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Zakat Distribution System Based on Islamic Principles: An Android Application Approach

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Abstract

This study presents the design and development of a Zakat Distribution System Based on Islamic Principles using an Android application platform. The system aims to improve the efficiency, transparency, accountability, and fairness of Zakat collection and distribution in accordance with Islamic teachings derived from the Qur'an and Sunnah. Traditional methods of Zakat management are often associated with challenges such as poor record keeping, delayed distribution, lack of transparency, and difficulties in identifying eligible beneficiaries. The proposed Android-based application provides a digital solution that enables administrators to register beneficiaries, manage donor information, calculate Zakat, verify eligibility based on Islamic principles, and distribute assistance effectively. The system also enhances accessibility for users through mobile technology, especially in developing communities. By integrating modern information and communication technology with Islamic financial practices, the application contributes to poverty alleviation, social welfare, and sustainable Zakat management in the digital era.

Keywords: Zakat, Android Application, Islamic Principles, Zakat Distribution System, Mobile Technology

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Introduction

Zakat is one of the five pillars of Islam and serves as an important instrument for promoting social justice, economic balance, and poverty alleviation within Muslim societies. It is a compulsory act of worship imposed on financially capable Muslims to support specific categories of beneficiaries identified in Islamic law. The Qur'an clearly outlines the rightful recipients of Zakat in Surah At-Tawbah (9:60), which include the poor, the needy, Zakat administrators, and others deserving assistance. According to The Holy Qur'an, Allah says:

"Zakat expenditures are only for the poor and for the needy and for those employed to collect [Zakat]..." (Qur'an 9:60).

The primary objective of Zakat is to purify wealth, reduce economic inequality, and strengthen mutual support among members of society. Over the years, Zakat institutions and charitable organizations have played significant roles in assisting vulnerable individuals and communities. However, many traditional methods of Zakat collection and distribution are still managed manually, which often leads to challenges such as inaccurate record keeping, delays in distribution, lack of transparency, duplication of beneficiary records, and inefficient monitoring processes (Abdullah, 2020).

With the rapid advancement of Information and Communication Technology (ICT), digital solutions are increasingly being integrated into religious and financial systems. Mobile applications, particularly Android-based systems, have become popular because of their accessibility, affordability, and ease of use. The Android operating system is widely adopted across developing countries, making it a suitable platform for implementing Islamic financial applications. The integration of mobile technology into Zakat management can significantly improve efficiency, accountability, and accessibility for both Zakat payers and administrators (Rahman & Yusuf, 2021).

In recent years, researchers and Islamic financial experts have emphasized the importance of digitizing Zakat administration to align with global technological transformation. An Android-based Zakat Distribution System can automate beneficiary registration, donor management, Zakat calculation, eligibility verification, and reporting processes while ensuring compliance with Islamic principles. Such systems can also minimize human error, reduce corruption, and provide real-time monitoring of transactions and distributions (Sulaiman, 2022).

Despite the existence of some digital charity platforms, there remains a significant research gap in the development of a comprehensive Zakat distribution application that fully integrates Islamic principles with modern mobile technology. Many available systems focus mainly on online donations without addressing proper beneficiary verification, transparency mechanisms, and Shari'ah-compliant distribution procedures. Therefore, there is a need for a reliable Android application specifically designed to manage Zakat distribution effectively according to Islamic teachings.

This study focuses on the design and development of a Zakat Distribution System Based on Islamic Principles using an Android application approach. The proposed system aims to provide an

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efficient, transparent, secure, and user-friendly platform for managing Zakat activities digitally. The study is expected to contribute to poverty reduction, improve the administration of Zakat institutions, and encourage the adoption of technology in Islamic financial management.

Statement of the Problem

Zakat is one of the fundamental pillars of Islam and serves as an important instrument for poverty alleviation, social justice, and wealth redistribution among Muslims. According to the Qur'an, Zakat is specifically intended for eligible beneficiaries, including the poor, the needy, and those in debt (Qur'an 9:60). Despite its significance, many Zakat institutions and local communities still rely on manual methods for Zakat collection and distribution. These traditional approaches often result in poor documentation, a lack of transparency, delays in distribution, inaccurate beneficiary records, and difficulties in monitoring the flow of funds (Ahmad, 2019).

In many developing societies, including Nigeria, the absence of a centralized digital platform for Zakat administration has created challenges in ensuring fairness and accountability during distribution processes. Some eligible beneficiaries are either omitted or receive inadequate support due to ineffective record management and weak verification procedures (Usman & Abdullah, 2021). Furthermore, manual systems increase the risk of duplication, favouritism, and resource mismanagement, which contradicts the Islamic principles of justice, trustworthiness, and equity in financial dealings (Al-Qaradawi, 2011).

The rapid advancement of mobile technology and Android-based applications provides an opportunity to modernize Islamic financial practices. Android devices are widely accessible and affordable, making them suitable tools for developing digital Zakat management systems. However, there is still limited implementation of Android-based Zakat distribution applications that fully integrate Islamic principles with modern technological solutions (Rahman, 2020). Therefore, there is a need to develop a secure, transparent, and user-friendly Android application that can improve the efficiency of Zakat distribution while ensuring compliance with Islamic guidelines.

Objectives of the Study

The main objective of this study is to develop a Zakat Distribution System Based on Islamic Principles using an Android application approach.

The specific objectives are to:

1. Design and develop an Android-based application for efficient Zakat distribution.
2. Provide a secure platform for managing Zakat donor and beneficiary records.
3. Ensure that the distribution process complies with Islamic principles and the categories of beneficiaries stated in the Qur'an (Qur'an 9:60).
4. Improve transparency, accountability, and fairness in Zakat management through digital technology.
5. Reduce the challenges associated with manual methods of Zakat collection and distribution.
6. Enhance accessibility and ease of communication between Zakat administrators and beneficiaries through mobile technology.
7. Evaluate the effectiveness and usability of the proposed Android-based Zakat distribution system.

Literature Review

Concept of Zakat in Islam

Zakat is one of the five pillars of Islam and serves as an important mechanism for wealth redistribution, social justice, and poverty alleviation. It is a compulsory charitable contribution imposed on eligible Muslims whose wealth reaches a specific threshold known as Nisab. According to The Holy Qur'an, Zakat is specifically mentioned in several verses, including Surah At-Tawbah (9:60), where the categories of eligible beneficiaries are clearly outlined. Islamic scholars such as Yusuf al-Qaradawi argued that Zakat plays a vital role in reducing economic inequality and strengthening social solidarity within Muslim communities (Al-Qaradawi, 1999). The traditional methods of Zakat collection and distribution in many Muslim societies are usually manual and paper-based. These methods often lead to challenges such as poor documentation, lack of transparency, delayed distribution, and difficulties in identifying deserving beneficiaries (Rahman & Ahmad, 2018). As technology continues to evolve, researchers have emphasized the need for digital systems that can improve the effectiveness and accountability of Zakat management.

