NFT MARKETPLACE(Krypt)

MINOR PROJECT REPORT

Submitted in partial fulfillment of the requirement for the Degree of Bachelors of Engineering in Computer Science & Engineering

Submitted To:

[PARUL UNIVERSITY, VADODARA, GUJARAT (INDIA)]

Submitted By:

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Under The Guidance of:
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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

PARUL INSTITUTE OF TECHNOLOGY VADODARA, GUJARAT

SESSION: AY 2022-2023

Parul University
Parul Institute of Technology

(Session: 2020 -2021)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE

This is to certify that Bajrang Kumar, Prerna Shekhawat Students of **CSE VISemester** of **" Parul Institute of Technology, Vadodara"** has completed their **Minor Project** titled **"NFT MARKETPLACE"**, as per the syllabus and has submitted a satisfactory report on this project as a partial fulfillment towards the award of degree of **Bachelor of Technology** in **Computer Science and Engineering** under **Parul University, Vadodara, Gujarat (India)**.

Prof. Akash Suresh Patil	**Prof. Sumitra Menaria**	**Dr. Swapnil Parikh**
(Project Guide)	**Head (CSE)**	**Principal**
(Department : CSE)	**PIT, Vadodara**	**PIT, Parul University**
	(CSE / IT)	

DECLARATION

We the undersigned solemnly declare that the project report "**NFT MARKETPLACE"** is based on my own work carried out during the course of ourstudy under the supervision of

Proff. Akash Suresh Patil ,CSE/IT.

We assert the statements made and conclusions drawn are the outcomes of my own work. I further certify that

1. The work contained in the report is original and has been done by us underthe general supervision of our supervisor.
2. The work has not been submitted to any other Institution for any other degree / diploma / certificate in this university or any other University of India or abroad.
3. We have followed the guidelines provided by the university in writing the report.

Whenever we have used materials (data, theoretical analysis, and text) from other sources, we have given due credit to them in the text of the report and giving theirdetails in the references.

Bajrang Kumar [200305124076]

Prerna Shekhawat [200305124081]

ACKNOWLEDGEMENT

In this semester, we have completed our project on **"NFT MARKETPLACE"**. During this time, all the group members collaboratively worked on the project and learnt about the industry standards that how projects are being developed in IT Companies. We also understood the importance of teamwork while creating a project and got to learn the newtechnologies on which we are going to work in near future.

We gratefully acknowledge for the assistance, cooperation guidance and clarification provided by **"Proff. Akash Suresh Patil"** during the development of our project. We would also like to thank our Head of Department **Prof. Sumitra Menaria** and our Principal **Dr. Swapnil Parikh** Sir for giving us an opportunity to develop this project. Their continuous motivation and guidance helped us overcome the different obstacles for completing the Project.

We perceive this as an opportunity and a big milestone in our career development. We will strive to use gained skills and knowledge in our best possible way and we will workto improve them.

Bajrang Kumar [200305124076]

Prerna Shekhawat [200305124081]

ABSTRACT

In todays world of Innovation and Technology Everyone wants to Keep themselves updated with the market trends and also the different different Methodsof investments arriving Everyday into the market.

And from very last few Years, we have been listening to a buzzing word called NFT(Non Fungible Tokens) However the technology on which the whole concept of NFT is based on is not so new but the sudden use case and social trends make NFTs a huge bubble market.

Today every rich or Poor having some sort of Technical knowledge wants to buy a NFT for himself/herself , Most of the people are confused by the concept of NFTs as they think that NFTs are just used for images and illustrations, However the use cases of a NFT is far more than that we not only can link our images or illustrations but any kind of art including digital paintings, songs, voices etc can be stored as an NFT.

Now Lets understand how NFTs actually work under the hood, NFTs are nothing but just a artwork or piece of digital asset linked to an KEY which is present on some kind of blockchain Network.

Now whenever a person or individual buys or sells a NFT then only the ownership of the NFTs gets transferred and there is no physical transfer of assets between the seller and buyer.

