

MODULE V

CHAPTER 5

Crypto Assets and Cryptocurrencies

University Prescribed Syllabus w.e.f Academic Year 2022-2023

ERC20 and ERC721 Tokens, comparison between ERC20 and ERC721, NFT, ICO, STO, Different Cryptocurrencies.

Self-learning Topics : Defi, Metaverse, Types of cryptocurrencies

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5.1 ERC20 AND ERC721 TOKENS

For obvious reasons, Ethereum is a well-known brand in the blockchain industry. It is the first choice for developing blockchain-based decentralized applications and is the second-largest blockchain platform. With the ability to create decentralized applications and make use of smart contracts, Ethereum's release in 2015 opened up entirely new avenues for decentralization.

5.1.1 What is Tokens

- Tokens are computerized resources based on a digital money's blockchain. Tokens are built on an existing blockchain, whereas coins are built on their own native blockchain.
- Basic Attention Token (BAT), Chainlink (LINK), and OmiseGo (OMG) are tokens based on Ethereum, while ETH is the official coin for the Ethereum blockchain.
- In the cryptocurrency industry, the asset that is typically utilized for a variety of blockchain transactions is called a token. A token is a tradable asset or utility that can be used on its own blockchain. Its holders can use the token for a variety of economic or investment purposes.

5.1.2 What is ERC ?

- A clear understanding of ERC tokens as a whole is the first step in comprehending the differences between ERC20 and ERC721 tokens.
- ERC stands for "Ethernet Request for Comments," and its primary function is to provide Ethereum with functionality. It provides a standard set of guidelines for Ethereum token creation. The ERC tokens' instructions describe the sales, purchases, unit limits, and existence.
- Exchanges, applications, and wallets may benefit from having a better understanding of the fundamental monetary functions thanks to the rules included with each token standard.
- Token standards, which include contract descriptions and protocol specifications, are typically created by developers. At its most fundamental level, ERC is nothing more than a public and open system that enables anyone to create and comment on proposals for the standardization of Ethereum smart contracts and tokens.
- The early ERC token types, ERC-20 and ERC721, played a significant part in determining the operation of the Ethereum ecosystem. They might be considered the guidelines for writing and publishing smart contracts on the Ethereum network.

Investing in tokenized assets or smart properties made with the aid of smart contracts is another crucial thing to keep in mind. All developers should use ERC as a model or format when creating smart contracts.

The best thing about ERC is that it may make developing code easier while improving predictability and opportunities for code reuse.

5.1.3 Understanding Difference between Fungible and Non-fungible Tokens

Fungible Tokens

- Digital assets that can be exchanged for other assets of the same type are known as fungible tokens. There is no unit with a higher or lower value than another. Consider how a dollar bill is comparable to another and interchangeable.
- Assets that can be exchanged with another similar entity are fungible assets. You can, for instance, trade shares or currencies whose values are comparable. Any other one-dollar bill can be used to exchange a one-dollar bill because they all have the same value.

Non-fungible tokens

- Non-fungible tokens (otherwise called NFTs) are advanced resources that you can only with significant effort trade for different resources because of their uniqueness. Consider, for instance, a piece of art that possesses a particular value for its owner but would be difficult to exchange for another piece of art due to the disparity in their perceived values.
- Then again, non-fungible resources are the inverse and can't be traded for each other. A house, for instance, would likely qualify as a non-fungible asset due to its unique characteristics.

► (1) ERC-20 Tokens

- Users preferred the creation of token-based contracts as smart contracts gained popularity. As the utilization of shrewd agreements in such a way begun to acquire unmistakable quality, it was hard to keep up with records of coding tokens by utilizing Ethereum savvy contracts.
- In the early Ethereum smart contract tokens, similar information sets were not presented in the same formats. As a consequence of this, token ecosystems began to encounter significant difficulties in interacting with one another and establishing synergy.

