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Mobile Application for Zakat, Infaq and Sadaqah (ZIS) Management Based on Artificial Intelligence (AI) Chatbot

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Abstract: As public awareness continues to grow regarding the importance of zakat, infaq and sadaqah (ZIS) as tools for social and economic welfare in Indonesia, there is an increasing need for innovation in how these charitable contributions are managed. One promising solution is the development of a mobile application that uses chatbot technology to make the process of giving and managing ZIS more efficient, transparent and user friendly. This study focuses on designing and building such a mobile app, using the waterfall model for software development. The process includes defining requirements, designing the system, analyzing the features, implementing the chatbot, and testing the application. The app is built to provide an interactive experience that helps users easily perform ZIS-related transactions, while also offering personalized information based on their needs. Testing results show that the app successfully supports essential functions like user registration, zakat payment, and access to ZIS information. It was also tested for compatibility and UI stability begin with Android 10 (Q) and above. While earlier versions such as Android 8 and 9 pose risks related to SDK support and performance, versions Android 12 to 14 demonstrate optimal performance and system stability. Android 15, still in beta, shows positive early results but requires further testing due to its ongoing development and potential SDK changes on multiple devices to ensure performance across different platforms. The findings indicate that the app runs smoothly, is easy to use, and is accessible to the broader community. Overall, this research presents a meaningful contribution to the modernization of ZIS management in Indonesia by leveraging digital technology to better serve the public.
Keywords: AI; Chatbot; Digital Management; Mobile App; Zakat, Infaq and Sadaqah

1. INTRODUCING

Zakat serves as a fundamental instrument in alleviating poverty and reducing social inequality through the equitable redistribution of wealth. In Indonesia [1], the administration of zakat is primarily managed by two official bodies: Badan Amil Zakat (BAZ) and Lembaga Amil Zakat (LAZ) [2], [3], [4]. These institutions are responsible for the collection, management, and distribution of zakat funds. Despite their central role, the implementation of zakat management has encountered significant challenges in recent years, which have hindered its overall effectiveness. Among the key issues are limited public awareness, a lack of institutional transparency, uneven distribution of funds and the insufficient integration of modern digital technologies [5]. A substantial portion of the population remains unaware of zakat as a mandatory religious duty, which directly impacts the potential for maximizing zakat collection. Additionally, the perceived absence of transparency and accountability within zakat institutions has led to public skepticism and reduced trust in formal zakat channels[6], [7]. Discrepancies in the distribution of zakat also persist, often stemming from inaccurate data on eligible recipients (mustahik) and inefficient allocation mechanisms. Although digital technologies offer

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promising avenues for improving zakat management [8], their implementation in this sector remains limited.

Previous research has highlighted the transformative potential of digital innovation in the management of zakat and waqf. Studies have shown that mobile applications can enhance the efficiency, accuracy, and transparency of zakat-related processes. Several initiatives have introduced Android-based platforms that simplify both the collection and distribution of zakat, while others underscore the role of digital systems in expanding public access to zakat services. Nonetheless, the application of artificial intelligence (AI) in zakat management remains largely unexplored.

AI presents a substantial opportunity to address existing challenges in zakat administration. This technology can be leveraged to improve the accuracy of mustahik data analysis, forecast zakat contribution trends, and automate services such as payment reminders and consultation. As a result, AI has the potential to significantly enhance operational efficiency, promote institutional transparency, and increase the accessibility of services for both zakat contributors (muzakki) and beneficiaries [9].

In response to these ongoing challenges, this study proposes the development of an AI-powered mobile application [10] integrated with a chatbot to support zakat management under the Badan Amil Zakat. This application aims to streamline administrative processes, provide personalized recommendations based on income levels, and manage records for zakat, infaq and other charitable donations. Designed with a user-friendly interface, the smartphone based application seeks to offer a seamless and accessible experience [11], [12]. The objective of this research is to design and develop an intelligent mobile application that utilizes AI chatbot technology to enhance the efficiency, transparency, and personalization of Zakat, Infaq and Sadaqah (ZIS) management in Indonesia. This innovation is expected to contribute to the modernization of zakat management and support broader goals of inclusive and sustainable socio economic development for smart city [13].

2. RESEARCH METHODOLOGY

The development of mobile application incorporating a chatbot is conducted through a structured, multi-phase methodology. This approach is designed to ensure the application's functional accuracy, user accessibility and overall effectiveness in managing zakat, infaq and sadaqah. Each phase is strategically aligned with specific objectives, grounded in user-centered design principles, the fundamentals of Islamic financial jurisprudence and the application of artificial intelligence for service automation and optimization for calculation ZIS management.