This type of technology enables us to have a transparent, trustable, immutable, and safe transaction between different sellers and buyers also as this whole system works on Blockchain network there is no central authority interference betweenany of the transactions which gives the person full right over his her asset and Transaction.

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CHAPTER I
INTRODUCTION

- **INTRODUCTION:**

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1.1 Overview of the Project:

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What we provide is a complete solution to all the problems related to your NFT Transactions, We provide a complete Marketplace from where you not only can send someone NFT But also See the sender's address, Receiver Address along the with message and digital asset that is transferred.

- **1.2 <u>Problem Statement:</u>**

It is basically made due to the problems Lying in current NFT Marketplaces. Currently all the marketplaces present in market use to enable an individual to perform transactions only associated with his/her digital asset which has an access to their portal.

Now to eradicate this problem we Ourselves made a NFT MARKETPLACE from where you not only can send,receive NFTs present on one marketplace rather we will be enabling an user to make transactions with other Marketplaces present in the market currently. Nevertheless, a system cannot be designed in isolation without the active involvement of the user.

Defining a problem is one of the important activities of the project. The objective is to define precisely the business problem to be solved & thereby determined the scope of the new system. This phase consist of 2 main tasks. The 1st task within this activity is to review the organization needs that originally initiated the project. The 2nd task is to identify, at an abstract or general level, the expected capabilities of the new system. Thus, it helps us to define the goal to be achieved & the boundary of the system. A clear understanding of the problem will help us in building a better system & reduce the risk of project failure. It also specifies the resources that have to be made available to the project. Three important factors project goal, project bounds & the resource limits are sometimes called the project's term of reference.

- **1.3 <u>Objective Of Project:</u>**

The objective of an NFT marketplace project is to design and develop a platform that allows users to create, buy, sell, and trade unique digital assets using blockchain technology. Here are some specific objectives that you couldconsider for your project:

The objectives of this study are summarized below:

Provide a user-friendly platform: Create a user interface that is easy to navigate and use, so that both experienced and novice users can easily buy and sell NFTs.

1. Secure Transactions: Ensure that transactions are secure, using blockchaintechnology to authenticate and validate each transaction on the network.

2. Efficient trading: Facilitate fast and efficient trading of NFTs by implementing a robust matching engine that matches buyers and sellersquickly.

3. Customizable and flexible: Offer customizable options to create and sell NFTs, allowing users to set their own prices and choose the type of digitalasset they wish to sell.

4. Promote social interactions: Encourage social interactions among users by allowing them to comment, like, and share NFTs, thus building a communityaround the platform.

5. Educate users: Provide resources and educational materials to help users

understand the basics of blockchain technology and how to create and sell NFTs.

6. Continuous Improvement: Allow room for continuous improvement bycollecting feedback from users and implementing new features and enhancements based on their feedback.

Overall, the objective of our NFT marketplace project is to create a secure, user-friendly platform that promotes the creation, buying, and selling of unique digital assets while building a community of users who are passionate about this new technology.

- **1.4 <u>NFT(Non Fungible Tokens):</u>**

NFTs, or non-fungible tokens, are digital assets that are stored on a blockchain, typically the Ethereum blockchain. Each NFT represents a unique item, such as a piece of art, a collectible, or a virtual asset like a gaming item, and is distinct from other NFTs on the blockchain.

Unlike cryptocurrencies, which are fungible and interchangeable, each NFT is unique and cannot be replicated or duplicated. This uniqueness is what gives NFTs their value and has led to a growing interest in them as a new asset class.

NFTs are created by minting them on a blockchain, which involves creating a digital certificate of authenticity that verifies the ownership and uniqueness of the asset. This certificate is then recorded on the blockchain, where it cannot be altered or deleted.

Once an NFT has been created, it can be bought and sold on a variety of NFT marketplaces. Prices for NFTs can vary widely depending on the rarity and desirability of the asset, with some NFTs selling for millions of dollars.

