

CryptoDetective (CTD) Litepaper



enhancing web3 cybersecurity

CryptoDetective (CTD) introduces a novel approach to enhancing Web3 cybersecurity through a unique blend of incentivization and education. It leverages the BNB Chain to create a decentralized ecosystem where learning and detecting vulnerabilities in other projects are rewarded. This litepaper outlines the mechanics, tokenomics, and the vision of the CryptoDetective platform.

Introduction

In the evolving landscape of the internet, the transition from Web 1.0 and Web 2.0 to Web3 represents a monumental shift, not only in how users interact with the web but also in the security challenges it presents. Web3, characterized by its decentralized and collectively owned nature, introduces a new paradigm where data is not just contributed but owned by users, distributed across a peer-to-peer network without central authority. This decentralization, while revolutionary, brings forth unique security vulnerabilities.

The core of Web3's security relies on cryptography and consensus mechanisms, such as proof-of-work and proof-of-stake, ensuring data integrity and immutability. However, this new architecture intersects with traditional Web 2.0 technologies, creating a complex threat landscape. Web3's inherent security risks include unencrypted and unverified API queries, potential smart contract vulnerabilities, privacy concerns in decentralized data storage, risks of account and mobile wallet theft, and the susceptibility of protocols and bridges to attacks.

One of the most significant challenges in Web3 security is the difficulty in rapidly addressing identified flaws due to the reliance on network consensus, making it challenging to quickly patch vulnerabilities. This, combined with the fact that Web3 front ends still share many vulnerabilities common to Web 2.0 applications, underscores the need for robust, proactive security measures.

In this context, CryptoDetective (CTD) emerges as a groundbreaking initiative. It's not just a platform; it's a comprehensive ecosystem designed to address these burgeoning challenges head-on. By focusing on education, skill development, and active participation in securing the Web3 environment, CryptoDetective aims to play a crucial role in shaping a safer blockchain landscape. Through its dual approach of empowering users to learn (CTD Academy) and actively protect (CTD Agency, through bounty hunting and crowdsourced audits), CryptoDetective represents a significant innovation in blending cybersecurity knowledge with practical application, thereby fostering a secure and resilient Web3 ecosystem.

CryptoDetective will be powered by its tokenomics which includes the CryptoDetective utility token (CTD token) and the Detective NFTs. The CTD token is the blood of the platform, allowing users to participate in the Academy and to be rewarded with by the Agency through it. Along with this, everyone user of the platform will be able to get their own non-tradable Detective NFT. This NFT will register your progress through a level system and allows you to unlock features as you become more experienced as a Detective. Finally, both the CTD token and the Detective NFTs will be used to control the CryptoDetective DAO to put the community at the heart of the project.

CTD Academy, mastering web3 security learning

CTD Academy is the educational nucleus of the CryptoDetective platform. It's an innovative learning institution dedicated to fostering the next generation of web3 cybersecurity professionals. The Academy will offer a comprehensive curriculum, practical challenges, and a mentorship system, all designed to equip learners with the skills needed to excel in the rapidly evolving domain of blockchain security. As you will see below, the Academy is a platform designed both for newcomers and experienced users, with everyone helping each other in order to make Web3 a safer place for all users.

Course Program and Practical Challenges

The curriculum at CTD Academy will be diverse, ranging from basic blockchain principles to advanced cybersecurity techniques. Interactive learning and real-world applications are emphasized. Each course will be focused on a specific aspect of Web3 security and end with a course related On Chain test. This test will allow students to validate the course and by doing so earning experience for their Detective NFT, unlocking following courses etc. For example, a course about re-entrancy attacks will offer at the end a test that needs the student to perform a re-entrancy attack on a real on-chain contract made for this purpose. By succeeding, the student will earn experience points and validate the course.

Moreover, experienced detectives, determined by the level of their NFT, will be able to create courses on the platform for students to enrol in. As the creator of a course, users will be able to earn CDT as students purchase theirs. See the mentoring section for details on the perks of being a mentor.