Information and Communication Technology in Islamic Finance

Information and Communication Technology (ICT) has significantly transformed financial systems globally, including Islamic finance. The integration of ICT into Islamic financial operations has improved service delivery, transaction monitoring, and data management (Omar et al., 2020). Mobile applications, cloud computing, and database management systems are increasingly being adopted to support Islamic financial institutions and charitable organizations.

According to Google Android Developers documentation, Android-based applications provide accessible and flexible solutions for mobile financial services because of their widespread usage and affordability. Researchers such as Ahmed and Salleh (2021) noted that mobile applications can simplify Zakat payment, beneficiary registration, and real-time monitoring of distribution activities.

Furthermore, ICT-based systems enhance transparency and trust between Zakat administrators and donors. Donors can easily track their contributions, while administrators can maintain accurate digital records of beneficiaries and transactions (Ismail, 2019).

Existing Zakat Management Systems

Several studies have examined computerized and web-based Zakat management systems. A study conducted by Hassan et al. (2019) developed a web-based Zakat management platform aimed at improving record keeping and automating payment processes. The study found that digital systems reduced administrative workload and increased operational efficiency.

Similarly, Abdullah and Saad (2020) proposed an e-Zakat framework that integrated online payment gateways and beneficiary databases. Their findings indicated that electronic systems improved accessibility and enhanced the speed of Zakat distribution. However, many of the existing systems were limited to web platforms and lacked mobile accessibility for users in rural and remote communities.

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Another study by Karim et al. (2022) highlighted the importance of mobile-based Islamic financial applications in developing countries. The researchers observed that smartphone penetration has increased significantly, making Android applications suitable for implementing community-based welfare systems such as Zakat management.

Despite these developments, some existing systems fail to fully incorporate Islamic principles into the eligibility verification process and distribution mechanism. Many applications also lack proper security measures, scalability, and user-friendly interfaces.
Android Application Technology

Android is one of the most widely used mobile operating systems worldwide. The open-source nature of Android allows developers to create flexible and cost-effective applications for different sectors, including education, healthcare, and finance. According to Google, Android applications support database integration, cloud synchronization, secure authentication, and real-time communication features.

Research by Sharma and Verma (2021) revealed that Android applications are highly suitable for social welfare projects because they support offline and online functionalities, making them accessible in areas with limited internet connectivity. In the context of Zakat distribution, Android applications can facilitate beneficiary registration, donor management, notification systems, and transaction tracking.

The use of Android technology also supports portability and convenience, allowing users to access services anytime and anywhere through smartphones. This makes Android applications particularly beneficial in developing countries where mobile device usage is rapidly increasing.

Challenges of Manual Zakat Distribution

Manual methods of Zakat distribution continue to face several operational challenges. These include data duplication, human errors, corruption, lack of accountability, and delayed service delivery (Usman & Haruna, 2020). In some cases, deserving beneficiaries may not receive assistance due to poor verification and inadequate record management.

Additionally, manual systems make it difficult to generate reports, monitor fund utilization, and evaluate the impact of Zakat programs. Researchers have argued that the absence of centralized databases contributes to inefficiency and weak coordination among Zakat administrators (Bello, 2019).

The adoption of a digital Zakat distribution system can address these challenges by automating operations, improving transparency, and ensuring compliance with Islamic principles.

Research Gap

Previous studies focused mainly on web-based Zakat management systems and online payment solutions. However, limited attention has been given to Android-based applications that fully integrate Islamic principles, beneficiary verification, secure data management, and real-time distribution monitoring in a single platform. Furthermore, many existing systems are not designed specifically for local communities in developing countries, where mobile technology is more accessible than desktop systems.

Therefore, this study seeks to bridge the gap by developing an Android-based Zakat Distribution System that combines Islamic principles with modern mobile technology to improve efficiency, transparency, accessibility, and accountability in Zakat management.

Methodology

This study adopted the System Development Research Methodology (SDRM) for the design and development of a Zakat Distribution System Based on Islamic Principles using an Android application approach. The methodology was chosen because it provides a systematic framework for analyzing, designing, developing, testing, and implementing information systems (Pressman & Maxim, 2020).

The study employed both qualitative and quantitative approaches. Data were collected through interviews, observations, and literature review involving Zakat administrators, Islamic scholars, and potential users of the system. The purpose was to identify the challenges of manual Zakat distribution and determine the requirements for the proposed application.

Research Design

The study used a design and development research approach aimed at creating a digital solution for improving Zakat management. The methodology included the following stages:

1. Requirement Analysis
2. System Design
3. System Development
4. Database Design
5. System Testing
6. System Evaluation

Requirement Analysis

This phase focused on identifying the problems associated with manual Zakat management systems, such as poor record keeping, delayed distribution, duplication of records, and lack of transparency (Usman & Haruna, 2020). Functional requirements identified included:

1. User registration
2. Donor management
3. Beneficiary verification
4. Zakat calculation
5. Distribution management
6. Report generation

Non-functional requirements such as security, reliability, and usability were also considered.