Fig1.1 Sample NFTs

NFTs have a wide range of potential uses, including:

1. Art: NFTs are increasingly being used to sell digital art, with some high-profile pieces selling for millions of dollars.
2. Collectibles: NFTs can also be used to create unique collectibles, such astrading cards or rare items in games.
3. Virtual real estate: NFTs can represent virtual land or other virtual assets inonline games or virtual worlds.
4. Royalties: Some NFTs include a royalty structure, allowing the originalcreator to receive a percentage of any future sales of the asset.

While NFTs are still a relatively new technology, they have attracted a lot of attention and investment in recent years. However, like any new technology, there are also concerns about their potential risks and drawbacks, such as the environmental impact of blockchain mining or the potential for fraud and scams in the NFT market.

- **1.5 <u>System Studies:</u>**

It is always necessary to study and recognize the problems of existing system, which will help in finding out the requirements for the new system. System studyhelps in finding different alternatives for better solution.

The project study basically deals with different

operations:1: Data Gathering

2: Study of Existing System

3: Analyzing Problems

4: Studying various documents

5: Feasibility study for further improvements

Following are the steps taken during the initial study:

Initially, we collected all the information, which they wanted to store. Then we studied the working of the current system which is done manually. We noted the limitation of that system which motivated them tohave new system. With the help of these documents we got basic ideas about the system as well as input output of the developed system. The most important thing is to study system thoroughly.

Here we are studying both existing system and proposed system so that advantages & disadvantages of both the 4 systems can be understood. The first task was identifying how system can be computerized. Some analysis and projections was done regarding changes to be made to the existing system. The new developed system for Gym Management is simple without complexities.