- In 2015, Fabian Vogelsteller's efforts led to the creation of the ERC20 tokens. The ERC-20 symbolic standard upheld the execution of a standard Programming interface or Application Programming Connection point for tokens in shrewd agreements.
- Therefore, ERC20 enables users to share, exchange, and transfer tokens and serves as a standard protocol for the Ethereum blockchain. Programmers were given numerous opportunities to create token designs in accordance with a particular set of rules as a result of the standardization that ERC-20 brought about.
- As a result, using the ERC-20 token standard across the Ethereum blockchain is simpler. Token Name, Symbol, Decimal, total Supply, balance Of, transfer, transfer From, allowance, and approve would all be included in the standard content of an ERC-20 token.
- In ERC20 tokens, the first three components a symbol, a decimal, and a name for the token are optional entities. However, the tokens that adhere to the ERC-20 standard must include the remaining six components.

Properties of ERC-20 tokens

The majority of tokens used in transactions are ERC-20 tokens. The term "utility token" refers to the fact that each and every one of the ERC-20 tokens has been created in such a way that they can be used to pay for services. Therefore, the most significant characteristics of ERC20 tokens are as follows :

- (i) **Fungible** : ERC20 tokens are fungible. The code used to make the tokens are like one another. Nonetheless, to sort out the various tokens engaged with the exchanges, one would need to take the assistance of exchange narratives.
- (ii) **Transferable** : All ERC20 tokens can be moved from one wallet to another; however, the ERC20 standard makes it possible to move a predetermined number of tokens to a predetermined address.

Disadvantages of ERC-20 tokens ?

- (i) **Low Efficiency** : When the ETH blockchain is clogged with a variety of heavy DApps, the ERC20 tokens experience network slowdowns and more expensive transactions because they are based on the ETH blockchain.
- (ii) **Slow Transactions** : Because ERC20 tokens have a block time of about 14 seconds, it is possible for transactions to take almost a minute to process. Some users may find this functionality to be excessively slow, while others may find it sufficient.

(2) ERC-20 Tokens

Although Non-Fungible may not sound like it deals with technology or finance, it does. Let's break it down in terms that people can understand. A type of crypto asset known as non-fungible is one-of-a-kind, collectible, and cannot be duplicated.

NFTs can also be referred to as an asset-specific cryptographic token. They can track real-world assets like a house or a song, as well as digital assets that are represented in the form of images.

An asset-specific cryptographic token is another name for a NFT. They are able to track both digital assets that are represented by images and real-world assets like a house or a song.

ERC721 tokens have gained a lot of popularity recently as NFTs have received a lot more attention. In fact, one of the major differences between ERC20 and ERC721 tokens is the fundamental nature of ERC-721 tokens. NFTs is another name for ERC-721 tokens.

- Developed by Nastassia Sachs, William Entriken, and Dieter Shirley Developers can use the ERC-721 token standards to tokenize ownership of any kind of arbitrary data. As a result, the ERC721 token standard essentially altered the way that people traditionally thought about how assets are represented on the blockchain.
- Similar to the ERC-20 tokens, the ERC-721 token standard refers to a set of rules. The requirements for ERC-721 tokens concentrate on important factors for choosing ownership and methods for token production. The methods for transferring and destroying the tokens are likewise prescribed by the standards.
- The real trademark that makes ERC 721 exceptional is any token made keeping this guideline is interesting. There will only ever be one ERC 721 token in existence after it is created.

What can you do with ERC-721 NFTs ?

Digital art is the most common use of an NFT today. There are many reasons why investors or users buy NFTs. They can support musicians or artists of their choice. Despite the fact that NFTs have a wider range of applications than digital art,

- NFTs for Games :** NFTs are used in online games like Gods Unchained to showcase distinctive components.
- NFTs for Music :** Music NFTs are clearly gaining popularity right now. Artists can now mint ERC 721 tokens for their music on platforms like Audius.

► 5.2 DIFFERENCES BETWEEN ERC-721 AND ERC-20 TOKENS

Criteria	ERC-20	ERC-721
Fungibility	Fungible in nature.	Non-fungible in nature.
Token Identity	There is no specific disparity among the tokens	Each token has a specific identity and could be easily distinguished
Collecting Tokens	ERC-20 tokens are not collectible	You can collect ERC-721 tokens like fiat currency
Value Fluctuation	The value of ERC-20 tokens remains the same.	The value of ERC-721 tokens fluctuates according to rarity and uniqueness.
Adoption	Commonly adopted	Limited levels of acceptance.
Substitutes	Easier for substitution.	No Scope for substitution.
Divisibility	Can be divisible into decimals.	ERC-721 tokens are not divisible.
Ownership Functions	No special ownership functions are allocated.	ERC-721 tokens can enable special ownership functions.