Learners can also participate in regular Capture the Flag (CTF) challenges, which offer opportunities for practical application of skills and teamwork. CTF challenges will offer on-chain opportunities to earn more experience and even rewards in CTD token. Mentors will also have the ability to create CTF challenges to provide the community with more challenges. Some challenges will even provide CTD rewards for the firsts to solve them.

The goal of the course and challenge system is to use the power of a specialized community to become the best learning environment for aspiring web3 cybersecurity experts by making an ever-growing catalogue of learning content.

Enrolment Options

Students will be able to get access to the courses by three different methods:

- 1. Free courses**
 - Students can access all the free courses just by having their own Detective NFT.
 - Free courses will cover generic and important aspects of Web3 cybersecurity.
 - These courses also include on-chain tests, providing experience for everyone.
- 2. Direct Course Purchase:**
 - Students can purchase these paid courses directly with CTD.
 - Course creators receive the earnings from these purchases.
- 3. Becoming a mentee**
 - Students can register themselves as the mentee of another mentor Detective.
 - The mentees of a Detective get access to all the mentor's courses for free.

As for CTF challenges, they will be free for every Detective to try them out.

Becoming a Mentor and Contributing to CTD Academy

Experienced detectives will have the opportunity to become mentors as they level up their Detective NFT. Mentors are here to guide new learners and contribute to the Academy's course content or even create challenges. In exchange for their hard work and expertise, mentors earn a share of their mentees' earnings on certain content such as CTF or some Agency content, aligning their success with the learners', fostering the best environment for everyone. Moreover, they can earn CTD based on the achievements their mentees get, such as reaching a certain level.

To summarise, mentors Detective will be able to:

- Help students directly by mentoring them.
- Create their own courses, paid or free, for every student.
- Create CTF challenges.

Note that contents created by mentors will be moderated by the DAO to ensure both quality and fairness in the moderation process.

CTD Agency, protecting Web3

CTD Agency represents the practical, hands-on application segment of the CryptoDetective platform. It is a dedicated platform designed for trained Detectives, both individuals and teams, to actively participate in identifying and resolving vulnerabilities within various web3 platforms. This program is the embodiment of the "Protect" ethos of CryptoDetective, turning learned skills into real-world cybersecurity contributions.

Any Detective will be able to participate in the Agency, but passing by the Academy is recommended for less experienced Detective.

Bug Bounties

In fostering a collaborative cybersecurity ecosystem, CTD Agency opens its doors to third-party decentralized applications, granting them the opportunity to post Bug Bounties. This initiative invites Detectives to actively engage in identifying and resolving security issues within these applications. Detectives participating in Bug Bounties stand to earn rewards in CTD tokens, with the magnitude of the reward directly linked to the severity of the issues uncovered. This streamlined process not only encourages a proactive approach to cybersecurity but also establishes a cohesive and efficient cycle within the CryptoDetective platform, where the collective expertise of Detectives contributes to the robustness of the broader web3 landscape.

Bounties will be placed in different categories depending on the importance of the discoveries you find. Higher tier bounties will of course be financially more rewarding, but they will also grant more experience for you Detective NFT.

Freelancing

Detectives will be able to work as freelancers in the Agency and find various work opportunities. Either by being directly contacted by a third party or by applying to posted offers, every Detective will be able to do what they are good at. This is also where their Detective NFT takes all its importance, as the on-chain witness of all the Detective's experiences, certifications, and expertise.

Crowdsourced Audits

CTD Agency employs the collective knowledge of the CryptoDetective community for comprehensive smart contract audits. These processes are conducted transparently and collaboratively, ensuring unbiased and thorough evaluations by the whole community. Third parties will be able to post the code that needs to be audited on the Agency along with a provisioned total reward. Any Detective will be able to work on these audits and be

Team Collaborations

Detectives will have the option to operate solo or collaborate in teams, leveraging combined expertise for intricate bug bounty challenges. Teams strategize and delegate tasks, enhancing the effectiveness of the bug detection process through combined skill sets. On-chain teams can be created, with a set reward ratio attribution for each member. This will allow fair collaboration between Detectives with different skillsets. Teams will be available for every type of work in the Agency, be it Bounties, Freelancing or Audits

CTD Agency Roles

The program offers opportunities for detectives to specialize in various cybersecurity aspects and promotes professional development through ongoing participation in challenging projects. Roles will be especially useful when working with other Detectives to create teams with various skillsets.