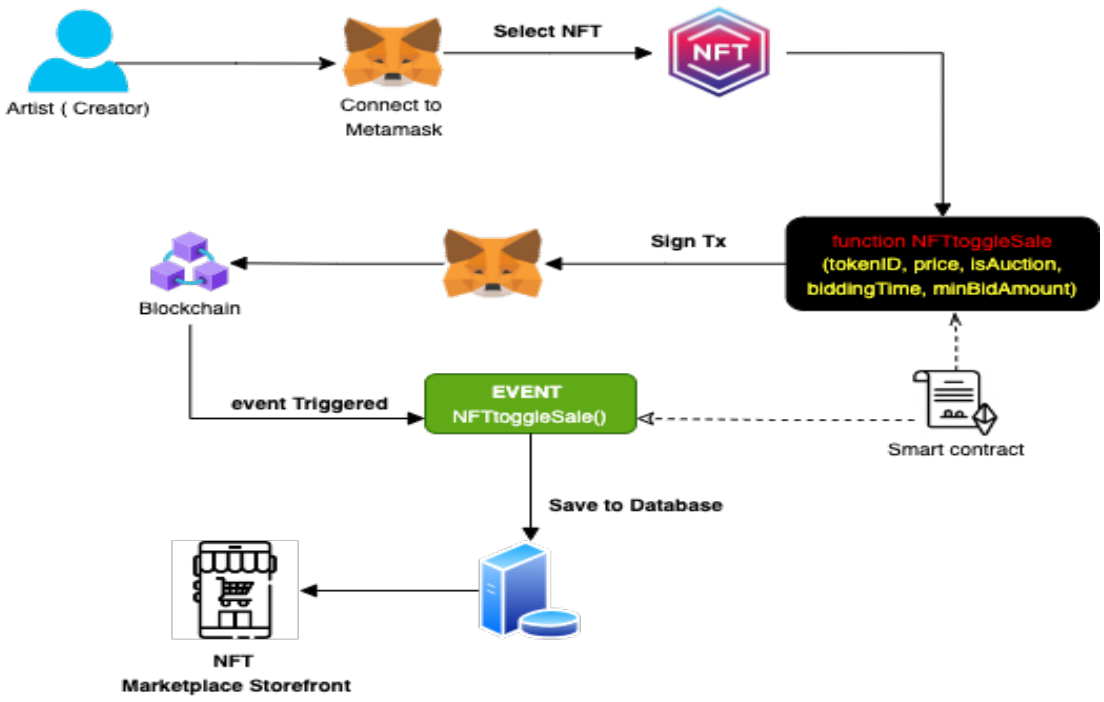

Fig No. : 1.2. NFT marketplace Architect

- **1.6 Merits Of Proposed System:**

The system is very simple in design which allows everybody to use the system easily. Though it is simple, system is developed in a way that can handle all its independent functionalities without exception. Following arethe basic facts that expects from the new system.

a. Ensure data accuracy

b. Administrator controls the entire system

c. Minimize manual data entry

d. Higher efficiency

e. High effectiveness

f. User friendly and interactive

CHAPTER II

METHODOLOGY

2.1 Overview Of Methodology:

Developing a successful NFT marketplace involves careful planning and execution. Here are some key steps you can follow to develop a methodology for building an NFT marketplace:

1. Research the market: Begin by researching existing NFT marketplaces to understand the competitive landscape and identify gaps in the market that your marketplace can fill. Determine your target audience, the types of NFTsthey are interested in, and the features they need from an NFT marketplace.
2. Develop a roadmap: Create a roadmap for the development of your marketplace, outlining the key milestones and deliverables, such as the platform's features and functionalities, the technology stack, and the userinterface.
3. Build a team: Assemble a team with the required skills and expertise,including developers, designers, marketers, and blockchain experts.
4. Choose the right blockchain: Choose a blockchain platform that best suitsyour project, such as Ethereum or Binance Smart Chain. Consider the scalability, security, and cost-effectiveness of each platform.
5. Create a smart contract: Develop a smart contract that allows the creation, buying, and selling of NFTs on the blockchain. Ensure that the contract issecure and transparent, and includes features such as royalties, ownershipverification, and transferability.
6. Develop a user interface: Design a user-friendly interface that allows users to easily create, buy, and sell NFTs. Ensure that the interface is

intuitive,

responsive, and visually appealing.

7. Integrate payment systems: Integrate payment systems, such as cryptocurrency wallets, that allow users to buy and sell NFTs using differentcryptocurrencies.
8. Implement security measures: Implement robust security measures to protectusers' funds and data, including two-factor authentication, SSL certificates, and encryption.
9. Test and launch: Test the platform thoroughly before launching it to the public. Ensure that it is bug-free, user-friendly, and meets the requirementsof your target audience.
10. Provide ongoing support: Provide ongoing support to users, including customer service, technical support, and educational resources to help themnavigate the platform and the NFT market.

By following these steps, you can develop a solid methodology for building anNFT marketplace that meets the needs of your target audience and provides a secure and user-friendly platform for buying and selling NFTs.

2. Project Platform Used In Making:

Building an NFT marketplace requires a combination of technical skills and specialized tools. Here are some of the key tools and technologies that can be used in developing an NFT marketplace:

1. Blockchain platform: The first and most important tool for building an NFTmarketplace is the blockchain platform. Ethereum is the most widely used platform for NFTs, but other platforms such as Binance Smart Chain or Polygon can also be used.
2. Smart contract language: The smart contract is the backbone of an NFT marketplace, and it's important to choose the right programming language to

write it. Solidity is the most popular language for Ethereum-based smartcontracts, but other languages such as Vyper and Rust can also be used.