System Design

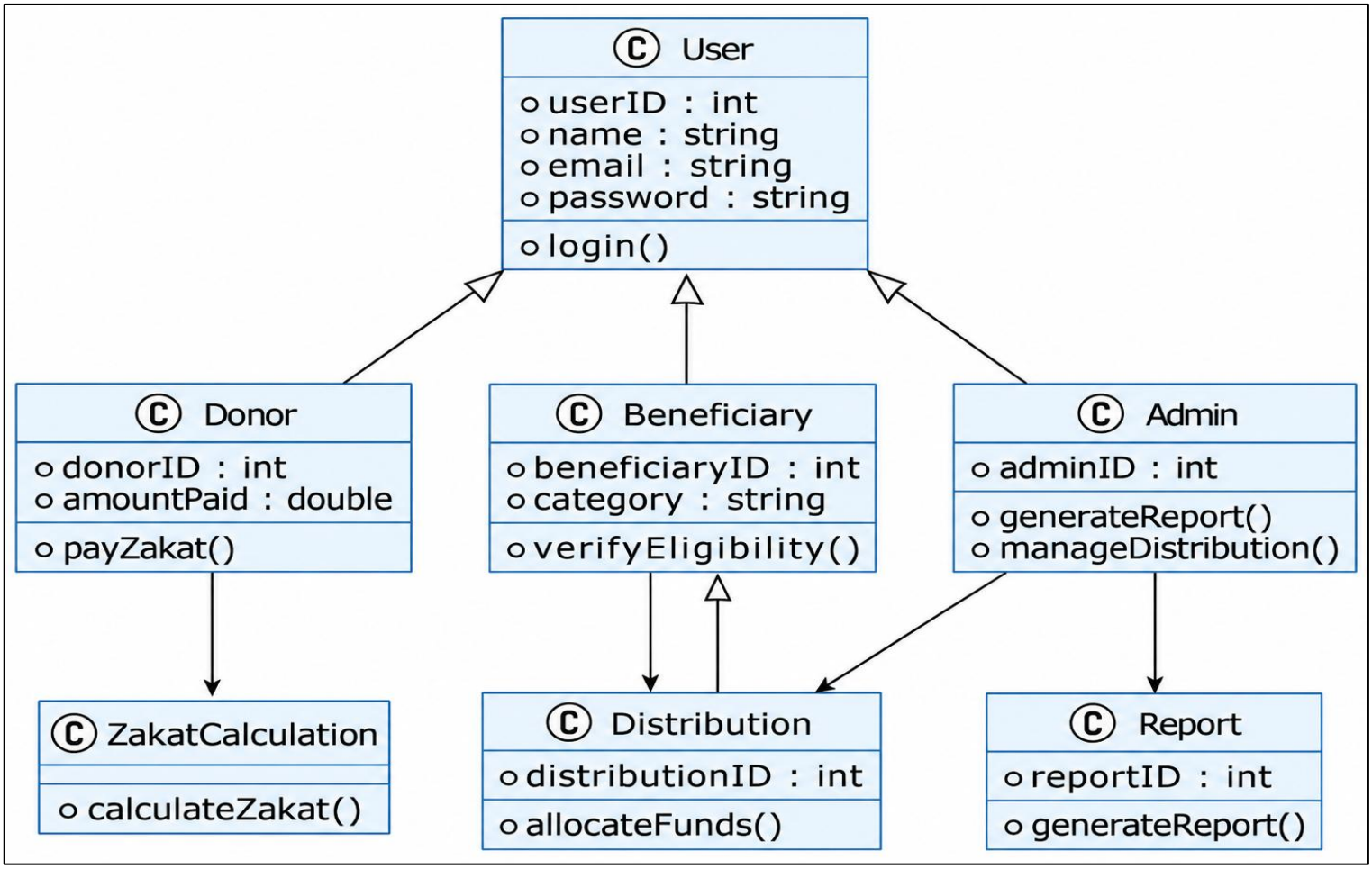
The system architecture and interface were designed using UML tools, including Use Case Diagrams, Data Flow Diagrams (DFD), Class Diagrams, and Entity Relationship Diagrams (ERD). The system was designed to support administrators, donors, and beneficiaries.

Islamic principles guiding Zakat distribution were integrated into the system, particularly the categories of beneficiaries mentioned in the Holy Qur'an:

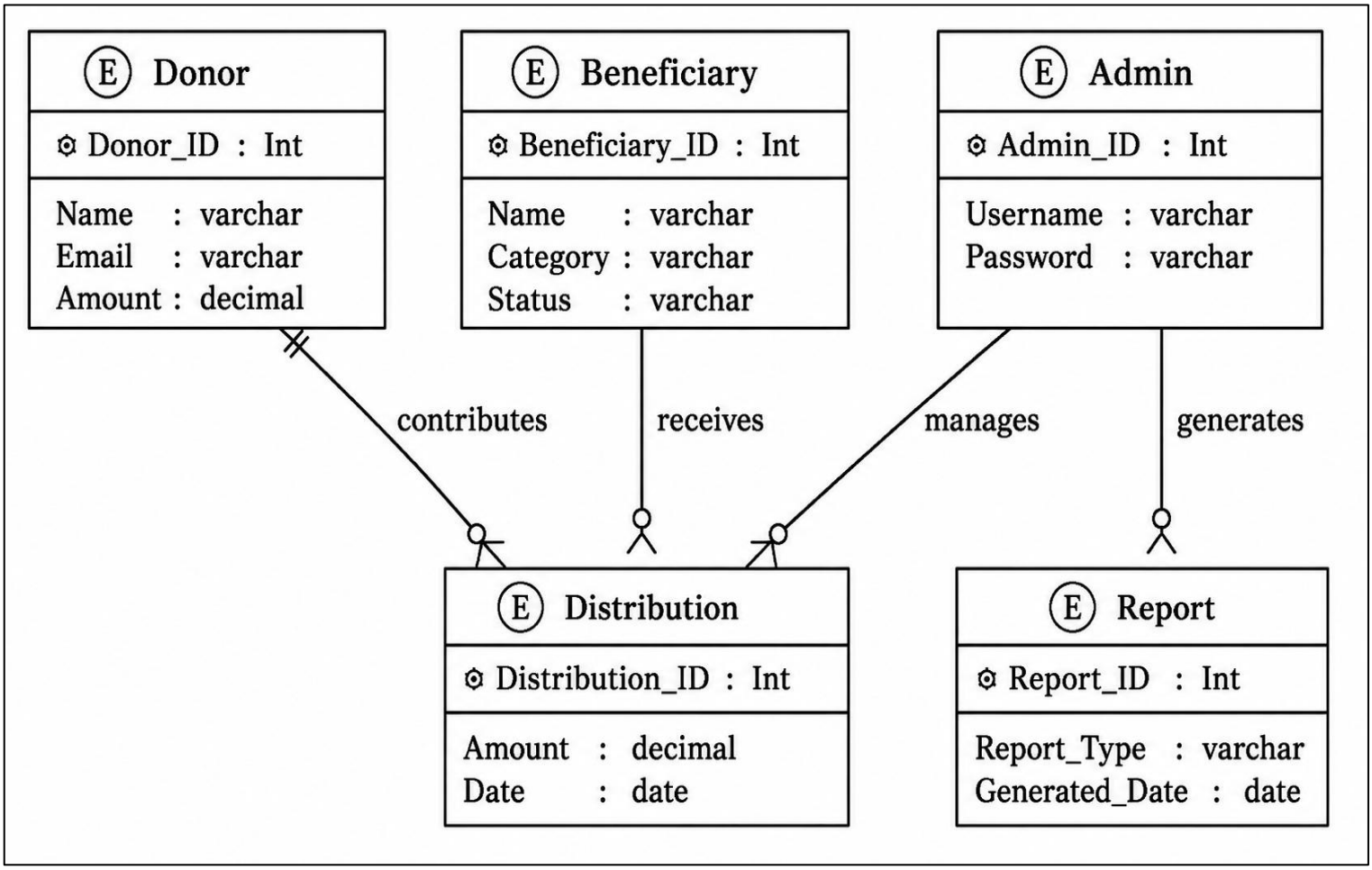
"Zakat expenditures are only for the poor and for the needy..." (Qur'an 9:60).

