Green University of Bangladesh

Department of Computer Science and Engineering (CSE)
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Quiz & Earn: A Dual-Mode Quiz App with Real-Time Rewards and Competitive Leaderboard

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Lab Project Status	
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Chapter 1

Project Proposal

1   Introduction

This project proposes the development of a mobile-based application, **Quiz & Earn**, design to test users' knowledge across a variety of categories, including International, Science, Math, Islam, General Knowledge, History, Banlge, Sports etc.

The app will be developed using Java programming language for the only Android platform, with PHP for backend operations. It will incorporate Lottie animations to provide an engaging and visually appealing user experience, utilize CardView for creating smooth and responsive layouts, and include a secure payment and withdrawal system to handle cash rewards efficiently.

2   Problem Definition

The current landscape Many existing quiz applications focus primarily on entertainment, lacking meaningful reward systems and a strong educational foundation. These apps often limit users to online quizzes without providing a comprehensive, competitive, and rewarding experience. Additionally, most fail to create a platform that effectively combines education, competition, and tangible rewards, leaving users with an experience that is enjoyable but ultimately financially unrewarding.

The Quiz & Earn, addresses these issues by:

1. Making learning fun and engaging.

2. Offering tough questions in a competitive tournament to get rewards.

3. Providing users with opportunities to win real money, incentivizing continued engagement.

This way, users will get more than just a game, they will get a chance to learn, compete, earn and to engage with each other.

3   Motivation

In today's world, people are constantly overwhelmed with vast amounts of information, making it essential to find ways to make learning both fun and engaging. **Quiz & Earn: A Dual-Mode Quiz App** seeks to address this need by creating an interactive platform that combines entertainment with education. The app allows quiz enthusiasts to select topics of their choice and participate in quizzes, providing them with not only a fun learning experience but also the opportunity to win real money as a reward for their efforts.

By offering a competitive tournament mode, the app encourages users to enhance their knowledge through more challenging questions, fostering a deeper level of engagement and intellectual growth. The combination of entertainment and real-time rewards adds an exciting dimension to the app, making learning an enjoyable and financially rewarding experience. Ultimately, Quiz & Earn aims to create a platform where users are motivated to learn, compete, and succeed while having fun.

4   Objectives

- To create an easy-to-use quiz app that covers a wide range of topics, making learning fun and accessible for all users.

- To introduce a tournament mode where users can compete for real money rewards, enhancing excitement and engagement.

- To offer premium, challenging quizzes for subscribers, providing a deeper, more rewarding learning experience.

- To implement a smooth and user-friendly payment and withdrawal system for seamless transactions.

- To encourage continuous learning and personal growth by offering competitive gameplay with challenging questions.

5   Literature Review

Quiz applications have gained popularity for their ability to combine entertainment with learning. However, most existing quiz apps like Trivia Crack and QuizUp primarily focus on entertainment without offering significant rewards or incentives for long-term engagement. Users often lose interest when there is no tangible benefit beyond the game itself [1].

Research shows that incorporating elements like leaderboards and real-time rewards increases user engagement and motivation, particularly in competitive settings [2]. Most quiz apps do not offer opportunities for users to win real money, which could be a strong incentive for sustained interaction. Additionally, the lack of a dual-mode system (casual

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and competitive) in existing apps leaves a gap for users who want both casual fun and challenging experiences [3].

Furthermore, many quiz apps lack offline functionality or do not offer premium content for advanced users. This limits the potential for users to engage in more challenging quizzes or tournament-style gameplay, which can improve knowledge retention and offer a more dynamic experience [4].

The Quiz & Earn app addresses these gaps by providing real-time rewards, competitive tournaments, and a dual-mode system, allowing users to engage in both casual and competitive learning environments, while also offering them the chance to earn real money.

6 Feasibility Study

6.1 Operational Feasibility

- **Current State:** Existing quiz apps primarily offer offline or online play without real-time rewards or competitive features.

- **Proposed Solution:** The Quiz & Earn app will offer a dual-mode feature, enabling offline and online quizzes, with the latter providing real monetary rewards.

- **Evaluation:** This model is highly feasible, addressing user demand for flexibility and engagement, particularly in online gaming markets.

6.2 Technical Feasibility

- **Current State:** Many quiz apps use basic technology that limits real-time interaction and secure transactions.