The initial phase encompasses the design and development of the mobile application's user interface. The interface is conceptualized to be intuitive, responsive and accessible, catering to a wide range of users, including zakat contributors (muzakki) and administrative personnel. The design process prioritizes mobile responsiveness, ease of navigation, and clarity of information to ensure a seamless user experience across various mobile devices. This phase adheres to established user experience (UX) and user interface (UI) design standards to facilitate usability and engagement.

The second phase focuses on the design and implementation of algorithms for the calculation of zakat, infaq and sadaqah. This process involves the incorporation of Islamic legal guidelines (fiqh), including the analysis of nisab thresholds, asset classifications, income types, and obligatory percentages. These components are translated into a dynamic, rule based system that enables users to calculate their obligations with precision[14], [15]. The algorithms are structured to support a variety of financial conditions and donation intentions, thereby addressing both mandatory and voluntary contributions in a comprehensive and compliant manner.

The third phase entails the development and integration of an artificial intelligence powered chatbot to support interactive user communication. This component utilizes simple natural language processing (NLP)[16], [17] and machine learning techniques to enable the chatbot to provide real-time assistance, respond to user inquiries, and deliver personalized recommendations. The chatbot is designed to evolve through iterative learning from user interactions, thereby enhancing its conversational accuracy and contextual understanding over time. This ensures that users receive relevant, timely and efficient support throughout their zakat and donation processes.

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The fourth phase is concerned with the development of data management and automated reporting modules. These modules are responsible for securely tracking, storing and summarizing user transactions, including zakat, infaq and sadaqah contributions[18], [19], [20]. Individual users are provided with detailed records and progress tracking, while administrators and institutional stakeholders are granted access to aggregated reports for strategic analysis, operational oversight and policy evaluation. These reporting features enhance transparency, improve accountability and reinforce trust in the digital management of Islamic charitable funds.

The final phase involves system integration, validation and user feedback analysis. This stage ensures that all components user interface, calculation algorithms, chatbot, and data reporting function cohesively and in accordance with both technical standards and Islamic financial principles [16], [21]. Comprehensive testing and iterative refinement are conducted based on user evaluations and system performance assessments. The outcome of this methodology is the development a user oriented mobile application that supports the modernization and digital transformation of zakat and charitable fund management in Indonesia, research methodology shown in Figure 1.

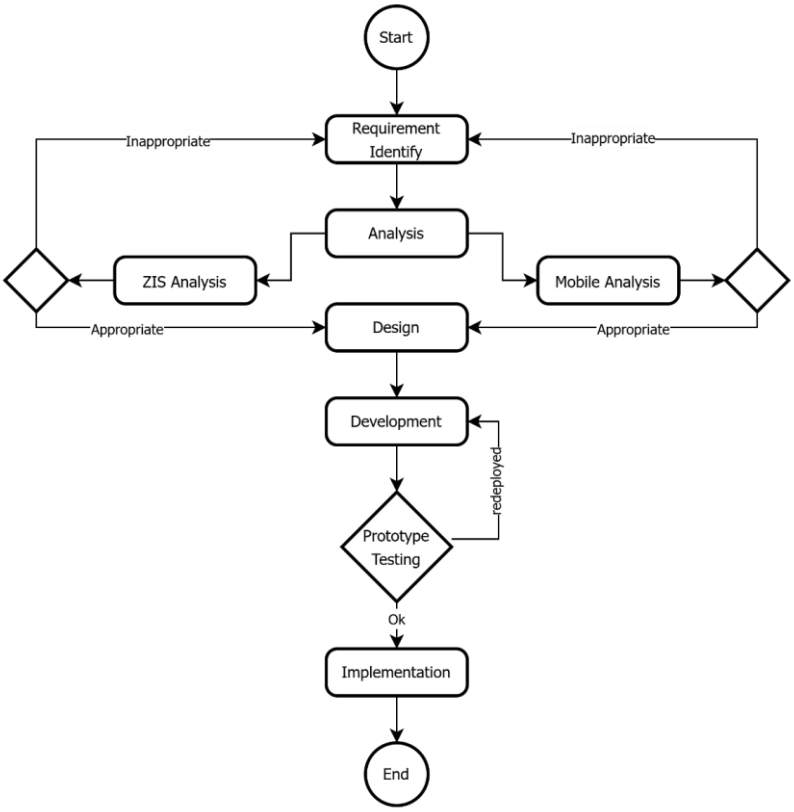

Figure 1. Research Methodology

The diagram presents the development flow of a mobile application for managing Zakat, Infaq and Sadaqah (ZIS), outlining each step from initial planning to final implementation. The process begins with identifying system requirements, followed by two key analyses: one focused on the accuracy and relevance of ZIS features and the other on the suitability of the mobile platform. If either analysis is found to be inappropriate, it is revised before moving forward. Once both are validated, the project continues with the design and development phases. After development, a prototype of the application is created and tested. If the results are unsatisfactory, the prototype is refined and tested again. Once it meets the required standards, the application proceeds to the implementation stage. This structured process ensures that the final product is both functionally accurate and user-friendly, combining Islamic financial principles with the practicality of mobile technology.