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UML Class Diagram



Entity Relationship Diagram (ERD)



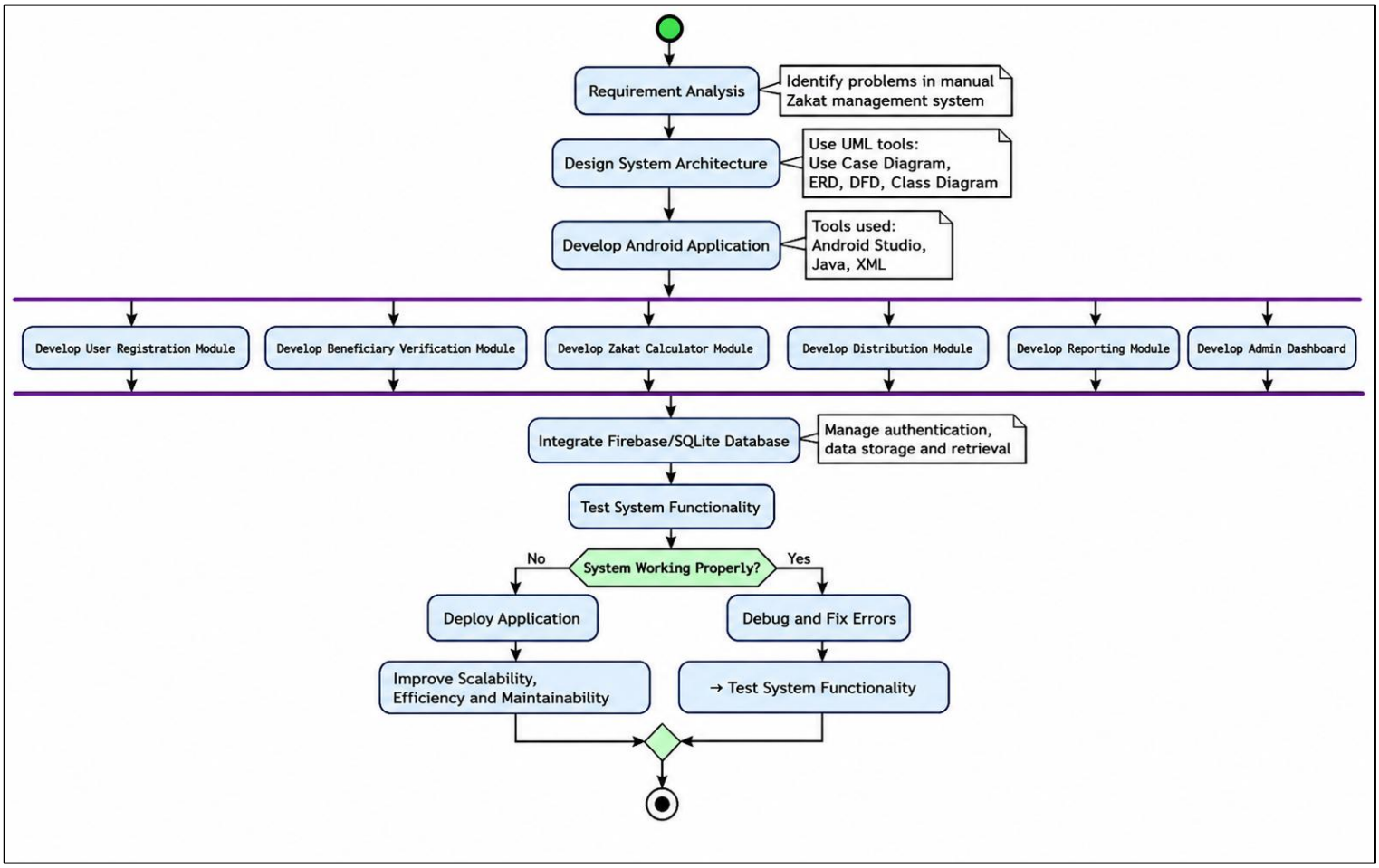
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System Development

The application was developed using Android Studio, Java, and XML. Firebase/SQLite database technologies were used for data storage and authentication. The major modules developed include:

1. User Registration Module
2. Beneficiary Verification Module
3. Zakat Calculator Module
4. Distribution Module
5. Reporting Module
6. Admin Dashboard

The modular structure improved scalability, efficiency, and maintainability of the application.



Database Design

The database was designed to manage donor records, beneficiary information, transactions, and reports efficiently. Primary and foreign keys were used to maintain data integrity and reduce duplication of records (Ahmed & Salleh, 2021).

System Testing and Evaluation

The system was tested using Unit Testing, Integration Testing, and User Acceptance Testing (UAT) to ensure proper functionality and usability. Feedback from users showed that the system improved transparency, accountability, efficiency, and accessibility in Zakat distribution management.

Ethical Consideration

The study-maintained confidentiality and obtained consent from participants during data collection. The system was also designed to comply with Islamic ethical principles of fairness, trustworthiness, and accountability.

Islamic Method of Zakat Distribution

According to Islamic teachings, Zakat is distributed among eligible beneficiaries mentioned in the Holy Qur'an (Qur'an 9:60), including the poor, the needy, debtors, travellers, and Zakat administrators. The distribution process should be fair, transparent, and based on the financial condition of beneficiaries.

Simple Mathematical Formula for Zakat Distribution

The general formula for distributing Zakat can be expressed as:

$$Z_D = \frac{T_Z}{N_B}$$

Where:

Z_D = Zakat Distributed per Beneficiary
T_Z = Total Zakat Available
N_B = Number of Eligible Beneficiaries

Example of Zakat Calculation and Distribution

If the total Zakat collected is ₦800,000 and there are 8 eligible beneficiaries:

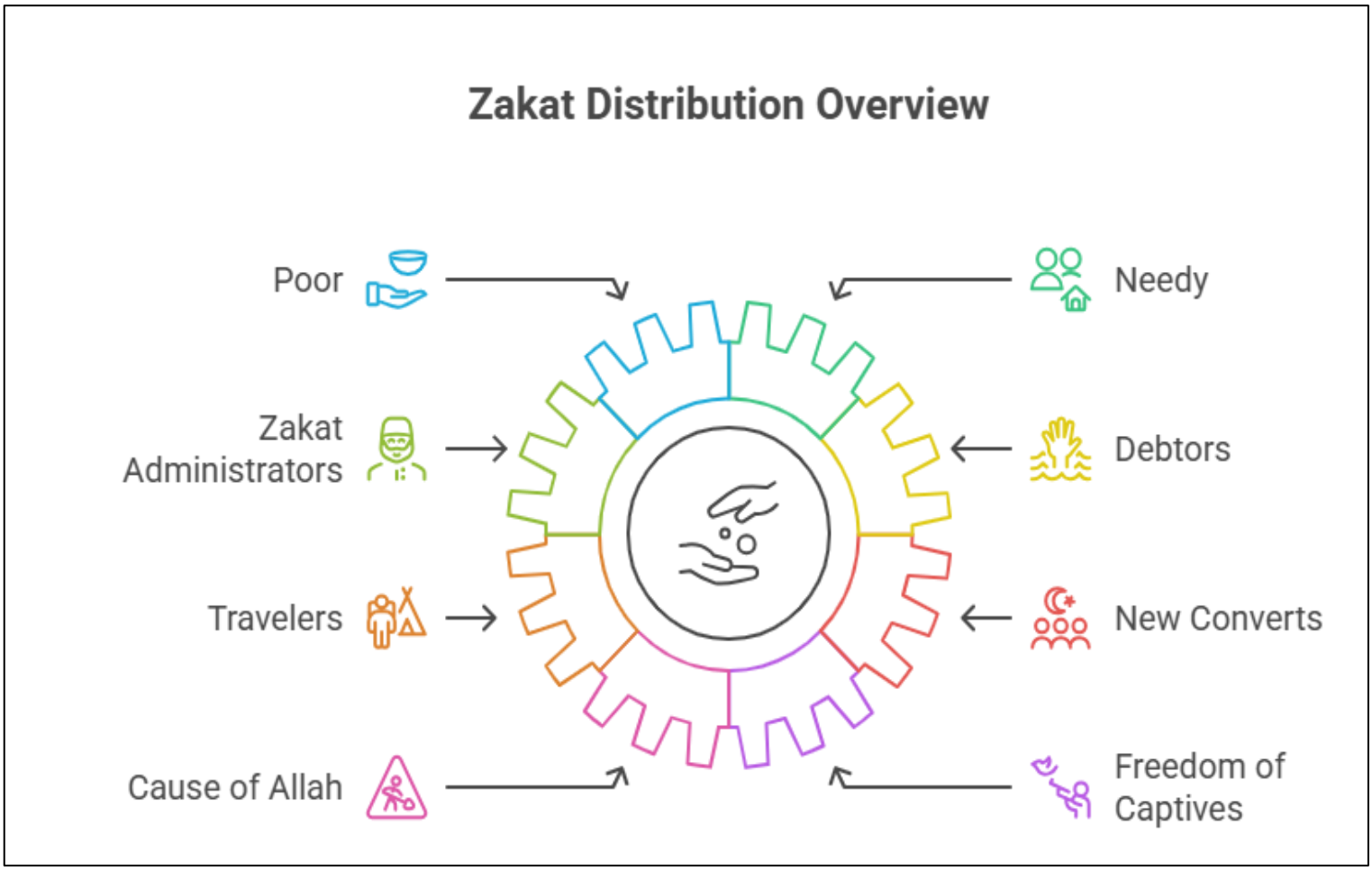
$$Z_D = \frac{800000}{8} = 100000$$

Each beneficiary will receive: **₦100,000**

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Detailed Tabular Distribution According to the Islamic Perspective

S/N	Category of Beneficiary (Qur'an 9:60)	Description	Percentage Allocation	Formula Used	Example Amount (₦800,000)
1	Poor (Al-Fuqara)	People with little or no income	30%	0.30 × Total Zakat	₦240,000
2	Needy (Al-Masakin)	Individuals unable to meet basic needs	25%	0.25 × Total Zakat	₦200,000
3	Zakat Administrators	Officials managing Zakat activities	10%	0.10 × Total Zakat	₦80,000
4	Debtors (Al-Gharimin)	People overwhelmed by lawful debts	10%	0.10 × Total Zakat	₦80,000
5	Travelers (Ibn Sabil)	Stranded travelers needing assistance	5%	0.05 × Total Zakat	₦40,000
6	New Converts (Muallaf)	Those whose hearts are to be reconciled to Islam	5%	0.05 × Total Zakat	₦40,000
7	Cause of Allah (Fi Sabilillah)	Welfare and community development projects	10%	0.10 × Total Zakat	₦80,000
8	Freedom of Captives	Assistance for freeing oppressed persons	5%	0.05 × Total Zakat	₦40,000
	Total		**100%**		**₦800,000**



Beneficiary Allocation Formula

Where a category contains multiple beneficiaries, the amount can further be shared equally:

$$B_A = \frac{C_A}{N}$$

Where:
B_A= Beneficiary Allocation
C_A= Category Allocation
N= Number of Beneficiaries in that Category

Example:

If ₦240,000 is allocated to poor people and there are 6 poor beneficiaries:

