intuitive UI design, and iterative testing. However, some limitations were identified, such as the reliance on Android-only platforms, which restricts accessibility for users on other operating systems. Furthermore, maintaining the accuracy of religious content and addressing user feedback require continuous updates and careful verification, which can be resource-intensive. Future research could explore the integration of cross-platform compatibility, expanding accessibility to iOS and web-based platforms. Additionally, leveraging advanced technologies such as machine learning and artificial intelligence could provide personalized learning experiences and adaptive content. Collaborative features, such as social learning environments or community-driven prayer sharing, could also enhance the application's scope and impact. Such advancements would further support and enrich religious education, solidifying the role of digital tools in fostering spiritual practices in the modern age.

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