

NFTs for Beginners

*Understand how NFTs are revolutionizing
the concept of digital ownership*

Rajan Arya



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Dedicated to

My parents

Ved Parkash Arya &

Neeru Arya

My beloved wife:

Preeti Arya &

My Son Vedant Arya

About the Author

Rajan Arya is a highly accomplished technology entrepreneur and digital transformation expert with over 14 years of experience in the industry. He has founded several technology-based startups, including universitybureau.com, ieltsBureau.com, Countryroof.com, motortiger.com, serverscientist.com, Healthcadre.com, and internetkeeda.com and many more. All of these startups have gained tremendous success under his leadership.

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He is currently researching and developing a blockchain based search engine for NFTs and Metaverse, decemeve.io which will be released in Q3, 2023.

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Preface

Welcome to the exciting world of **Non-Fungible Tokens (NFTs)**. NFTs are the newest addition to the world of cryptocurrencies, digital assets, and blockchain technology. They have been gaining immense popularity in recent times due to their uniqueness, scarcity, and the ability to verify ownership.

This book is designed to provide an in-depth understanding of NFTs, their uses, advantages, and the various aspects associated with them. The book is divided into nine chapters, each of which covers a different aspect of NFTs.

Chapter 1: Introduction to Non-Fungible Tokens

This chapter provides an introduction to NFTs, their types, elements, uses, and how they work. It also covers aspects such as planning to buy NFTs, why to buy NFTs, and NFTs as an investment.

Chapter 2: Understanding Tokens, Fungible and Non-Fungible

This chapter delves into the basics of tokens, their significance, and the concepts of fungibility and non-fungibility. It also compares tokens, fungibility, and non-fungibility, and covers token standards, Ethereum tokens, and Tezos tokens.

Chapter 3: About NFTs

This chapter covers the importance of NFTs, the value of collectibles, problems with traditional art, collectibles, and memorabilia, digital art before NFTs, advantages of NFTs, and the story of digital art. It also provides an introduction to Non-Fungible Kitties, wallets, MetaMask, and Coinbase.

Chapter 4: Understand the Game of NFTs

This chapter covers the ins and outs of buying NFTs, the risks of MetaMask, and how to install and secure your MetaMask wallet. It also covers the need for buying Ether for the MetaMask wallet.

Chapter 5: NFTs: A Cryptocurrency

This chapter discusses whether NFTs are a cryptocurrency or not, NFT investing, and NFT investing strategies.

Chapter 6: NFTs Marketplaces

This chapter covers various NFT marketplaces such as OpenSea, Axie Infinity, CryptoPunks, NBA Top Shot, Rarible, Nifty Gateway, SuperRare, Alcor NFT, Wax (Atomic hub), Foundation, VeVe, Crypto.com, and Binance.

Chapter 7: Security of NFTs

This chapter covers various security issues associated with NFTs such as re-entrant attacks, blockchain-related issues, DOS attacks, spoofing, information leakage, and tampering.

Chapter 8: Creating, Buying, Selling, and Mining NFTs

This chapter covers the process of creating an account, funding an account, creating NFTs, the cost of creating NFTs, who can make NFTs, and the process of selling NFTs.

Chapter 9: Legal Aspects and Future of NFTs

This chapter covers various legal aspects associated with NFTs such as NFT securities, intellectual property rights, the right of publicity, the right of privacy, contracts, and taxes. It also covers the anatomy of NFTs, digital property of NFTs, NFTs and real property, the metaverse, non-bankable assets, and digital wallets.

In conclusion, this book is an excellent resource for anyone who wants to learn about NFTs and their various aspects. Whether you are a collector, investor, or a curious learner, this book will provide you with an in-depth understanding of NFTs and their future.

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CHAPTER 1

Introduction to Non-Fungible Tokens

A **non-fungible token (NFT)** is a non-interchangeable unit of data which is stored on a blockchain. It is a form of digital ledger which can be sold and traded. NFT data units can be associated with digital files, including photos, videos, and audio.

NFTs are different from blockchain as their token is uniquely identifiable and differs from blockchain cryptocurrencies, such as Bitcoin.