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Zakat, Infaq and Sadaqah (ZIS)

Based on reviewed literature of Zakat, Infaq and Sadaqah are fundamental components of Islamic social finance, each playing a distinct yet complementary role in supporting social welfare and reducing economic inequality [22], [23], [24]. Zakat is a mandatory act of giving that requires eligible Muslims to donate a set portion of their wealth annually to specific groups in need, with the purpose of purifying wealth and helping alleviate poverty. Infaq, on the other hand, is voluntary and not bound by specific rules or amounts. It is generally used to support a wide range of social causes and public needs beyond those covered by zakat. Sadaqah is also voluntary but broader in scope, as it includes both financial donations and non material forms of charity, such as offering help, kindness, or emotional support to others. Although they differ in terms of obligation and application, these three practices work together to create a holistic system of charitable giving in Islam. As highlighted in research by [4], [2] and [3], the integration of zakat, infaq, and sadaqah can significantly contribute to social justice and the well-being of the wider community, concept ZIS shown in table 1.

Table 1. Concept of Zakat, Infaq and Sadaqah

Concept	Definition	Reference
Zakat	A mandatory annual almsgiving in Islam, calculated as a fixed proportion of a Muslim's savings and wealth, and distributed to specific categories of recipients to purify wealth and assist those in need.	Putra, H. W. (2024). The Position of Zakat, Infaq, Sadaqah, and Waqf in Islam and the Virtues of Their Recipients. *Journal of Islamic Finance and Economics*, 1(03).
Infaq	A voluntary charitable donation in Islam, given without any obligation or fixed amount, aimed at supporting various social and community needs, including assistance to the poor and funding community projects.	Kurniasih, A., et al. (2024). Zakat, Infaq, Sadaqah, and Waqf: Their Positions in Islam and Their Mustahiq. *Journal of Islamic Finance and Economics*, 1(02).
Sadaqah	A voluntary act of charity in Islam that encompasses both material and non-material forms of assistance, such as monetary donations or acts of kindness, intended to support those in need and promote social welfare.	Safitri, F. I., et al. (2024). The Role of Zakat, Infaq and Shadaqah in Indonesia's Economic Growth: An Islamic Perspective. *Falah: Jurnal Ekonomi Syariah*, 9(1).

Chatbot

This research develops a chatbot feature [25], [26] within the mobile application to assist in managing Zakat, Infaq and Sadaqah (ZIS) by offering personalized calculations based on each user's financial situation. The chatbot uses artificial intelligence, particularly natural language processing and rule-based logic, to interact with users and gather essential financial information such as income, savings and expenses. Based on this data, the chatbot applies Islamic legal guidelines to determine zakat obligations and provides tailored suggestions for voluntary contributions like infaq and sadaqah. To improve its performance and interaction quality, the chatbot is designed to learn from user input over time through machine learning. It offers real-time feedback, including summaries of donations, a personal giving history and reminders for upcoming zakat payments. By making the process easier and more accessible, the chatbot helps users better understand and fulfill their religious duties while encouraging consistent charitable habits. Overall, it supports the modernization of ZIS management by combining Islamic values with the convenience of digital technology.

Mobile Apps

This research uses a developmental approach to create a mobile application [27], [28] with an integrated chatbot for managing Zakat, Infaq and Sadaqah (ZIS). The process includes five main stages:

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requirement analysis, design, development, testing and implementation. The user interface was designed using Figma to ensure ease of use, while Flutter and Dart were used to develop a cross platform app for Android and iOS. The chatbot is built using natural language processing (NLP) and a decision tree model to understand user input, provide ZIS calculations and respond to questions. It also offers personalized feedback, such as payment reminders and donation summaries. Machine learning helps the chatbot improve its accuracy over time. To make the app more user friendly and accessible, it was designed to work well on different screen sizes and even on low end devices. Using flutter and dart made it easier to build the app for both Android and iOS from one codebase and keeping the design consistent. The app includes simple navigation, a clean interface, dark/light mode and even works offline for saving zakat records. It also uses firebase for secure logins and data protection.