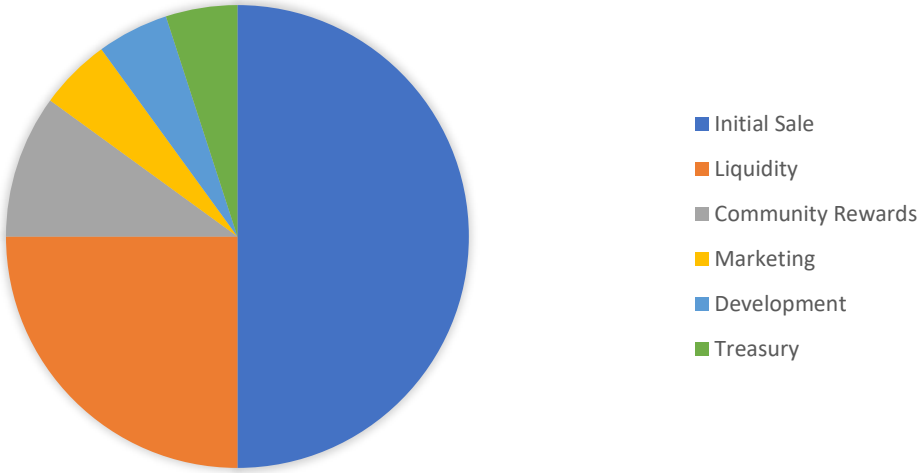
Tokenomics

CTD, the native token of the CryptoDetective platform, is utilized for transactions, rewards, and governance. Its distribution and usage are designed to incentivize active participation and contribution to the ecosystem. The CryptoDetective token is a non-mintable, non-burnableERC-20 token with a set supply of 1 million tokens and 18 decimals. As described before, it has several uses both in the Academy and Agency part of CryptoDetective:

- 1. **Course Purchases:** Users can purchase individual courses using CTD tokens.
- 2. **Bounty and CTF Rewards:** CTD is awarded to users for successfully identifying vulnerabilities and winning CTFs.
- 3. **Mentor Rewards:** Mentors earn CTD based on the achievements of their mentees.
- 4. **Governance Participation:** CTD holders use their tokens to vote on key decisions in the CryptoDetective DAO.
- 5. **Detective NFT obtention:** CTD will be required to get your own Detective NFT.

The CTD token will be launched through a Pinksale fair launch, with 50% of the total supply of CTD tokens offered to participants and 25% of the total supply in the initial liquidity. The remaining CTD tokens will be used as shown below, between community rewards (for CTF for instance), marketing and in the project treasury.

CTD INITIAL REPARTITION



Detective NFT and Experience System

The Detective NFT is more than a digital asset; it's a record of a user's journey and achievements in the platform. Every user can purchase their own Detective NFT using CTD token and begin their Detective journey. Detective NFT are non-tradable as they represent your achievements and prove your skills. Using them, and the rest of the CryptoDetective ecosystem, you can level them up, unlock advanced features such as mentoring or course creations, and even increase your voice in the DAO votes.

Gaining Experience

Experience points are awarded for:

- **Course Completion:** Successfully finishing educational modules and their on-chain tests.
- **Bounty Hunting:** Identifying and reporting vulnerabilities in registered projects.
- **CTF Participation:** Engaging in and winning Capture the Flag challenges.
- **DAO Participation:** Actively engaging in the DAO votes.

Levelling Up

About levelling up:

- **Pass On-Chain Tests:** To level up, users must pass practical on-chain tests, such as reproducing a re-entrancy hack on a smart contract made for this purpose.
- **Exponential Experience Requirement:** Each level requires a significantly higher amount of experience, reflecting the growing expertise and contribution of the user.
- **Unlock new features:** Becoming a mentor or create your own courses require a high level of Detective to ensure that students benefit from the best mentors they could have.