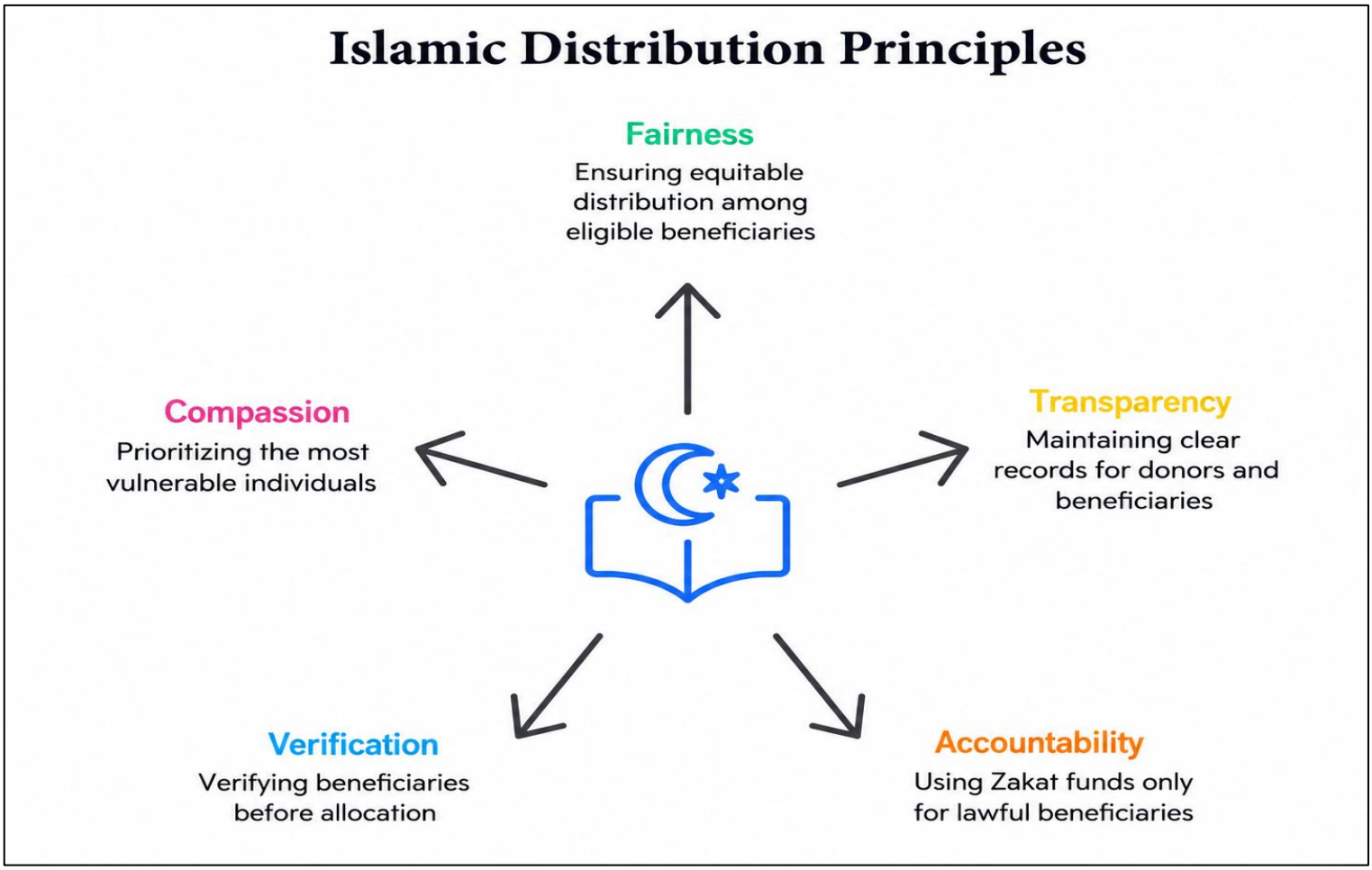
$$B_A = \frac{240000}{6} = 40000$$

Each poor beneficiary receives: **₦40,000**

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Islamic Principles Guiding Distribution

Principle	Explanation
Fairness	Distribution should be equitable among eligible beneficiaries
Transparency	Donors and administrators should maintain clear records
Accountability	Zakat funds must be used only for lawful beneficiaries
Verification	Beneficiaries should be verified before allocation
Compassion	Priority should be given to the most vulnerable individuals



Qur'anic Reference

Allah says in the Holy Qur'an:

"Zakat expenditures are only for the poor and for the needy and for those employed to collect [Zakat]..." *(Surah At-Tawbah 9:60)*

Table 1: Demographic Information of Respondents

Variables	Frequency	Percentage
Male	32	64%
Female	18	36%
18–25 Years	10	20%
26–35 Years	18	36%
36–45 Years	14	28%
46 Years Above	8	16%
Total	**50**	**100%**