3. RESULT AND DISCUSSIONS

Result of the decision making process used by the chatbot to handle user interactions related to Zakat, Infaq and Sadaqah (ZIS). The process begins when the user sends an input message to the system. The chatbot first checks whether the message contains relevant content. If the message is valid, it proceeds to classify the type of input using a decision tree method. The decision tree guides the chatbot to identify the user's intent, which can include calculating the total amount of ZIS, checking payment status, providing information on ZIS, explaining zakat rules, or responding to general inquiries. Once the appropriate category is determined, the chatbot either processes the message or, in the case of financial data, loads the necessary transaction records to proceed with a calculation or retrieve payment history. After classifying and processing the input, the chatbot attempts to generate a response. If the system successfully produces a response, it is delivered to the user and simultaneously saved into the chat history for future reference. If the response fails, the system ends the session or may prompt the user to try again. This flow ensures the chatbot responds efficiently and appropriately, offering personalized support for managing ZIS obligations while maintaining an organized record of user interactions, flow of decision tree chatbot shown in figure 2.

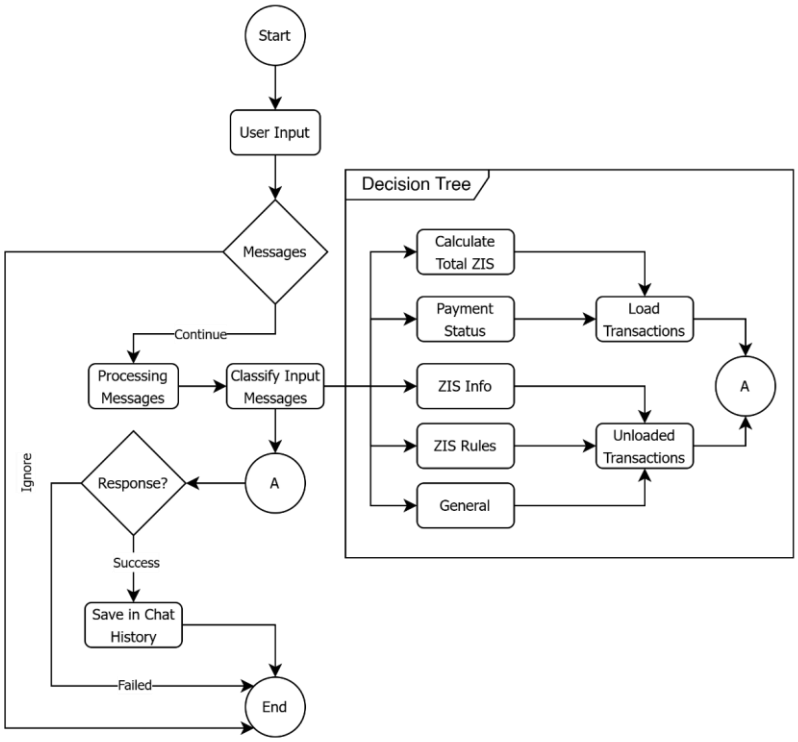

Figure 2. Flow of Decision Tree Chatbot

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3.1 Function and Status Classify

In this system, the chatbot uses an intent classification process to understand what the user wants to do. This step is important because it helps the chatbot give accurate and relevant responses based on the user's message. For example, the chatbot can recognize whether the user wants to calculate zakat, check their payment status, or simply ask for information about zakat. If the user's intent involves a financial transaction such as calculating the total amount of zakat, infaq or sadaqah, or checking their payment history the system will automatically retrieve the necessary transaction data from the user's database. However, if the request is general (like asking about zakat rules or information), the chatbot can answer directly without accessing any personal data. This approach not only improves system efficiency but also helps maintain user privacy and data security.

The following table 2 presents the classification of user intents along with the corresponding system actions:

Table 2. Function and Status Classify

No	Intent Type	Description	Action Taken
1	Calculate Total ZIS	User requests total calculation of ZIS	Retrieves transaction data (_loadTransactions())
2	Payment Status	User asks for current ZIS payment status	Retrieves transaction data (_loadTransactions())
3	ZIS Info	User inquires about general zakat information	No transaction data required
4	ZIS Rules	User seeks guidance on zakat obligations and conditions	No transaction data required
5	General	User submits unrelated or general queries	No transaction data required

This classification system ensures efficient chatbot responses by only accessing sensitive user data when necessary, improving both performance and data privacy. It also helps the chatbot maintain a structured dialogue flow based on user needs, enhancing overall user experience and system reliability.