► 5.3 NFT (NON-FUNGIBLE TOKEN)

- We can use NFTs as tokens to show that we own unique items. They allow us to tokenize things like real estate, collectibles, and art. The Ethereum blockchain ensures that no one can alter an asset's ownership record or copy and paste a new NFT into existence.
- The term “non-fungible token” is NFT. You could use the economic term “non-fungible” to describe things like your computer, a song file, or your furniture. Due to their distinct characteristics, these items cannot be substituted for one another.
- In contrast, fungible items can be exchanged because their value, not their unique properties, define them. For instance, one ETH or one dollar can be exchanged for another ETH or one dollar, making them fungible.
- Because of its distinctive properties, the term “NFT” clearly signifies that it cannot be substituted or used interchangeably. Because they are fungible, cryptocurrencies and physical currency can be traded or exchanged for one another.

5.3.1 Key Features of NFT

- (1) **Digital Asset** : Digital asset that represents Internet collectibles like games, music, and art with an authentic certificate created by the blockchain technology that underpins cryptocurrency. Key Features of the NFT.
- (2) **Unique** : It cannot be forged or altered in any other way.
- (3) **Exchange** : On specialized websites, cryptocurrencies like Bitcoin are used in NFT exchanges.

5.3.2 How Does NFT Work?

- The blockchain of the Ethereum cryptocurrency, which is a distributed public ledger that keeps track of transactions, is home to the majority of NFTs.
- Individual tokens known as NFTs contain valuable information.
- They can be bought and sold in the same way that other kinds of physical art can because their value is mostly determined by the market and demand.
- The unique data of NFTs makes it simple to confirm ownership and token transfers between owners.

NFTs have a few unique characteristics

- (1) One Ethereum address is directly linked to the unique identifier assigned to each token that is produced.
- (2) They cannot be used in conjunction with other tokens 1:1. One ETH, for instance, is identical to another ETH. With NFTs, this is not the case.
- (3) The owner information for each token can be easily verified.
- (4) They live on Ethereum and can be traded on any Ethereum-based NFT market.

5.3.3 Examples of NFT

People are still relatively new to the NFT world. There are currently a few examples of NFTs :

- (1) A Digital Collectible
- (2) Domain Names
- (3) Games
- (4) Essays
- (5) Sneakers in fashion line

5.3.4 What is NFT Used For ?

NFTs are frequently utilized by Crypto-trading enthusiasts and art collectors. In addition, it can be used for the following other purposes :

- (1) **Digital Content** : Digital content makes the most use of NFTs right now. NFTs power a creator economy in which content creators transfer ownership of their content to the platforms they use to promote it, boosting profits for content creators.
- (2) **Gaming Items** : Game developers have shown a lot of interest in NFTs. The players can benefit greatly from NFTs. Regularly, in a web based game, you can purchase things for your personality, yet that is the end of the line. When you're done using NFTs, you can get your money back by selling them.
- (3) **Investment and Collateral** : The infrastructure for both NFT and DeFi (Decentralized Finance) is the same. DeFi applications let you get cash by utilizing security. Together, NFT and DeFi investigate the possibility of using NFTs as collateral.
- (4) **Names for Your Domain** : NFTs give your domain a name that is easier to remember. Similar to a website's domain name, this increases the IP address's value and memorability, usually based on its length and relevance.

5.3.5 How is an NFT Different From Other Cryptocurrencies ?

Sr. No.	Cryptocurrency	NFT
(1)	Cryptocurrencies are "fungible"; They can be exchanged for one another or traded. They also have the same value.	Each NFT serves as a digital signature, making it impossible to trade or compare them to one another.
(2)	One Bitcoin, for instance, is always the same as another Bitcoin, and one Dollar is always the same as one Dollar.	For instance, The Last Supper is a painting of a sort and can't be traded with another painting.