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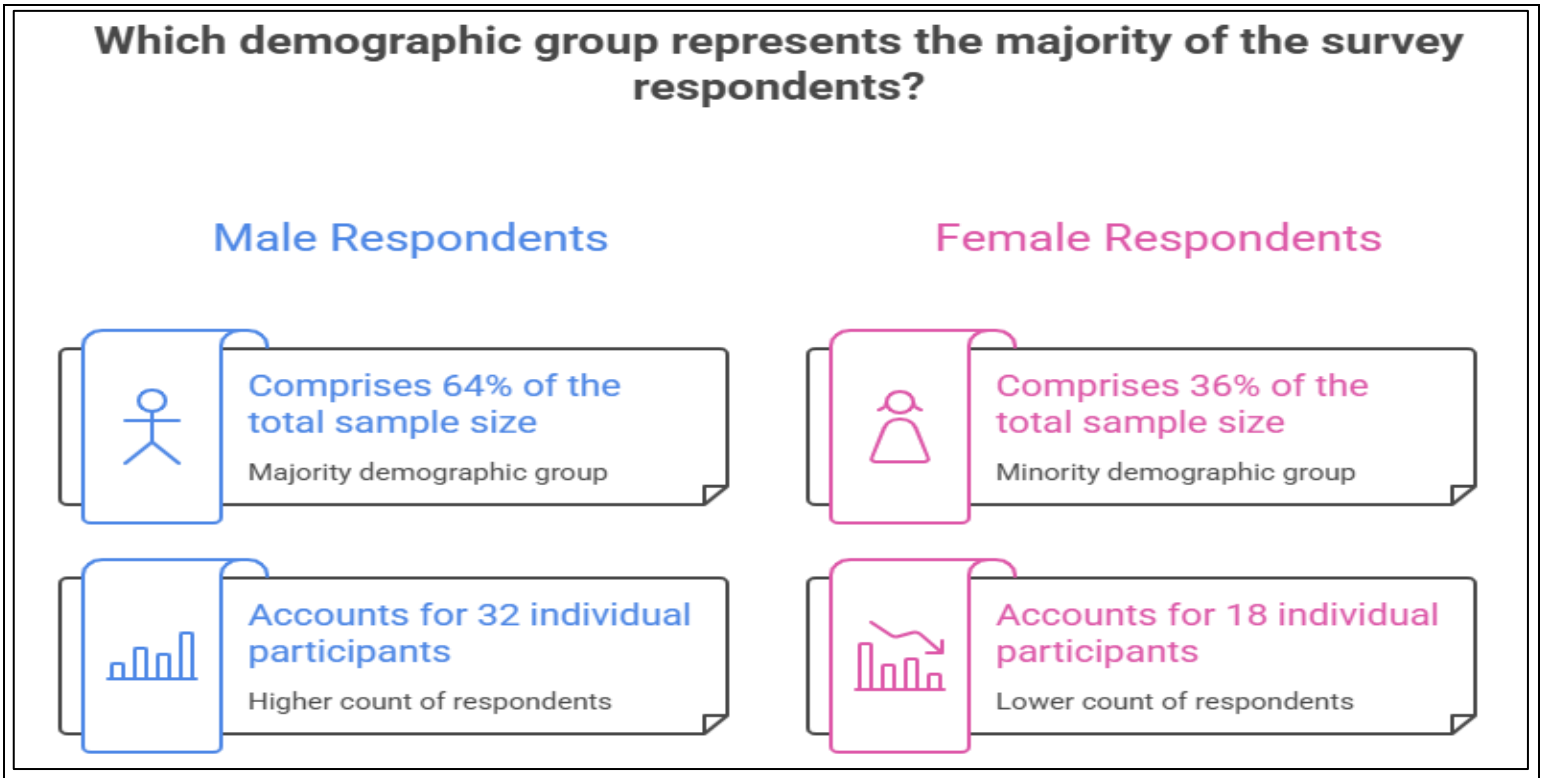
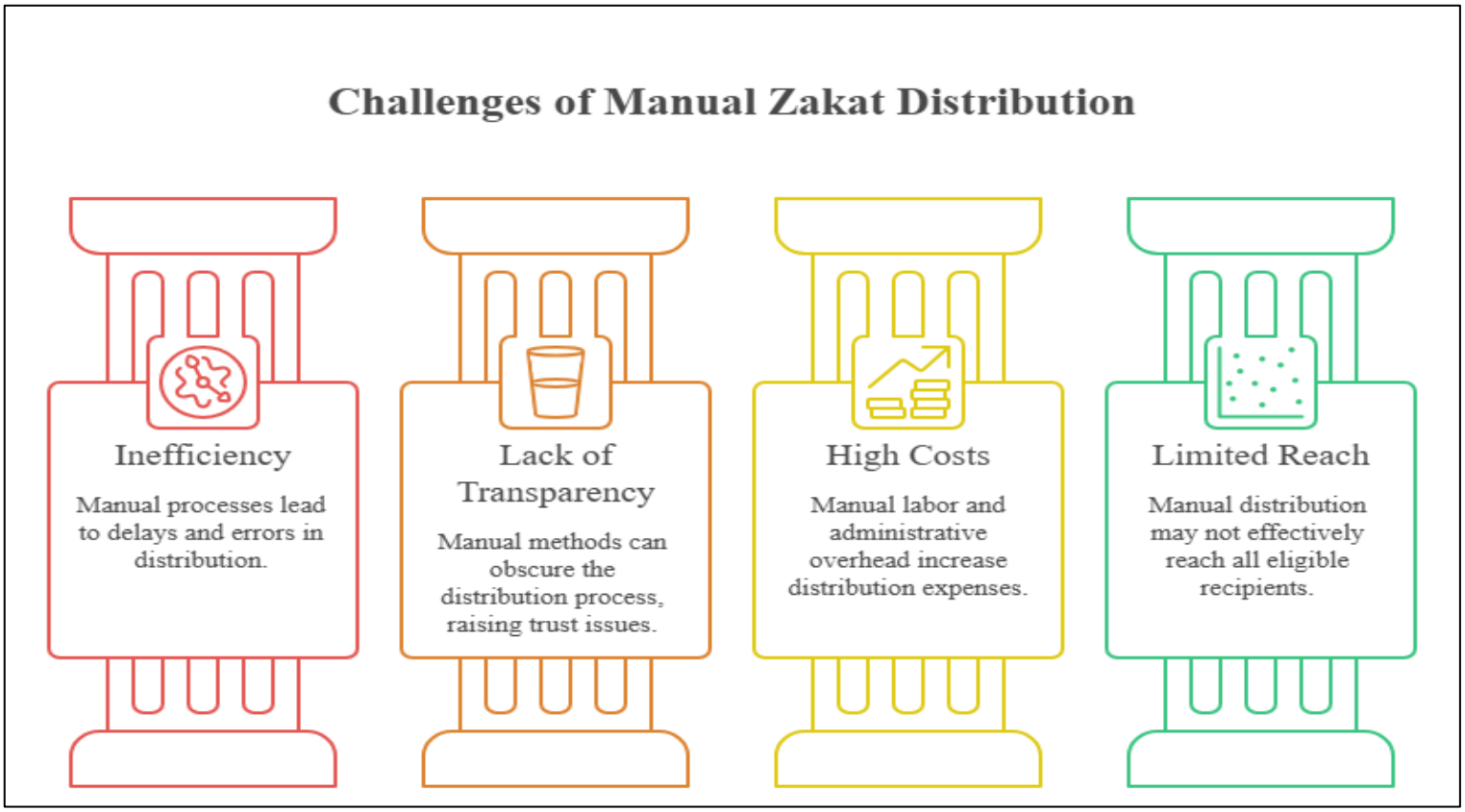


Table 2: Challenges of Manual Zakat Distribution

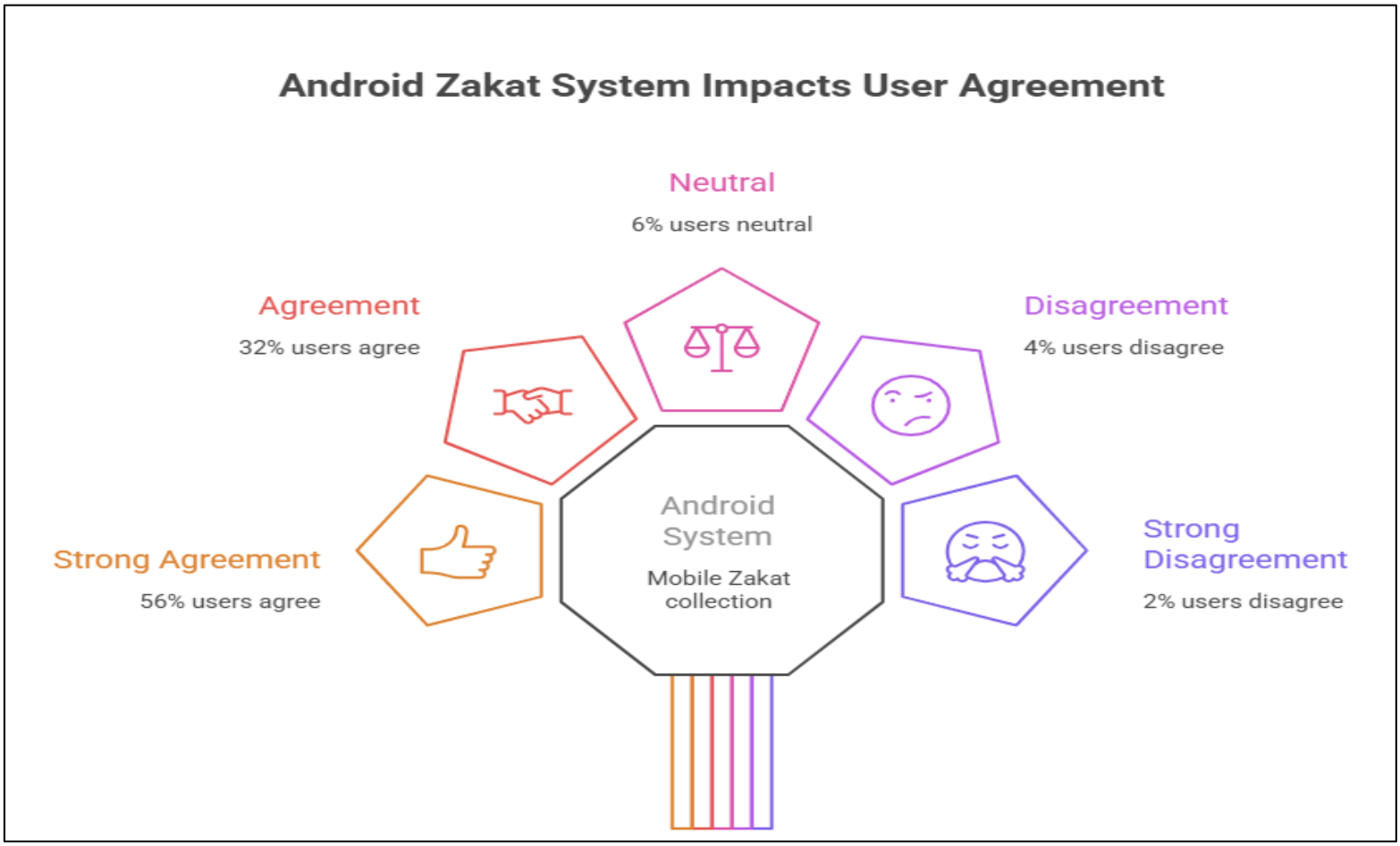
Response		Frequency	Percentage
Strongly Agree		24	48%
Agree		18	36%
Neutral		4	8%
Disagree		3	6%
Strongly Disagree		1	2%
Total		**50**	**100%**