3.2 Development Program

This code is used to help the chatbot understand what the user is asking by identifying the intent behind each message. It uses a list of common keywords to match user input with specific topics like zakat calculation, payment status, or general information. These keywords are grouped under categories such as CALCULATE_TOTAL, PAYMENT_STATUS, ZAKAT_INFO and others.

When a message is received, the system checks if it contains any of the defined keywords. If it does, the chatbot assigns the correct intent and responds accordingly. If the message doesn't match any keyword, it falls under a general category. This simple method ensures the chatbot gives responses that are relevant and useful based on what the user wants to know.

```
enum ChatIntent {
  CALCULATE_TOTAL,
  PAYMENT_STATUS,
  ZAKAT_INFO,
  ZAKAT_RULES,
  USER_SALARY,
  USER_PROFILE,
  GENERAL
}

class IntentClassifier {
  static final Map<ChatIntent, List<String>> _patterns = {
```

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```
    ChatIntent.CALCULATE_TOTAL: [
      'total',
      'jumlah',
      'berapa',
      'hitung',
      'kalkulasi'
    ],
    ChatIntent.PAYMENT_STATUS: [
      'status',
      'pembayaran',
      'sudah bayar',
      'belum bayar'
    ],

ChatIntent.ZAKAT_INFO: ['apa itu', 'pengertian', 'informasi', 'jelaskan'],
    ChatIntent.ZAKAT_RULES: ['hukum', 'wajib', 'syarat', 'ketentuan', 'nisab'],
    ChatIntent.USER_SALARY: [
      'gaji saya',
      'penghasilan saya',
      'salary saya',
      'penghasilan bulan ini'
    ],
    ChatIntent.USER_PROFILE: [
      'nama saya',
      'alamat saya',
      'akun saya',
      'profil saya'
    ]
  };

 static ChatIntent classifyIntent(String message) {
    final loweredMessage = message.toLowerCase();

