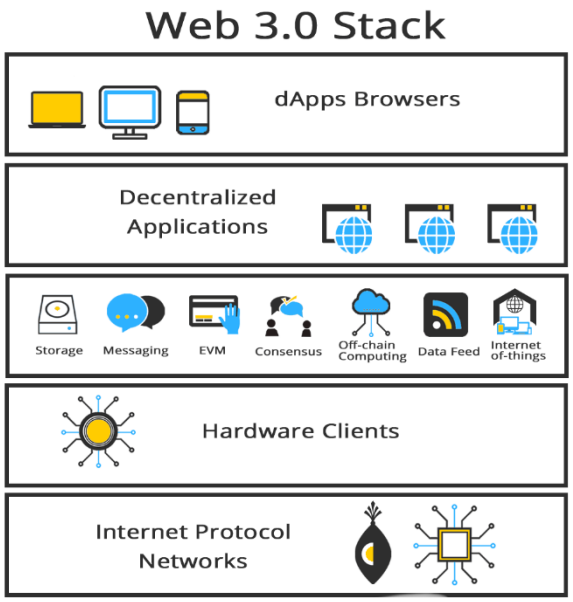
Association For Cyber Security

The Web3 era represents a transformative phase in internet evolution, envisioning an improved digital landscape. It integrates identity, financial transactions, and social interaction into its framework. This internet is founded upon open protocols that prioritize transparency and encourage innovation. By decentralizing power from large corporations, Web3 empowers individuals to control their own data and online experiences.

The goal of Web 3.0 is to create an intelligent, autonomous, connected, and open internet. Tim Berners-Lee coined the term ***"semantic web"*** to describe this vision. Semantic Web technologies empower people to create data stores on the web, develop shared vocabularies, and establish rules for managing data, thus enabling a more interconnected and meaningful Internet.

In the Web3 era, trust plays a pivotal role, enabling what is termed **"trustless coordination"** across the internet. This paradigm facilitates collaboration and creation without requiring prior acquaintance or reliance on a central authority. It heralds a new era of collaborative innovation and opportunity on the web.



The Three C's of Web3 encapsulate its defining principles:

1. **Control**
2. **Composability**
3. **Decentralization**

Control

Control, or ownership, stands as a fundamental concept in Web3. MetaMask highlights this distinction: In Web2 (today's mainstream internet), transitioning to a new platform often means abandoning your history because the platform owns and profits from your data. Conversely, Web3 allows you to migrate your data and funds to another platform at any time, free from such constraints. Therefore, Databases and platforms resemble global utilities, universally accessible and open for diverse purposes.

Composability

Composability refers to the capability to take existing components or creations, modify them, combine them with others, and generate new innovations. Similar to the principles of open-source content, Web3 aims to foster collaboration, facilitating faster and more efficient development processes. This approach encourages the reuse, adaptation, and remixing of existing resources to enhance creativity and productivity within the digital realm.

de-Centralization

Web3 aims to decentralize data by shifting away from centralized entities like banks or social media platforms that control and manage personal information. Instead, it promotes a system where individuals can interact and collaborate directly, fostering trust and transparency among peers. This decentralization empowers users to have greater control over their data and transactions, reducing reliance on traditional intermediaries and enhancing security and autonomy in digital interactions.

The Evolution of the Internet: From Web 1.0 to Web 3.0

Web 1.0: Web 1.0 was majorly a military computer network called the Advanced Research Projects Agency Network (ARPANET) which was the first full-fledged working prototype of the modern-day internet. The aim was to develop the computing power that overcame geographic limitations and to enhance the posture of the US military. The ARPANET developments were directed towards academia in the later stages and as more academic institutions joined, a web of interconnected universities was created.

Web 2.0: Web 2.0 refers to the second generation of internet development, characterized by the transition from static web pages to dynamic, interactive, and user-centric content. It emphasizes user-generated content, social networking, and collaboration, with platforms like Facebook, YouTube, and Wikipedia exemplifying this shift. Enhanced technologies such as AJAX allow for more responsive web applications, while APIs enable different services to interact seamlessly.

