Bakery Merge: Mobile Blockchain Gaming Solution for Mass Adoption

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1 Executive Summary

Bakery Merge is an innovative mobile casual merge game. Built on Unity with a Node.js backend and integrated with the Sui blockchain, the game introduces a unique bakery-themed gameplay loop enhanced by blockchain-based randomization, zero-knowledge zkLogin, and a rewarding global leaderboard system. Players merge bakery items to achieve high scores while competing for real-world rewards on the Sui blockchain. The game employs a free-to-play model with in-app purchases (IAP) for additional entries and leverages Walrus for decentralized data storage. This proposal outlines the game's vision, technical architecture, monetization strategy, and market potential to attract investment for development and launch.

2 Project Overview

2.1 Game Concept

Bakery Merge is a casual mobile merge game where players drop bakery-themed objects (e.g., cookies, cupcakes) from the top of the screen into a container. When two identical objects collide, they merge into a larger item. The goal is to achieve the highest score by merging objects.

2.2 Solutions & Unique Selling Points

- **Blockchain Integration**: Random object generation is powered by Sui blockchain's Verifiable Random Function (VRF), ensuring transparency and fairness.
- **Rewarding Global Leaderboard**: Players compete for top positions with real-world rewards distributed via the Sui blockchain.
- **Sui zkLogin**: Secure and user-friendly authentication supports Google, Apple, Twitch and Facebook authantications, enhances accessibility. Thanks to zkLogin, blockchain knowledge is not necessary, anyone can play the game.

- **Decentralized Data Storage**: Walrus is used as a decentralized database for user data and leaderboard scores.
- **Free-to-Play with In App Purchases**: Five free daily entries, with additional entries purchasable via a ticket system.

3 Technical Architecture

3.1 Game Client (Unity)

- Developed in Unity for cross-platform compatibility (iOS, Android, PC).
- Handles game logic, rendering, and user interface.
- Communicates with the backend via REST API for game state updates, scores, and blockchain interactions.
- Integrates zkLogin for seamless Web3 user authentication.

3.2 Backend (Node.js)

- **Role**: Middleware for managing game state, currencies, and Sui blockchain interactions.
- **Components**:
  - REST API for real-time communication with Unity client.
  - Redis for caching game states and user balances to ensure low latency.
  - PostgreSQL for persistent storage of transaction logs.
  - Sui SDK for blockchain operations, including random number generation and reward distribution.

3.3 Sui Blockchain

- **Role**: Provides transparent randomization, stores in-game currency (MOLA) balances, and manages reward distribution.
- **Components**:
  - Smart contracts for object randomization, $MOLA token minting, and conversions to $SUI.
  - Verifiable Random Function (VRF) to generate transparent and fair random numbers for object drops.
  - Publicly accessible game data, such as the sequence of upcoming objects.

3.4 Walrus (Decentralized Storage)

- Stores user data, including profiles, game progress, and leaderboard scores.
- Acts as a decentralized database to ensure data integrity and availability.
- Syncs with the backend to update scores and user information securely.

4 Game Mechanics

4.1 Gameplay Loop

- Players drop bakery objects into a container, merging identical objects to create larger ones.
- Merging the largest objects clears them from the container, earning high scores.
- The game ends if objects overflow the container.
- A preview of the next object aids strategic planning.

4.2 Scoring and Leaderboard

- Scores are calculated based on merged objects and recorded periodically to Walrus to prevent cheating.
- A global leaderboard ranks players, top %10 of the players recieves $MOLA token which can convertible to $SUI.
- Leaderboard data is stored on Walrus and updated via the backend.

4.3 Entry System

- Players receive five free daily entries.
- Additional entries are available through in-app purchases using a ticket system.

5 Monetization Strategy

- **In-App Purchases**: Tickets for additional game entries beyond the free daily limit.
- **Real World Rewards**: The top leaderboard players receive $MOLA tokens, convertible to real $SUI coins, which incentivize competitive play.

6 Market Potential

The casual gaming market, particularly merge-style games, has seen significant growth due to their accessibility and addictive gameplay. By integrating blockchain technology, secure authentication, and real-world rewards, Bakery Merge targets both casual gamers and crypto enthusiasts. The free-to-play model with IAP ensures broad accessibility, while the leaderboard and blockchain rewards appeal to competitive players. The use of Unity and Sui blockchain positions the game for scalability and global reach.

7 Roadmap

- **Q2 2025**: Complete game front-end.
- **Q3 2025**: Complete backend development and Walrus integration,
- **Late Q3 2025**: Marketing campaign, final polish, and global launch.

8 Funding Requirements

Investment is sought for:

- Development costs (Unity, Node.js, Sui blockchain integration).
- Infrastructure costs (Redis, PostgreSQL, Walrus).
- Marketing and user acquisition.
- Operational costs for post-launch support.

A detailed budget will be provided upon investor interest.

9 Conclusion

Bakery Merge combines the addictive mechanics of merge-style games with cutting-edge blockchain technology to create a unique and engaging mobile gaming experience. With a robust technical architecture, a scalable monetization model, and a clear development roadmap, the project is well-positioned to capture a significant share of the casual gaming market. We seek investment to bring this vision to life and deliver a game that redefines mobile gaming with transparency, security, and real-world rewards.