    for (var entry in _patterns.entries) {
      if (entry.value.any((pattern) => loweredMessage.contains(pattern))) {
        return entry.key;
      }
    }
    return ChatIntent.GENERAL;
  }
}
```

This rule-based intent classification approach enables the chatbot to respond more accurately and contextually to user inputs. It serves as a lightweight natural language understanding (NLU) component that bridges user input with the chatbot's response logic. By using this structured approach, the system maintains clarity, consistency and relevance in every interaction.

3.3 Development Mobile Apps

In the development of a mobile application for Zakat, Infaq and Sadaqah (ZIS) management, several stages of system modeling and interface design play a critical role in ensuring functional accuracy and user centered interaction. This section presents key design components that support the overall architecture of the application, including the sequence diagram for chatbot interactions, the class diagram to illustrate system structure and both low and high fidelity prototypes for mobile app development. The sequence diagram outlines how the chatbot processes user input and responds accordingly, while the class diagram defines the relationships between key system entities such as users, transactions, and ZIS data. It also include the low and high fidelity designs provide a visual roadmap for the mobile application's user interface, guiding the transition from conceptual design to an interactive

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and responsive digital product. These design steps are essential for creating a smooth, functional, and user-friendly ZIS management app.

3.3.1 Sequence Diagram Chatbot and Design Low Fidelity Chatbot

The sequence diagram presented illustrates the interaction process between the user, the mobile application interface and the ZIS (Zakat, Infaq, Sadaqah) chatbot system. This process begins when a user initiates access to the chatbot feature through the application. The system then forwards the user's request to the chatbot server, which functions as the backend service for processing interactions.

Upon receiving the request, the chatbot server interprets and classifies the user input such as inquiries about zakat calculation, payment status, or related information and generates an appropriate response. This response is then returned through the application interface and displayed in a conversational format to the user. The described interaction demonstrates a real-time and responsive flow of communication that enhances user engagement and ensures that users receive personalized and contextually accurate information regarding their ZIS management related needs. Sequence diagram chatbot and low fidelity shown in figure 3.

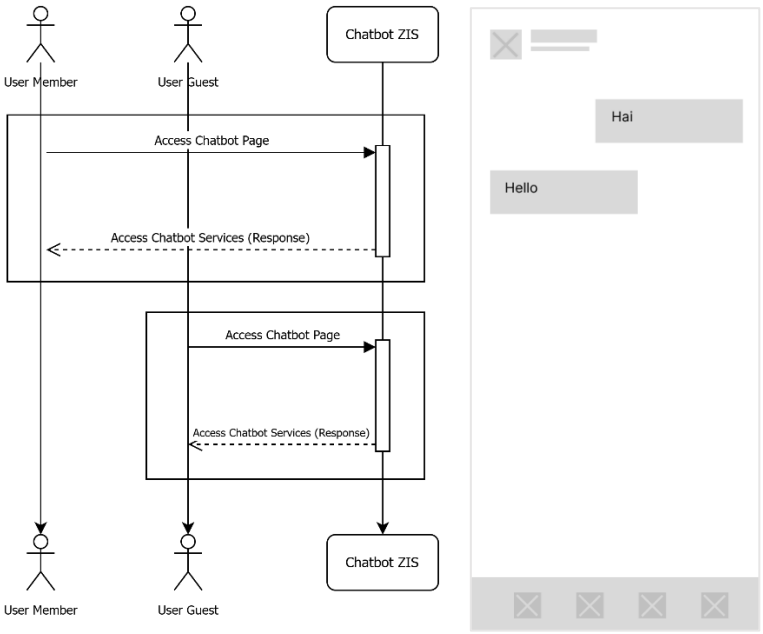

Figure 3. Sequence Diagram Chatbot ZIS and Low-Fi Chatbot

3.3.2 Class Diagram

The class diagram of the Zakat, Infaq and Sadaqah (ZIS) mobile application illustrates how the system is organized and how different parts work together. This application is designed to help users manage their donations easily through a mobile platform. It also integrates artificial intelligence (AI) to improve the user experience, especially when users interact with the chatbot. There are three main user roles in the system: Guest, User and Admin. Each role has different access levels and responsibilities within the app.