5.3.6 NFTs and Ethereum

Ethereum permits NFTs to function for a number of reasons :

- (1) It is simple to demonstrate ownership history thanks to the public verifiability of token metadata and transaction history.
- (2) It is nearly impossible to "steal" ownership by manipulating data after a transaction has been confirmed.

- (3) Peer-to-peer trading of NFTs is possible without the need for platforms that can charge hefty commissions.
- (4) The "backend" of each Ethereum product is the same.
- (5) To put it another way, NFTs are transferable between products because all Ethereum products can easily understand each other.
- (6) An NFT can be easily purchased for one product and sold for another.
- (7) You can list your NFTs on multiple products simultaneously as a creator; each product will contain the most recent ownership information.
- (8) Ethereum never goes down, meaning your tokens will continuously be accessible to sell.

5.4 INITIAL COIN OFFERING(ICO)

In the cryptocurrency and blockchain environment, a type of capital-raising activity is called an initial coin offering (ICO). The ICO can be thought of as a cryptocurrency-based initial public offering (IPO). However, there are significant distinctions between the two fundraising activities, so it is not the most accurate comparison. An ICO is mostly used by startups to raise money.

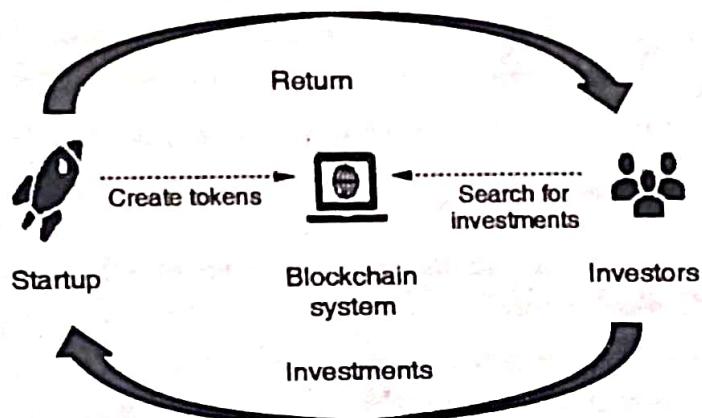


Fig. 5.4.1

The fact that ICOs eliminate middlemen from the capital raising process and establish direct connections between businesses and investors is their primary advantage. Additionally, both parties share the same goals.

The following is a list of the two different kinds of initial coin offerings :

- (1) **Private ICO** : Only a small number of investors can participate in private initial coin offerings. Private ICOs typically only allow accredited investors—high-net-worth individuals and financial institutions to participate, and a company may choose to establish a minimum investment amount.

(2) **Public ICO** : Public beginning coin contributions are a type of crowdfunding that objectives the overall population. Because anyone can invest in a public offering, it is a more accessible form of investing. Private ICOs, on the other hand, are becoming a more viable alternative to public offerings as a result of regulatory concerns.

❖ 5.4.1 How Does an ICO Work ?

An in-depth understanding of technology, finance, and the law is required for an intricate process known as an initial coin offering. Utilizing the decentralized systems of blockchain technology in capital-raising activities that will align the interests of various stakeholders is the central concept of initial coin offerings (ICOs). The means in an ICO are recorded underneath :

(1) Identification of investment targets

- Every initial coin offering (ICO) begins with the company's intention to raise capital.
- The company creates relevant materials about the company or project for potential investors and determines the targets for its fundraising campaign.

(2) Token creation

- The creation of tokens is the next stage of the initial coin offering. The tokens are, in essence, blockchain representations of an asset or utility.
- The tokens are fungible and tradeable. Since the tokens are merely alterations to existing cryptocurrencies, they should not be confused with cryptocurrencies.
- The tokens typically do not provide an equity stake in a company, unlike stocks. Instead, the majority of tokens provide holders with a stake in a company-developed product or service.
- The tokens are made utilizing indicated blockchain stages. Due to the fact that a company is not required to write the code from scratch, unlike when creating a new cryptocurrency, the process of creating tokens is relatively straightforward.
- Instead, tokens can be created by modifying the code on existing blockchain platforms that run existing cryptocurrencies like Ethereum.