Web 3.0: Web 3.0 represents the next evolution of the internet, characterized by its decentralized nature, intelligent applications, and enhanced user empowerment. It leverages blockchain technology, artificial intelligence, and the semantic web to enable secure, transparent, and autonomous interactions.

In Web 3.0, users have greater control over their data and digital identities, and **decentralized applications (dApps)** provide more equitable access to services. This new web paradigm aims to create a more open, connected, and intelligent internet, fostering trust and collaboration on a global scale.

Web 2.5: Web 2.5 represents an intermediate stage between Web 2.0 and Web 3.0, combining enhanced interactivity and user-generated content with early elements of decentralization and semantic web technologies. It features improved user interfaces, hybrid centralized and decentralized systems, and greater emphasis on user privacy and control over personal data. This transitional phase bridges the gap between the participatory nature of Web 2.0 and the more advanced, autonomous, and interconnected vision of Web 3.0

Introduction To Blockchain

A fundamental technology driving web3 is blockchain.
But what exactly is blockchain? Imagine it as a giant spreadsheet accessible to everyone, akin to a Google Sheet. This shared ledger is a core component of blockchain technology.
However, there isn't just one blockchain. There are multiple blockchains, each offering distinct advantages and fostering unique communities. In this course, our focus will delve into understanding the Ethereum blockchain, which utilizes Solidity programming.
You may also be familiar with other prominent blockchains like Bitcoin, Solana, or Flow. If you're interested in coding on platforms such as Solana, Flow, and others, we've various opportunities for like-minded peoples, once you complete the internship our team will reach out to you accordingly

What is Trust?

Trust refers to the firm belief in the reliability, truth, ability, or strength of someone or something. In the context of Web3 and blockchain technology, Traditional systems rely on centralized entities or intermediaries to establish and maintain trust. Web3, through blockchain technology, shifts this paradigm by enabling decentralized trust. Here, trust is placed in cryptographic algorithms, consensus mechanisms, and decentralized networks rather than a single central authority.

Bitcoin, the first blockchain and popular cryptocurrency, began with the maxim: "Don't trust, verify.

By using smart contracts and decentralized protocols, Web3 allows trust to be established through code and automated processes, ensuring that agreements are enforced without relying on intermediaries. This trust model enables new forms of interaction and collaboration, potentially transforming various industries by reducing the need for traditional trusted third parties.

The blockchain is visible to all, so collaboration does not have to depend on trust but instead can be verified.

This saying is another early Bitcoin maxim that means **"Truth in numbers."**
As Kernel notes, the implicit shift towards trusting those we're actually transacting with is enabled due to a fundamental change in the language by which value is defined. Instead of regulatory fiat, enforced by legal prose and human courts backed by the threat of violence; web3 currencies like Bitcoin or Ethereum enable a network of peers to create the conditions required for a functional currency through mathematics alone, enforced by deterministic computation.

Introduction To Access-ability

Ultimately, our goal isn't to promote trust based on blind faith. We're focused on achieving deterministic verifiability between peers. In the Web3 ecosystem, the source code is open and can be audited by anyone, anywhere in the world. This means we're not just interested in the ability to verify but also in the accessibility of the verification process.
In a practical, day-to-day sense, trust in Web3 is deeply rooted in transparency and education. Transparent systems allow users to see and understand how processes work, eliminating the need for blind trust. Additionally, educating users about the technology and its mechanisms empowers them to verify and trust the system independently. This combination of open access and educational resources helps build a robust foundation of trust in decentralized networks.

If you want to kickstart your career or start a business in Web 3.0, it's essential to understand why startup founders should venture into this space before searching for new ideas. Web3 offers freedom from centralized intermediaries like governments or corporations. It provides a permissionless, transparent, and secure approach to data storage and sharing. A crucial aspect of any Web3 startup guide is the empowerment of users. Web3 gives users complete control and ownership of their data and digital assets, addressing privacy violations. Additionally, it offers opportunities to create new economic models and reduces concerns about censorship.