Guests can browse general information about Zakat, Infaq and Sadaqah without needing to sign in. Registered users, on the other hand, can access more features, including making donations and checking their donation history. They can also interact with an AI chatbot that helps answer questions and calculate zakat based on their income. Admins manage the system behind the scenes, including user data and transaction records. The system is designed to be safe for personal user, organized and user friendly, while the AI chatbot adds smart features by understanding user messages and responding appropriately. This structure supports the goal of creating an effective and helpful mobile app for

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managing Islamic charitable giving. Figure 4 presents the class diagram illustrating the integration of databases..

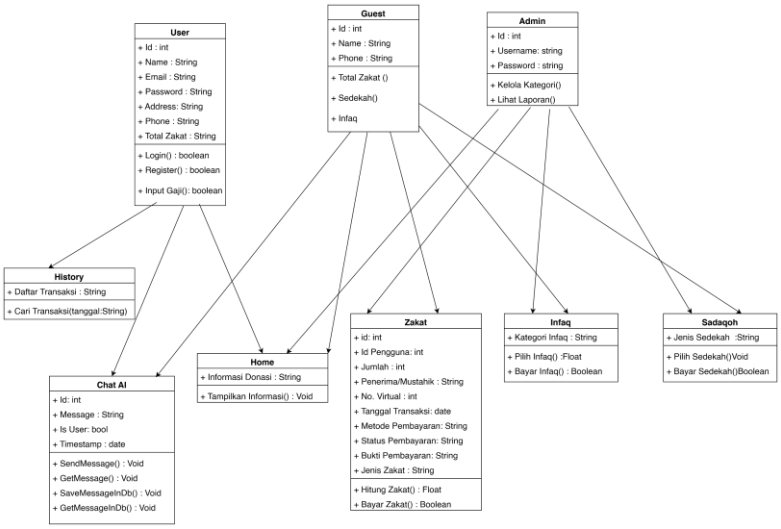

Figure 4. Class Diagram ZIS Management

3.3.3 Low and High Fidelity Mobile Apps

The development of the Zakat, Infaq and Sadaqah (ZIS) Management mobile application involved the use of both low fidelity and high fidelity prototyping as part of the user interface design process. The low fidelity prototype, designed using Figma, served as a basic visual representation of the application layout. At this stage, the focus was primarily on mapping the structure of the application, including page navigation, feature arrangement, and user interaction flow. This early prototype allowed for preliminary user evaluations and stakeholder feedback to ensure that the app met essential functional requirements, particularly in relation to zakat calculations, infaq/sadaqah input forms and integration with chatbot services.

Following the initial assessment, the project proceeded with the development of a high fidelity prototype. This version provided a detailed and interactive simulation of the final application, incorporating visual elements such as color schemes, typography, button styles and interface behavior. The high-fidelity prototype enabled more accurate usability testing, allowing users to simulate real interactions, such as entering income data for zakat calculation, viewing donation history and receiving responses through the AI chatbot. These iterative testing phases contributed significantly to refining the application's usability and ensuring compliance with Islamic financial guidelines. Ultimately, this structured approach transitioning from low to high fidelity supported the successful development of a user-centered mobile application using Flutter and Dart that is both functional and accessible for ZIS management. For illustrates Low Fidelity and High Fidelity ZIS Management Mobile apps shown in Figure 4-6.

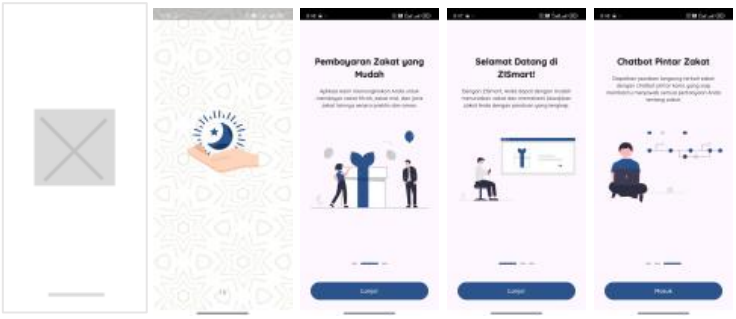

Figure 4. Low and Hi Fidelity Splash Screen

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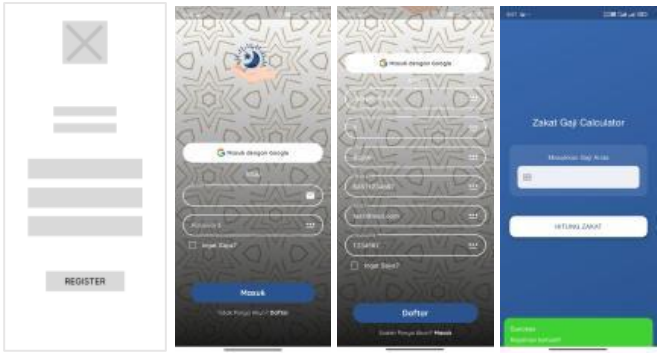

Figure 5. Low and Hi Fidelity Account Registration

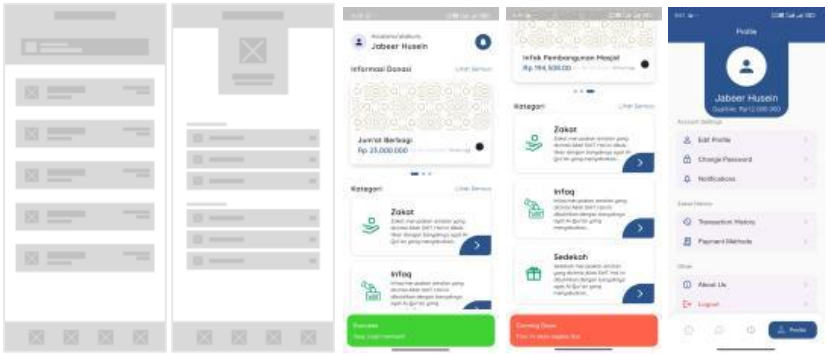

Figure 6. Low and Hi Fidelity Dashboard Home and Profile

3.4 Application Programming Interface

This section of code is designed to retrieve user-specific data from Firebase, based on the credentials of the currently logged-in user. The primary data obtained includes the user's transaction history and information related to their eligibility for zakat maal. The system accesses the "transactions" collection in Firebase Firestore, filters the data using the user's unique identifier (UID) and organizes it in descending order by timestamp to display the most recent activities.