The public certificate of authenticity or proof of ownership provided by NFT ledgers is a public certificate of authenticity or proof of ownership. Because NFTs do not prohibit or forbid the creation, sharing, or copying of underlying digital files with identical associated files, their legal rights might be ambiguous.

By now, you have understood what NFTs are, so let us begin our journey and start exploring more about NFTs.

Structure

In this chapter, we will cover the following topics:

- Introduction to NFTs
- Types of NFTs
- Elements of NFTs

- Uses of NFTs
- Working of NFTs
- NFTs ownership rights
- Buying, creating, and selling NFTs
- Pros and Cons of NFTs
- Ideal investment as NFTs
- Technical aspects of NFTs
- Start your journey with NFTs

Objectives

After studying this chapter, you should be able to understand NFTs, their types, elements, uses, and aspects. You will also know how NFTs work and why to buy them. You will learn about NFTs as an investment.

Introduction to NFTs

An NFT is a digital asset which depicts real-world elements like art, in-game items, video, and music. Digital assets can be bought and traded online, often by using cryptocurrency and encoded by using blockchain technology.

NFTs are becoming increasingly popular as a means of purchasing and selling digital artwork. NFTs have unique identifying codes. Figure 1.1 describes the token of NFTs:



Figure 1.1: NFT Token

Understanding the meaning of NFTs

Non-Fungible Tokens (NFTs) are not fungible like cryptocurrencies. NFTs are unique and indivisible digital assets that represent ownership of a specific item, such as a piece of artwork or a collectible.

In contrast, cryptocurrencies like Bitcoin or Ethereum are fungible, which means that each unit is interchangeable and has the same value as any other unit of the same currency.

So, NFTs are not like physical money in that they are not fungible and cannot be exchanged on a one-to-one basis. Instead, each NFT is unique and has its own distinct value based on its specific attributes and ownership history.

Consider the following scenario:

- The value of one bitcoin is the same as another bitcoin's value.
- One ether unit is always the same as another ether unit.

Cryptocurrencies are a safe medium of exchange in the digital economy because of their fungibility.

NFTs change the crypto paradigm by making each token one-of-a-kind and irreplaceable, implying that one non-fungible token cannot be substituted for another. They're digital representations of assets related to digital passports since each token has a unique, non-transferable identity that distinguishes it from others. NFTs are also extendable, which means you may "breed" them together to create a third, unique NFT.

CryptoKitties is a popular example of an NFT. It is a blockchain-based game where players can buy, sell, and breed unique digital cats. Each cat is represented by a unique NFT, which is stored on the Ethereum blockchain and can be bought and sold just like any other digital asset.

CryptoKitties is a good example of how NFTs can be used to represent unique digital assets and how ownership of these assets can be easily transferred and tracked using blockchain technology. The success of CryptoKitties has also inspired other NFT-based games and collectibles, further demonstrating the potential for NFTs in the digital world.

NFTs, like Bitcoin, provide ownership data that may be used to identify and transfer ownership between token holders. In NFTs, owners can add information or attributes related to the asset.

By now, you have understood that NFTs are unique items that are verified and secured by a blockchain. It uses the same technology as used for cryptocurrencies. NFTs provide the authenticity of origin, ownership, and uniqueness.

ERC721 and ERC20 are both standards for tokens on the Ethereum blockchain. However, they differ in their purpose and function.

ERC20 is a standard for fungible tokens, which means that all tokens under this standard have the same value and can be easily interchanged. This standard is

commonly used for cryptocurrencies, Stablecoins, and other digital assets that are meant to be used as a medium of exchange.

ERC721, on the other hand, is a standard for non-fungible tokens, which represent unique and indivisible assets such as collectibles, artwork, and in-game items. Each token under this standard is unique and has its own distinct value, making it different from other tokens.

In summary, ERC20 is used for fungible tokens that can be easily exchanged and have the same value, while ERC721 is used for non-fungible tokens that represent unique and indivisible assets.

Characteristics of NFTs

The characteristics of NFTs are as follows:

- An NFT is a data unit that can be sold and exchanged on the digital market and is recorded on a digital ledger called a blockchain.
- A specific digital or physical asset can be linked to the NFTs.
- NFTs work in the same way as cryptographic tokens do.
- NFTs are not interchangeable, and they are not fungible.