(3) Promotional campaign

- A company typically conducts a promotional campaign simultaneously to entice potential investors. Keep in mind that most campaigns are carried out online to reach as many investors as possible.
- However, advertising ICOs is currently prohibited on a number of major online platforms, including Facebook and Google.

Initial offering

The tokens are made and then made available to investors. There may be multiple rounds to the offering. The company can then launch a new product or service with the ICO's proceeds, and investors can expect to use their tokens to benefit from the new product or service or wait for the tokens' value to rise.

During an ICO, the price of tokens and the number of tokens sold can be fixed or variable. Examples of how this might work are as follows :

- (i) **Price and a fixed number of tokens :** Both of these are predetermined by the business, such as offering one million tokens for one dollar each.
- (ii) **Fixed number of tokens and a variable price :** The price of the tokens sold by the business is determined by the amount of money it receives. The price of a token goes up when there is more funding. Each token would cost \$2 if it sold one million of them and raised \$2 million.
- (iii) **Variable number of tokens and a fixed price :** The company doesn't limit the number of tokens it sells, but it does set a fixed price. For instance, if a business sells tokens at \$0.50 each until the ICO ends,

5.4.2 Advantages and Disadvantages of ICOs**ICOs have the following Advantages**

- (1) If you know which cryptocurrency is a good investment, they offer high profits. Since you're purchasing early, costs are much of the time lower, and some ICOs offer tokens at limited rates.
- (2) Anyone can participate in an ICO. There are no investment restrictions, in contrast to some IPOs.
- (3) Startups can raise money quickly and effectively using this method.

ICOs have the following Drawbacks

- (1) There is a significant chance that the token will either lose value or fail entirely due to the volatile nature of cryptocurrency projects.
- (2) Scams and subpar projects increase as there is no regulation. Finding a good project among the upcoming ICOs can be like looking for a needle in a haystack.
- (3) Investing in ICOs usually necessitates some familiarity with cryptocurrency wallets. It is frequently simpler to stick with publicly traded coins or cryptocurrency stocks for those who are new to the cryptocurrency market.

5.4.3 Examples of an Initial Coin Offering (ICO)

In the crypto industry, initial coin offerings (ICOs) are a hugely popular means of funding. The majority fail, but there are occasionally gems in the rough. Major Initial Coin Offerings (ICOs) over the years include :

- (1) **Ethereum** : When Ethereum's initial coin offering (ICO) took place in July 2014, its programmable blockchain and a lot of crypto enthusiasts were excited. It went on to become the second-largest cryptocurrency after raising \$18.4 million.
- (2) **Cardano (CRYPTO: ADA)** : Cardano outperformed Ethereum in some ways and had an ICO that was even more successful. It managed to raise \$62.2 million in January 2017. By market capitalization, it would eventually join the top five cryptocurrencies.
- (3) **Tezos CRYPTO: XTZ** : Tezos raised \$232 million through its ICO in July 2017, yet it was anything but a total achievement. A class-action lawsuit was brought about as a result of numerous delays in the distribution of the tokens sold through the ICO. In 2020, Tezos settled with all parties for \$25 million.
- (4) **Dragon Coins(CRYPTO: DRG)** : Dragon Coins is just one of many ICOs that have failed, and it is one of the most well-known examples. It managed to raise \$320 million in March 2018. When it was made available for public trading, a number of controversies led to a near-immediate price drop. Its market capitalization dropped below \$1 million in 2021.

5.5 SECURITY TOKEN OFFERING (STO)

- A security token offering, or STO, is a digital token that uses blockchain technology to represent a share in an asset. STOs make it possible to fund digital projects while still adhering to legal requirements. Security tokens are not traded on standard token exchanges because they are subject to strict rules. They are fungible tokens, though, which means that they have monetary worth, making them comparable to ICOs (initial coin offerings).
- STOs function as digital representations of real-world assets, like bonds, stocks, or even gold. Security token providing services provide asset tokenization for various enterprises as a result.
- After the ICO (initial coin offering) bubble burst in 2018, STOs (security token offerings) were developed as a solution. Regulatory agencies started putting more of an emphasis on more secure regulations for tokens after the cryptocurrency market cap dropped by over \$750 billion.
- The transition from flexible utility tokens to securities was unpopular with certain ICOs. STOs were developed as tokens that would adhere to the applicable securities rules and regulations.