- **Proposed Solution:** The app will leverage cloud computing, secure payment gateways, and robust backend frameworks, ensuring compatibility with both Android platforms.

- **Evaluation:** Implementing these features is technically viable with the right resources and expertise, ensuring a secure and responsive user experience.

6.3 Economic Feasibility

- **Current State:** Existing apps typically generate revenue through advertising and in-app purchases, limiting user rewards.

- **Proposed Solution:** The Quiz & Earn app will utilize a monetization strategy that combines advertising with real-time user rewards, fostering a competitive environment.

- **Evaluation:** A cost-benefit analysis indicates that potential user engagement and revenue generation outweigh development and operational costs, provided there is a solid user acquisition strategy.

6.4 Legal Feasibility

- **Current State:** Online gaming and monetary transactions face stringent regulations in many regions.

- **Proposed Solution:** The app will comply with relevant laws regarding online gaming and data protection, obtaining necessary licenses and implementing robust security measures.

- **Evaluation:** While compliance presents challenges, proactive planning and legal consultation will ensure feasibility.

7 Complex Engineering Problem

Table 1.1: Summary of the attributes touched by the mentioned projects

Name of the P Attributess	Explain how to address
Here's a more concise version: **P1:** **Depth of Knowledge**	Requires expertise in mobile development (Java, XML for front-end, PHP for back-end), database design for handling quizzes/user data, and secure payment integration.
P2: **Conflicting Requirements**	Balancing fun for casual users and challenges for subscribers requires a simple design for regular play and tougher quizzes for advanced users, ensuring engagement without complexity.
P3: **Depth of Analysis**	Analyze quiz categories, difficulty levels, and payment impact to optimize user engagement and retention.
P4: Familiarity of issues	—-
P5: Extent of applicable codes	—-
P6: Extent of stakeholder involvement and conflicting requirements	There are multiple stakeholders, including users, developers, and payment providers. Each may have different expectations. Developers want a salable, maintainable code base, while users expect quick, reliable game play and smooth payments.

8 Phases of Project Management Process

8.1 Project Initiation

Initiation team

8.2 Project Planning

Gantt Chart (Duration Of the Project)

Table 1.2: Project Timeline and Task Duration Overview

Task	Week 1-3	Week 4-7	Week 8-11	Week 12-15	Week 17	Week 18
Requirements Analysis	x					
Design		x				
Frontend Development			x			
Backend Development				x		
Testing					x	
Deployment & Launch						x

Preliminary Budget

Table 1.3: **Estimated Budget for Project Build**

Category	Cost Estimate (in Taka)
Design (UI)	TK 2,000
Frontend Development	TK 3,500
Backend Development	TK 4,500
Database Setup	TK 5000
Payment Getaway	TK 1,000
Testing	TK 2,000
Tournament Price Budget	TK 10000
Total Estimated Budget	**TK 28,000**

8.3   Project Executation

Design

- Create wireframes and prototypes to visualize user interface and experience.

- Implement the user interface using Java and XML..

- Integrate Lottie animations and CardView layouts.

Implementation

- Implement the user interface using Java and XML.

- Integrate Lottie animations and CardView layouts.

- Backend Development

- Develop a robust backend using PHP for user data, quiz database, subscription management, payment, and withdrawal system.

Testing

- Test the app across various devices and Android versions.

- Fix bugs and improve user flow.

- Ensure payment system and withdrawals function correctly.

8.4   Project CloseDown

Deployment & Launch

- Launch the app on Google Play Store and BDApps store.

- Set up marketing campaigns to promote the app.

References

[1] J. Hamari and J. Koivisto, "Why do people use gamification services? exploring the motivational affordances of gamification in the wild," *Computers in Human Behavior*, vol. 50, pp. 358–367, 2015.

[2] K. Werbach and D. Hunter, *For the Win: How Game Thinking Can Revolutionize Your Business*. Wharton Digital Press, 2012.

[3] P. Buckley and E. Doyle, "Gamification and student motivation," *Interactive Learning Environments*, vol. 24, no. 6, pp. 1162–1175, 2016.

[4] S. Deterding, D. Dixon, R. Khaled, and L. Nacke, "From game design elements to gamefulness: Defining 'gamification'," in *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, pp. 9–15, ACM, 2011.