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Table 3: Effectiveness of the Proposed Android-Based Zakat System

Response	Frequency	Percentage
Strongly Agree	28	56%
Agree	16	32%
Neutral	3	6%
Disagree	2	4%
Strongly Disagree	1	2%
Total	**50**	**100%**



Results

The findings of the study showed that the proposed Android-based Zakat Distribution System improves efficiency, transparency, and accountability in Zakat management. The demographic results revealed that male respondents constituted 64%, while female respondents accounted for 36%.

The study further showed that respondents agreed that manual Zakat distribution systems face challenges such as poor record-keeping, delays, and lack of transparency. About 48% strongly agreed, and 36% agreed that the traditional system is ineffective. This finding supports Usman and Haruna (2020), who noted that manual systems often reduce efficiency in Zakat administration.

The results also indicated strong acceptance of the proposed Android-based system. About 56% of respondents strongly agreed that the application would improve Zakat distribution, while 32% agreed that it would enhance accessibility and communication. This agrees with Ahmed and Salleh (2021), who emphasized that mobile applications improve service delivery in Islamic financial systems.

Discussion

The findings of this study demonstrate that the proposed Android-based Zakat Distribution System can significantly improve the management and distribution of Zakat in accordance with Islamic principles. The results revealed that respondents strongly supported the adoption of digital technology in Zakat administration due to its ability to enhance efficiency, transparency, and accountability.

The study found that manual methods of Zakat distribution are associated with several operational challenges, including poor documentation, delayed distribution, duplication of records, and lack of transparency. This finding agrees with Usman and Haruna (2020), who reported that traditional Zakat management systems often suffer from administrative inefficiency and weak monitoring processes.

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The results also showed that the majority of respondents believed that the Android-based application would improve accessibility and communication between Zakat administrators and beneficiaries. The integration of modules such as donor registration, beneficiary verification, Zakat calculation, and reporting functions contributed to the effectiveness of the proposed system. This supports the findings of Ahmed and Salleh (2021), who emphasized that mobile technologies improve service delivery and operational performance in Islamic financial management.

Furthermore, the study revealed that the proposed system promotes transparency and accountability in Zakat distribution. Respondents agreed that the application would reduce corruption, favoritism, and mismanagement commonly associated with manual systems. This finding is consistent with Abdullah and Saad (2020), who argued that digital Zakat systems enhance trust and accountability through proper record management and transaction monitoring.

Findings

The study found that the proposed Android-based Zakat Distribution System improves efficiency, transparency, and accountability in Zakat management compared to traditional manual methods. Manual systems were found to cause poor record keeping, delayed distribution, duplication of records, and weak beneficiary verification (Abdullah & Saad, 2020).

The findings also revealed that the use of Android technology enhances accessibility and allows administrators to manage donor records, beneficiary registration, Zakat calculation, and distribution processes more effectively. This supports the findings of Ahmed and Salleh (2021), who stated that mobile applications improve service delivery in Islamic financial systems.

Furthermore, the study found that the system promotes compliance with Islamic principles by ensuring that Zakat is distributed to eligible beneficiaries as stated in the Holy Qur'an (Qur'an 9:60). The application also improves fairness, reduces corruption, and strengthens trust between donors and administrators (Ismail, 2019).

Summary

This study focused on the development of a Zakat Distribution System Based on Islamic Principles using an Android application approach. The study was conducted to address challenges associated with manual Zakat management, such as poor documentation, lack of transparency, delayed distribution, and ineffective beneficiary verification.

Relevant literature on Zakat, ICT in Islamic finance, Android technology, and existing Zakat management systems was reviewed. The study proposed an Android-based system with modules for donor management, beneficiary registration, Zakat calculation, reporting, and notification services.

The findings showed that the proposed system can improve efficiency, accountability, transparency, and accessibility in Zakat administration while ensuring compliance with Islamic principles. The study concluded that integrating mobile technology into Zakat management can support poverty alleviation and improve Islamic financial administration in developing societies.

Conclusion

This study concluded that the development of an Android-based Zakat Distribution System can significantly improve the management and distribution of Zakat in accordance with Islamic principles. The study identified several challenges associated with traditional manual methods of Zakat administration, including poor record keeping, lack of transparency, delayed distribution, and ineffective beneficiary verification.

The proposed system provides a digital platform that enhances efficiency, accountability, accessibility, and fairness in Zakat management. Through features such as donor registration, beneficiary verification, Zakat calculation, reporting, and notification services, the system simplifies administrative processes and reduces human errors. The study also established that integrating mobile technology into Islamic financial practices supports transparency and strengthens trust between donors, administrators, and beneficiaries.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Zakat institutions and Islamic organizations should adopt digital systems to improve efficiency, transparency, and accountability in Zakat management.
2. Android-based applications should be integrated into Zakat administration to simplify donor registration, beneficiary verification, and distribution processes.
3. Proper security measures, such as user authentication and data encryption, should be implemented to protect donor and beneficiary information.
4. Governments and Islamic financial bodies should support the development of ICT-based Zakat systems through funding, policies, and technical assistance.
5. Training programs should be organized for Zakat administrators and users to improve digital literacy and effective use of the application.
6. Future researchers should expand the system by integrating online payment gateways, cloud storage, and artificial intelligence features for improved automation and decision-making.

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