A security token is a digital asset that transfers value from an asset or bundle of assets to a token and serves as an investment asset. It can also represent ownership or other rights. In layman's terms, security tokens are the digital equivalent of conventional investments such as bonds, stocks, and other securitized assets.

Instead of issuing stock, a business could, for instance, decide to issue fractionalized ownership in the form of a digital token in order to raise funds for an expansionary project. On an exchange that accepts digital security tokens, it might then make this token available to investors.

5.5.1 Types of Security Tokens ?

There are three different types of security tokens: equity tokens, debt tokens, and asset-backed token

- (1) Equity Tokens
- (2) Debt Tokens
- (3) Asset-backed Tokens

► (1) Equity Tokens

- Equity Tokens are like traditional stock, but the way ownership is recorded and transferred is different. Customarily, the following of offers is signed in a data set, with responsibility for printed and guaranteed on paper declarations.
- An equity token, on the other hand, is recorded on an immutable ledger that is updated by tens, hundreds, or even thousands of computers connected to a global network.
- Equity token holders are entitled to voting rights and a share of the company's profits. Equity tokens improve a company's decision-making, financial outlook, and regulatory frameworks in three main ways:
 - (i) In compliance with securities laws, investors can vote.
 - (ii) New companies approach new and, possibly, more democratized raising support models.
 - (iii) The framework that regulators use to evaluate a project's fundraising is new and more transparent.

► (2) Debt Tokens

- A debt token is a short-term loan with an interest rate that investors give to a company in the form of a loan. It could be corporate bonds, real estate mortgages, or another type of structured debt. "risk" and "dividend" determine the price of a debt token.
- This is primarily due to the inability to price a pre-IPO organization's bond and real estate mortgage for a medium default risk. A smart contract, which represents debt security, runs on the blockchain network. Repayment terms dictate the dividend model and risk factors of the underlying debt in that contract.

► **(3) Asset-backed Tokens**

- These tokens signify ownership of assets like commodities, art, carbon credits, or real estate. Due to its transparency, security, and immutability, blockchain enables a reliable transaction record.
- It is a natural fit for the commodities trade because it reduces fraud and speeds up settlement. Digital assets like oil, gold, and silver that are comparable to any commodity add value to traded tokens known as asset-backed tokens.

❖ **5.5.2 What are the Benefits of STO ?**

- In response to token issuers who sold tokens without taking into account relevant laws or regulations, secure token offerings (STOs) were developed. STOs were developed as a safe alternative to ICOs also known as initial coin offerings—that adhere to all applicable laws and regulations. In contrast to ICOs, STOs provided token holders with fewer rights than ICOs did, such as dividends or a voice in the company.
- A token's credibility can also be enhanced by offering an STO rather than an ICO. In 2018, the cryptocurrency bubble burst, leaving many investors with worthless tokens.
- For modern tokens, therefore, building credibility is essential.
- Companies looking to offer shares without being subject to localized regulations or conventional guidelines may benefit from using an STO rather than an IPO (initial public offering). In addition, STOs are generally more conducive to a free market and are easier for modern investors to access and liquidate.
- The next stage for fungible digital tokens is STOs. Security tokens surpass ICOs and IPOs in that they offer the flexibility of blockchain technology, adhere to relevant regulations, and rely on tried-and-true strategies to reduce risk. Check out the TokenEx token schemes if you want to learn more about tokenization and the many ways it can be used. TokenEx can be utilized to get any kind of information your association might process.

► 5.6 DIFFERENT CRYPTOCURRENCIES

- In terms of market capitalization, user base, and popularity, Bitcoin continues to lead the pack of cryptocurrencies.
- Ethereum and other virtual currencies are contributing to the development of decentralized financial (DeFi) systems.
- Some altcoins have been praised for having features that are more recent than Bitcoin's, such as the capacity to process more transactions per second or employ different consensus algorithms like proof of stake.