Features of NFTs

Figure 1.2 describes the various features of NFTs:



Figure 1.2: Features of NFTs

The features of NFTs are as follows:

- **Unique:** Each NFT has a distinct attribute, personality, which means no two NFTs are alike.
- **Digitally scarce resource:** On a blockchain network, the NFT is kept, and the certificate of ownership is available to prove the identity.
- **Indivisible:** NFTs cannot be broken into smaller denominations, and you cannot buy or transfer a portion of it.
- **Ownership:** The ownership of the asset which is transmitted is guaranteed by the tokens.
- **Fraud proof:** Tokens can be easily transferred and unaffected by fraud.

Types of NFTs

Non-fungible tokens, or NFTs, are the newest digital assets that have taken the world by storm. NFTs are non-transferable data units that are stored on the blockchain. The digital ledger issues a proof of ownership certificate to the NFT's owner. *Figure 1.3* describes the types of NFTs:

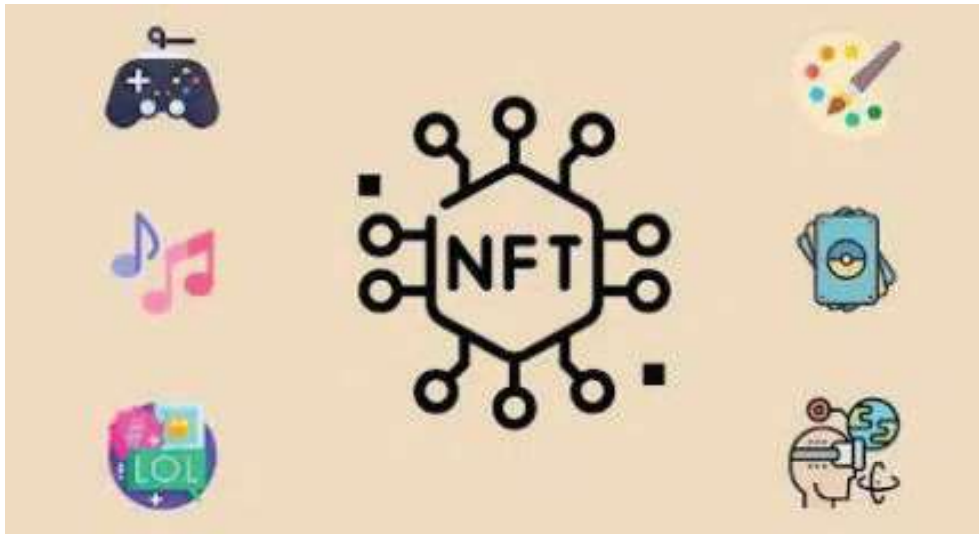


Figure 1.3: Type of NFTs

There are several types of NFTs, which are as follows:

- Artwork
 - Illustrations, pictures, or any other non-textual content created for publishing constitute artwork.
 - The most well-liked and significant group of NFTs is artwork.

- When you save artwork, the digital ledger where the artwork is kept will give a public certificate of ownership and authenticity to you.

Note:

The sale of Beeple's digital artwork as NFTs (Non-Fungible Tokens) for a record-breaking \$69 million is a great example of how NFTs are being used in the real world. Beeple's artwork was sold as unique and indivisible NFTs, each with its distinct value, representing ownership of a specific piece of digital art.

This sale shows the potential of NFTs as a new asset class and how they can be used to monetize and trade digital assets, such as art, music, and collectibles. The use of blockchain technology in NFTs provides a secure and transparent way to track ownership and transfer of these digital assets, making it easier for artists and creators to monetize their work and for collectors to own and trade unique pieces.

The Beeple NFT sale is just one example of how NFTs are being used in the real world, and there are many other similar sales and projects happening in the NFT space.

- Collectibles
 - Digital assets like photos, music, and video snippets are examples of collectibles, which were the first NFTs to be released.
 - Despite being in digital form, they are identical to physical collectibles.

Note: Before Art You Cannot (BAYC) and CryptoPunks are examples of popular NFT projects in the real world.