A Witness of your Achievements

As you advance on CryptoDetective, each NFT becomes a living record of your journey, highlighting the unique skills and achievements you've gained. Think of it as a digital trophy case, displaying the milestones you've reached in the Academy and Consulting. More than just a digital image, each NFT tells the story of your expertise in Web3 cybersecurity.

It acts as a concrete proof of your abilities, especially when taking on freelancing jobs or teaming up with other Detectives. For freelancing gigs, clients can easily check your NFT to see your skills and track record. It's like a quick resume, giving an instant overview of your journey and capabilities. This not only shows your dedication but also helps build trust in the broader crypto community. Additionally, as you collaborate with others on CryptoDetective, your NFT serves as a mark of reliability. Potential team members can look at your NFT to understand your skills and experience, making team formation based on merit and expertise. It creates a collaborative atmosphere where teams are built on the strengths that each Detective brings.

To sum it up, your NFT on CryptoDetective isn't just a digital keepsake; it's a record of your professional journey. It speaks to your commitment to learning, your expertise in Web3 cybersecurity, and your dependability as a team player. As the CryptoDetective community grows, your NFT becomes a lasting reminder of your role in shaping the decentralized future of cybersecurity.

Governance and Voting Power

CryptoDetective will be governed by its own Decentralized Autonomous Organization (DAO). The CryptoDetective DAO voting token will of course be the CryptoDetective token. However, voting will also require the possession of a Detective NFT, and its level combined with the amount of CTD a user is holding will represent the number of votes a user has.

Voting Power = User's Level × Quantity of CTD Held

This formula ensures that voting power is balanced between a user's expertise (level) and their stake in the platform (CTD holdings). Consequently, users with elevated expertise levels and substantial CTD holdings wield a greater influence over the platform's future. This innovative structure acts as a dual incentive, motivating users not only to deepen their engagement with the platform but also to actively participate in shaping its governance.

The DAO's authority extends to both on-chain and off-chain decisions crucial for CryptoDetective's present and future. This encompasses pivotal votes such as the upgrading of ecosystem smart contracts and the determination of new feature developments. The DAO's role is expansive, ensuring it remains at the forefront of decision-making, steering the trajectory of CryptoDetective's evolution. Moreover, the DAO is entrusted with the responsibility to moderate on-chain and off-chain content within the Academy and Agency, if deemed necessary. This multifaceted approach empowers the DAO to safeguard the platform's integrity, ensuring that both educational and operational facets align with the community's values and the overarching goals of CryptoDetective. In essence, the governance structure reflects the decentralized ethos of CryptoDetective, where user participation is not only encouraged but also rewarded. The amalgamation of expertise, token holdings, and active involvement forms the cornerstone of a governance system that dynamically shapes the destiny of the platform in unison with its dedicated community.

Conclusion

In conclusion, CryptoDetective stands at the intersection of blockchain technology and cybersecurity education. The Academy provides a structured learning path for both novices and seasoned professionals, while the Consulting platform, with its Bug Bounties and Crowdsourced Audits, serves as a real-world proving ground.

Integral to the project is the CryptoDetective Token (CTD), acting as both a reward mechanism and a governance token within the decentralized DAO. The unique integration of Detective NFTs and the innovative voting power formula ensure a balanced and participatory governance model, rewarding users for both their expertise and their stake in the platform.

The expansive vision of CryptoDetective extends beyond mere cybersecurity solutions. It fosters a community of proactive Detectives engaged in continuous learning, collaborative problem-solving, and active governance participation. With a commitment to transparency, security, and community empowerment, CryptoDetective stands as a trailblazer in the decentralized cybersecurity landscape, poised to redefine the standards of excellence in Web3 security. Join us on this transformative journey, where every Crypto Detective plays a pivotal role in shaping the decentralized future of cybersecurity.