5.6.1 What Are Cryptocurrencies ?

To put it simply, a cryptocurrency is digital or virtual currency represented by tokens or "coins." While some cryptocurrencies have ventured into the tangible world through projects like credit cards, the vast majority are still completely intangible.

Although this fundamental aspect of the industry has come under fire as their popularity has grown, cryptocurrencies are almost always designed to be free of government control and manipulation.

Altcoins and, in some cases, shitcoins are collectively known as cryptocurrencies that are based on Bitcoin. These cryptocurrencies have frequently attempted to present themselves as improved or modified versions of Bitcoin.

Although some of these coins may have impressive features that Bitcoin does not, an altcoin has not yet achieved the same level of security as Bitcoin's networks.

Cryptocurrencies generally fall into one of two categories :

(1) Coins

- Cryptocurrencies are used for making payments because they transfer value across a decentralized network of users, much like digital money.
- This classification applies to many altcoins—those that are not Bitcoin or Ethereum and they may also be referred to as value tokens.

(2) Tokens

- There are also tokens based on the blockchain that are designed to be used for something other than money. A token that represents a stake in a blockchain or decentralized finance (DeFi) project that is issued as part of an initial coin offering (ICO) is one example.
- Security tokens can be used in place of safety tokens if the tokens are linked to the value of the company or project.
- They can be represented as :
 - (i) Value tokens (like bitcoins)
 - (ii) Security tokens (which are similar to stocks)
 - (iii) Utility tokens (designated for specific uses)

(1) Bitcoin (BTC)	(2) Ethereum (ETH)	(3) Tether (USDT)
(4) USD Coin (USDC)	(5) Binance Coin (BNB)	(6) Binance USD (BUSD)
(7) XRP	(8) Cardano (ADA)	(9) Solana (SOL)
(10) Dogecoin (DOGE)	(11) Polkadot	

► (1) Bitcoin (BTC)

- Bitcoin (BTC) is the first cryptocurrency. It was developed in 2009 under the alias Satoshi Nakamoto. Likewise with most digital currencies, BTC runs on a blockchain, or a record logging exchanges circulated across an organization of thousands of PCs.
- Bitcoin is kept safe from fraudsters because additions to the distributed ledgers must be verified by solving a cryptographic puzzle, a process known as proof of work.

► (2) Ethereum (ETH)

- It is a decentralized software platform that makes it possible to build and run smart contracts and decentralized applications (dApps) without having to worry about downtime, fraud, control, or interference from a third party.
- The objective of Ethereum is to develop a decentralized set of financial services to which anyone, regardless of nationality, ethnicity, or religious affiliation, can gain unrestricted access.
- This aspect makes the implications for people living in some nations more compelling because individuals who do not have state identifications or infrastructure can obtain bank accounts, loans, insurance, or any number of other financial services.
- Ethereum's platform-specific cryptographic token, powers its applications. Ether (ETH) is used as a vehicle for moving around the Ethereum platform. Developers who want to build and run applications within Ethereum or investors who want to buy other digital currencies with ether are the primary users of ether.

► (3) Tether (USDT)

- Tether (USDT) was one of the first and most widely used of a group of cryptocurrencies known as stablecoins. These coins aim to reduce volatility by pinning their market value to a currency or other external reference point.
- Tether and other stablecoins attempt to smooth out price fluctuations in order to attract users who might otherwise be cautious due to the frequent periods of extreme volatility that the majority of digital currencies, including major ones like Bitcoin, have experienced.
- The cost of Tether is directly proportional to the value of the US dollar. Users can make transfers from other cryptocurrencies back to U.S. dollars more quickly and easily using the system than by actually converting to normal currency.

► (4) USD Coin (USDC)

- USD Coin (USDC) is another stablecoin that uses fiat-collateralized reserves to peg its price to the U.S. dollar. This means that USD Coin has the same amount of fiat currency in circulation as USD Coin.

The USD Coin project was launched in 2018 by the Circle and Coinbase-led Centre Consortium. USD Coin is a stablecoin that is subject to regulation because Circle is based in the United States.

