

Weekly Whale BNB Crypto Lottery: White Paper

Abstract

The Weekly Whale BNB Crypto Lottery is a decentralized application (dApp) running on the Binance Smart Chain (BSC) that allows participants to enter a weekly jackpot lottery. This paper provides an overview of the lottery mechanism, its transparency, and the decentralized operational model, followed by a detailed description of the underlying smart contract.

Introduction

Cryptocurrencies, combined with blockchain technology, have enabled the development of dApps that can run without centralized control. Weekly Whale BNB Crypto Lottery leverages this technology to create a transparent, open-source, and fair lottery system where participants can contribute and win jackpots.

Core Features and Their Implications

- 1. Decentralization:** At the heart of Weekly Whale lies the principle of decentralization. By leveraging the capabilities of blockchain technology, the lottery functions autonomously without the oversight of any centralized authority or intermediaries. This decentralized model ensures that participants directly interact with the smart contract, reducing potential biases and points of failure commonly seen in traditional systems.
- 2. Transparency and Verifiability:** One of the distinguishing features of the Weekly Whale BNB lottery is its unwavering commitment to transparency. With its open-source codebase, anyone, irrespective of their participation status, can inspect, review, and verify the operations and rules of the lottery. This transparency not only fosters trust but also ensures that all participants have an equal and clear understanding of the system's workings.
- 3. Guaranteed Jackpot with Dynamic Potential:** Every week, one fortunate participant is crowned the winner, receiving the accumulated jackpot. What makes

this even more enticing is the *dynamic nature of the jackpot*. As more participants join and contribute, the lottery pot's value sees potential growth, increasing the allure of the main prize with each transaction.

4. **Ensured Fairness Through Inclusive Exclusions:** Fairness is paramount in any lottery system. Recognizing this, Weekly Whale BNB has implemented a feature ensuring the lottery's creator, who might possess deeper insights into the system, is strictly prohibited from participating. This exclusion acts as a safeguard, ensuring that all participants stand an equal chance, uninfluenced by any internal advantages.

Lottery Mechanism

Entry Process

1. **Participation:** For those eager to participate, the process has been streamlined for simplicity. Users can effortlessly enter the Weekly Whale BNB lottery by transferring a set minimum of 0.01 BNB to the dedicated smart contract. This minimal entry requirement ensures wider accessibility and inclusion.
2. **Weighted Chances:** A unique feature of the Weekly Whale BNB lottery is its weighted chance mechanism. Essentially, the odds of winning aren't static but vary based on one's contribution. By transferring more BNB to the smart contract, participants amplify their chances of emerging victorious. For instance, a contribution of 0.20 BNB supercharges one's odds, making them 20 times more likely to win compared to the base rate of 0.01 BNB. This mechanism rewards both casual participants and those looking to maximize their chances.
3. **Automated Weekly Draw:** Every Friday, around 20:00 GMT, the pick winner function will be triggered. Then the smart contract, devoid of human intervention and biases, autonomously selects a lucky participant. This ensures that the winner is chosen fairly and transparently, with the whole process being recorded on the blockchain for public verification.

Winner Selection

- The selection mechanism employs a hybrid approach, synthesizing the current block's timestamp with the aggregate of all contributions to yield a random numeral.

- Subsequently, this derived numeral undergoes a meticulous mapping procedure against the cohort of participants, calibrated by their individual contributions, ensuring the precise identification of the fortunate winner.

Prize Distribution

- 90% of the contract's balance will be transferred to the winner.
- The remaining 10% is returned to the contract owner for operational purposes, including transaction fees, future development, promotional campaigns, and occasional charitable donations.

Resetting The Lottery

- Post winner selection, the lottery is reset, with contributions set to zero, and participants cleared for the next round.

Smart Contract Overview

Key Functionalities

1. **Ownership:** The contract has an `owner`, typically the contract creator, with special permissions for administrative functions.
2. **Contribution Tracking:** The contract tracks the BNB contributions of each participant and maintains a total of all contributions.
3. **Random Number Generation:** Uses the `keccak256` hashing function, combined with the block timestamp and total contributions, to produce a pseudo-random number.
4. **Winner Picking:** Uses a binary search algorithm to efficiently determine the winner based on the generated random number.
5. **Lottery Reset:** After a winner is picked, the lottery resets for the next round.

Modifiers

- The `onlyowner` modifier serves as a gatekeeper, ensuring that only the contract's owner can trigger the `pickWinner` function. However, it's crucial to note that this function merely initiates the mechanism to randomly select a winner, and the owner does not have the discretion to choose the winner themselves.

Contract Owner Exclusion

- In the spirit of fairness and transparency, the owner of the contract is explicitly excluded from participating in the lottery. While the owner can send transactions to the contract, these funds solely contribute to augmenting the jackpot. They do not count as a valid participation, ensuring an impartial lottery process.
- Additionally, it's crucial to understand that the owner cannot arbitrarily access or withdraw funds from the smart contract. Their only interaction, in terms of fund transfer, is through the `pickWinner` function. When triggered, this function will allocate a maximum of 10% of the contract's balance to the owner's wallet address, primarily as an operational cut. The remainder 90% is dispatched to the randomly selected winner.

Events

- **ParticipantJoined**: Emits when a new participant joins the lottery.
- **WinnerPicked**: Announces the winner and the prize amount.
- **LotteryReset**: Indicates that the lottery has been reset for the next round.

Compliance & Responsibility

While WeeklyWhale operates as a decentralized entity, participants are urged to recognize their individual responsibility. It is essential to ensure compliance with local laws and regulations before participation.

Conclusion

The Weekly Whale BNB Crypto Lottery offers a transparent and decentralized way for participants to engage in a lottery system with clear mechanisms and fair odds. The underlying smart contract ensures a straightforward process, from joining the lottery to selecting the winner and prize distribution. Through decentralization, Weekly Whale fosters trust and provides a novel approach to traditional lottery systems.