```
Future<void> _loadTransactions() async {
  final uid = FirebaseAuth.instance.currentUser?.uid;

  final snapshot = await FirebaseFirestore.instance
      .collection('transactions')
      .where('uid', isEqualTo: uid)
      .orderBy('timestamp', descending: true)
      .get();

  setState(() {
    transactions = snapshot.docs;
  });
}
```

After retrieving the data, the application processes the transaction records to evaluate whether the user meets the criteria for zakat maal. This evaluation involves comparing the user's financial history such as accumulated wealth, savings and income over a specific period with predefined zakat thresholds (nisab). If the criteria are met, the system automatically updates the user's zakat eligibility status within the application and provides relevant notifications for future reference and action.

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3.5 Testing Mobile Apps

Testing has been conducted on several versions of the Android operating system to ensure optimal performance of the ZIS Management mobile application. The results of this testing are presented in Table 3 for Android Version Compatibility Analysis with Firebase Integration and UI Performance.

Table 3. Compatibility Testing

No	Android Version	Integration Support	UI and Animation Behavior	Observed or Potential Technical Challenges
1	Android 8 (Oreo)	Not Supported by Firebase SDK	Limited UI functionality; may result in crashes	Firebase features are not officially supported; may cause application instability.
2	Android 9 (Pie)	Partially Compatible	UI operates acceptably, though not fully optimal	Cloud Firestore operations may fail under specific conditions; performance lag observed.
3	Android 10 (Q)	Fully Supported	UI and animations function smoothly	No critical issues encountered during testing.
4	Android 11 (R)	Fully Supported	Responsive and stable UI	System operates as expected; no major problems recorded.
5	Android 12 (S)	Fully Supported and Optimized	High performance and responsiveness	Seamless Firebase integration; no performance concerns.
6	Android 13 (T)	Fully Supported and Optimized	Smooth interface with optimal animations	All components stable; no limitations observed.
7	Android 14 (U)	Fully Supported and Optimized	Excellent UI performance	Fully compatible with latest Firebase SDK; no known issues.
8	Android 15 (V, Beta)	Preliminary Compatibility (Beta)	Promising UI performance; requires more testing	Firebase SDK may receive updates; potential breaking changes expected.
9	Emulator (API 33)	Fully Supported in Simulated Env.	Functional UI, close to physical device behavior	Performance might differ slightly from real devices due to 10emulation overhead.
10	Emulator (API 34)	Fully Supported and Stable	Near-perfect UI simulation	Generally stable, though performance may vary based on system hardware.

The compatibility testing of various Android operating system versions in the context of developing a Zakat, Infaq and Sadaqah (ZIS) management mobile application reveals that stable Firebase integration and consistent user interface performance are achieved beginning with Android 10 (Q). Earlier versions, specifically Android 8 (Oreo) and Android 9 (Pie), exhibit notable limitations such as restricted Firebase support, delayed system response, and inconsistent interface behavior, which can potentially lead to application crashes or reduced performance. These shortcomings render them less

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suitable for production-level deployment, particularly in applications reliant on cloud-based services such as Firestore.

By Comparison, Android versions 10 through 14 demonstrate full compatibility with Firebase services and provide an optimal user experience in terms of responsiveness and interface stability. Android 15, currently available in beta, presents positive initial performance but requires further validation to ensure long-term stability due to potential changes in the Firebase SDK. Emulator testing using API levels 33 and 34 also indicates high compatibility, although minor variations in performance may occur when compared to physical devices. These findings offer a valuable reference for developers in determining the most appropriate Android platforms to ensure reliable functionality and user satisfaction in ZIS application deployment.

4. CONCLUSION

This study successfully designed and developed a mobile application integrated with an AI-based chatbot to improve the management of Zakat, Infaq and Sadaqah (ZIS) in Indonesia. The application was created in response to existing challenges in ZIS management, such as low public awareness, lack of transparency, and limited use of digital systems. Through a technological approach, this solution aims to offer a more efficient, transparent, and accessible way for the public to fulfill their ZIS obligations. The development process followed the waterfall method, including the stages of requirement analysis, design, implementation, testing, and deployment.

The user interface was created using Figma to ensure a simple and intuitive user experience. For the app development, Flutter and Dart were used to support both Android and iOS platforms. The chatbot, powered by natural language processing (NLP) and decision tree logic, is capable of recognizing user intent and responding accordingly. It helps users calculate zakat, check payment status, and understand ZIS rules and concepts. The chatbot also provides personalized feedback based on user data stored in Firebase, such as reminders, donation history, and eligibility assessments using zakat criteria (nisab). In addition to chatbot interaction, the system includes features like automatic report generation, donation tracking, and profile-based recommendations. Both low-fidelity and high-fidelity prototypes were created to guide development and ensure consistency in user experience. Sequence and class diagrams were also designed to illustrate system processes and data structures. Testing across multiple Android versions showed optimal performance starting from Android 10 and above, while older versions (Android 8 and 9) had stability and compatibility issues. Emulator testing also confirmed stable behavior, although minor differences were observed compared to real devices.

In summary, this research demonstrates that a mobile application supported by AI chatbot technology can significantly improve ZIS management. It enhances user engagement, increases efficiency, and promotes broader adoption of zakat practices in a modern and user-friendly way.

The key contributions of this study are as follows: The integration of AI-powered chatbot functionality into a cross-platform mobile application for personalized and automated ZIS support. The design and implementation of intelligent features such as zakat eligibility assessment, donation tracking, and profile-based recommendations to improve transparency and user trust. The provision of a scalable technological model that can be adapted by zakat institutions to advance digital philanthropy efforts in line with smart city development.

The application provides a strong foundation for future innovations in digital religious services and contributes to a more inclusive and effective ecosystem for charitable giving in Indonesia, particularly in support of sustainable smart city initiatives.

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