(5) Binance Coin (BNB)

Binance Coin (BNB) is a utility cryptocurrency that serves as a means of payment for the fees associated with trading on the Binance Exchange. Binance Coin (BNB) It is the third-biggest digital currency by market capitalization. The people who utilize the token for the purpose of installment for the trade can exchange at a rebate.

Additionally, the platform that runs Binance's decentralized exchange is the blockchain for Binance Coin. Based on trading volumes, the Binance Exchange, which was established by Changpeng Zhao, is one of the most widely used exchanges worldwide. At first, Binance Coin was an Ethereum blockchain-based ERC-20 token.

(6) Binance USD (BUSD)

- Binance USD (BUSD) is a stablecoin backed by the U.S. dollar that was developed by the cryptocurrency exchange Binance.
- The New York State Department of Financial Services approved the stablecoin; As a result, it is also governed.

(7) XRP

- Ripple developed the XRP Ledger's native token, XRP, in 2012 as a payment method. Consensus and validation are handled by a consensus mechanism called the XRP Ledger Consensus Protocol, which does not employ proof-of-work or proof-of-stake.
- Client applications, on the other hand, sign transactions and send them to ledger servers. After comparing the transactions, the servers come to the conclusion that they could be entered into the ledger.
- After that, the servers send the candidates for transactions to validators, who work to agree that the servers made the right transactions and record the version in the ledger.

(8) Cardano (ADA)

- Cardano (ADA) is a "Ouroboros proof-of-stake" cryptocurrency developed by cryptography specialists, engineers, and mathematicians using a research-based approach. Charles Hoskinson, one of Ethereum's five original founders, co-founded the project. In the wake of contradicting where that Ethereum was taking, he left and later assisted with making Cardano.
- Cardano's team developed the blockchain through extensive experimentation and research that was reviewed by peers. The project's researchers have published more than 120 papers on a variety of topics related to blockchain technology. This research is the foundation of Cardano.

- Cardano stands out from its PoS rivals and other prominent cryptocurrencies due to this rigorous process. Cardano has also been dubbed an “Ethereum killer” due to the claims that its blockchain can do more.
- Cardano, on the other hand, is still in its infancy. However it has beaten Ethereum to the PoS agreement model, it actually has quite far to go with respect to DeFi applications.

► **(9) Solana (SOL)**

- Solana (SOL) is a decentralized application (dApp) support blockchain platform that was established in 2017. Solana is also known as an “Ethereum killer” because it handles many more transactions per second than Ethereum does. Additionally, compared to Ethereum, it charges lower transaction fees.
- Smart contracts, which are necessary for running cutting-edge applications like decentralized finance (DeFi) and non-fungible tokens (NFTs) can be used on Solana and Ethereum.
- Solana (SOL) is the name of the cryptocurrency that runs on the Solana blockchain. Its price has skyrocketed ever since it was first introduced.

► **(10) Dogecoin (DOGE)**

- Dogecoin (DOGE) Some people consider Dogecoin (DOGE) to be the first “memecoin.” In 2021, its price skyrocketed, causing a stir. Some major businesses accept the coin, which depicts a Shiba Inu as its avatar, as a form of payment.
- In 2013, two software engineers named Billy Markus and Jackson Palmer developed Dogecoin. The coin was reportedly created as a joke by Markus and Palmer in response to the wild speculation of the cryptocurrency market.

► **(11) Polkadot**

- Polkadot Polkadot (DOT) is a one-of-a-kind PoS cryptocurrency that aims to make other blockchains interoperable. Its protocol allows systems to collaborate under one roof by connecting permissioned and permissionless blockchains and oracles.
- The relay chain that enables the interoperability of various networks is Polkadot's central component. It additionally accommodates parachains - equal blockchains with their own local tokens for explicit use cases.
- Unlike Ethereum, Polkadot allows developers to create their own blockchain while still making use of the security that Polkadot's chain already possesses.
- This is where Polkadot sets itself apart from Ethereum. Ethereum allows developers to create new blockchains, but they must also create their own security measures.
- This can make smaller projects vulnerable to attacks because larger blockchains have more security. Shared security is Polkadot's name for this idea.