BAYC is a new NFT project that allows users to own and trade unique pieces of digital art created by well-known artists. The project uses blockchain technology to track the ownership and authenticity of each piece of art, thus ensuring that the art can be easily traded and collected just like physical artwork.

CryptoPunks, on the other hand, is a collection of 10,000 unique 8-bit characters, each with its distinct personality and attributes. The project has become incredibly popular and has attracted a large following of collectors and investors who trade and collect these unique NFTs.

Both BAYC and CryptoPunks are examples of how NFTs are being used in the real world to create new and innovative digital assets that can be collected and traded just like physical assets. These projects demonstrate the potential for NFTs to transform the art and collectibles world, and how blockchain technology is being used to bring new opportunities to artists, collectors, and investors.

- Sports Memorabilia
 - A video clip of notable sports moments is included in the category of sports memorabilia.

- The market is quite valuable and actively traded in physical form.
- It consists of signatures, photos, prizes, and honors.
- Video-Game Assets

Players can participate in earning incentives like bitcoin, digital assets, or other NFTs in video games based on NFTs.

- Virtual Land
 - It is used to display adverts inside video games.
 - It contains real estate both in the Metaverse and in video games.

Note: Decentraland is a good example to understand the concept of NFTs and how they are being used in the real world.

Decentraland is a virtual world where users can buy, sell, and build on virtual land that is represented as NFTs (Non-Fungible Tokens). Each piece of land in Decentraland is a unique and indivisible NFT that can be owned and traded by its owner.

In Decentraland, users can use their virtual land to create and explore digital experiences, such as games, social spaces, and virtual shops. The virtual world is powered by blockchain technology, which provides a secure and transparent way to track the ownership and transfer of virtual land, and enables users to own their creations and experiences in a decentralized and open-source platform.

Decentraland is a great example of how NFTs are being used to create new digital assets and experiences, and how blockchain technology is being used to empower users and bring new opportunities to the virtual world.

- Memes

Memes are also rising in value, with popular memes like Disaster Girl and Bad Luck Brian commanding high prices, making meme creators wealthy, and the meme market lucrative.
- Domain names

Domain names are the cryptographic domains that are created on a blockchain and are independent of any centralized authority. Example: unstoppabledomains.com
- Music
 - This is a very novel aspect of NFT mania.
 - In this, artists pre-release their albums on NFT marketplaces before releasing them on traditional streaming platforms.
 - Buyers can purchase a share of the album, and when the album is released conventionally, the buyers will receive a portion of the album's profits.

- Although the business model for these transactions has not yet been developed in Musical NFTs, many of them do.

Note: Snoop Dogg is one example of how NFTs and the metaverse are providing new and innovative opportunities for artists and musicians.

Snoop Dogg recently entered the NFT space and created a series of digital collectibles, including music, art, and virtual experiences, that were sold as NFTs (Non-Fungible Tokens). The NFTs were sold for millions of dollars, providing a new source of income for the artist and demonstrating the potential of NFTs to monetize digital assets.

The metaverse, or virtual world, is also providing new opportunities for artists and musicians to engage with their fans and create new experiences that were previously not possible in the physical world. For example, virtual concerts, art installations, and interactive experiences can be created in the metaverse, providing new ways for artists and musicians to earn money and reach new audiences.

The success of Snoop Dogg and other artists in the NFT and metaverse space is a sign of the growing potential for NFTs and the metaverse to transform the entertainment industry and provide new opportunities for artists and creators.

- Ticketing
 - Nowadays, event tickets may be created on blockchain platforms and then put up for auction by the organizers.
 - Additionally, the tickets can be kept and resold as collectibles.
- Real-world assets
 - NFTs have uses related to real-world assets.
 - A Real-World Asset NFT (rwANft) token signifies virtual ownership of a physical object.
 - It adds an extra degree of protection because the tokens cannot be forged and the digital ledger allows transparency to deter fraud.
 - Tokens tied to rwANFTs form legal warranty, and insurance, and prove ownership.
- NFT Fashion
 - It consists of outfits and accessories designed for video game characters and digital avatars.
- Identity
 - Due to non-fungibility characteristics, NFTs have begun to obtain identity in real-world traction. This feature also created a sense of certainty of transparency from the digital ledger.
 - It gives people an identification certificate.