3. IPFS: InterPlanetary File System (IPFS) is a decentralized file storage system that can be used to store the image and other metadata associatedwith an NFT. This ensures that the file is always available and can be accessed without relying on a centralized server.
4. Wallets: A cryptocurrency wallet is essential for buying, selling, and storing NFTs. Tools like Metamask, MyEtherWallet, and Trust Wallet are popular choices.
5. Web3 libraries: Web3.js is a library for interacting with the Ethereum blockchain from a web browser. Other web3 libraries include Ethers.js,Web3.py, and Web3j.
6. Development frameworks: Development frameworks like Truffle and Hardhat can help simplify the **process of building, testing, and deploying smart contracts.**
7. Testing tools: Testing smart contracts is critical to ensure that they functioncorrectly and securely. Tools like Ganache and Remix can help test and debug smart contracts.
8. Front-end frameworks: To create a user-friendly interface for the NFT marketplace, front-end frameworks like React, Vue.js, and Angular can beused.
9. Design tools: Creating a visually appealing and user-friendly interface is crucial for an NFT marketplace. Design tools like Figma and Adobe XD canhelp create mockups and prototypes of the user interface.
10. Analytics tools: Analytics tools like Google Analytics and Mixpanel canhelp track user behavior and provide insights into the performance of theNFT marketplace.

By leveraging these tools and technologies, developers can build a robust and secure NFT marketplace that meets the needs of buyers and sellers in the rapidly growing NFT market.

- **2.4 Proposed Methodology:**

Iterative and incremental development:

Iterative and Incremental development is any combination of both iterative design or iterative method and incremental build model for software development. The combination is of long standing and has been widely suggested for large development efforts.

The basic idea behind this method is to develop a system through repeated cycles (iterative) and in smaller portions at a time (incremental), allowing software developers to take advantage of what was learned during development of earlier parts or versions of the system. Learning comes from both the development and use of the system, where possible key steps in the process start with a simple implementation of a subset of the software requirements and iterative enhance the evolving versions until the full system is implemented. At each iteration, design modifications are made and new functional capabilities are added.

The procedure itself consists of the initialization step, the iteration step, and the Project Control List. The initialization step creates a base version of the system. The goal for this initial implementation is to create a product to which the user can react. It should offer a sampling of the key aspects of the problem and provide a solution that is simple enough to understand and implement easily. To guide the iteration process, a project control list is created that contains a record of all tasks that need to be performed. It includes such items as new features to be implemented and areas of redesign of the existing solution. The control list is constantly being revised as a result of the analysis phase

- **2.5 Project Module :**

- User Authentication and Onboarding Module: This module handles the userauthentication process, including email verification, two-factor authentication, and login/registration. It also includes a user onboarding process that guides users through the steps of creating a wallet and

connecting it to the marketplace.

- NFT Creation and Management Module: This module allows users to createNFTs, set ownership rights and rules, and manage their NFTs. It includes a user interface for uploading NFT files and metadata, setting the price and sale terms, and tracking the status of each NFT.

- NFT Marketplace and Trading Module: This module enables users to browseand search for NFTs, view their details, and make offers or purchases. It includes a user interface for listing NFTs for sale, managing open offers and bids, and finalizing transactions.

- Payment and Escrow Module: This module handles the payment and escrowprocess for NFT transactions. It includes integration with cryptocurrency wallets and payment gateways, as well as an escrow smart contract that ensures secure and transparent transactions.

- Notifications and Messaging Module: This module provides users with real-time notifications and messaging features that keep them informed of important events, such as new bids or offers, accepted transactions, and wallet balances.

- Analytics and Reporting Module: This module provides users with detailedanalytics and reporting features that track the performance of their NFTs, sales history, and user activity. It includes customizable charts and graphs that display key metrics, such as revenue, traffic, and engagement.

- Security and Compliance Module: This module ensures that the NFT marketplace is secure and compliant with relevant regulations and best practices. It includes security features such as SSL certificates, encryption,and two-factor authentication, as well as compliance features such as KYCand AML checks

- Support and Helpdesk Module: This module provides users with a helpdeskand support system that allows them to submit tickets, chat with customer support, and access knowledge base articles and tutorials.

3.5 Diagram :

Implementation of methodology :

We follow the MVC design pattern for developing our system. Model–view–controller (MVC) is a software design pattern for implementing user interfaces oncomputers. It divides a given software application into three interconnected parts,so as to separate internal representations of information from the ways that information is presented to or accepted from the user.

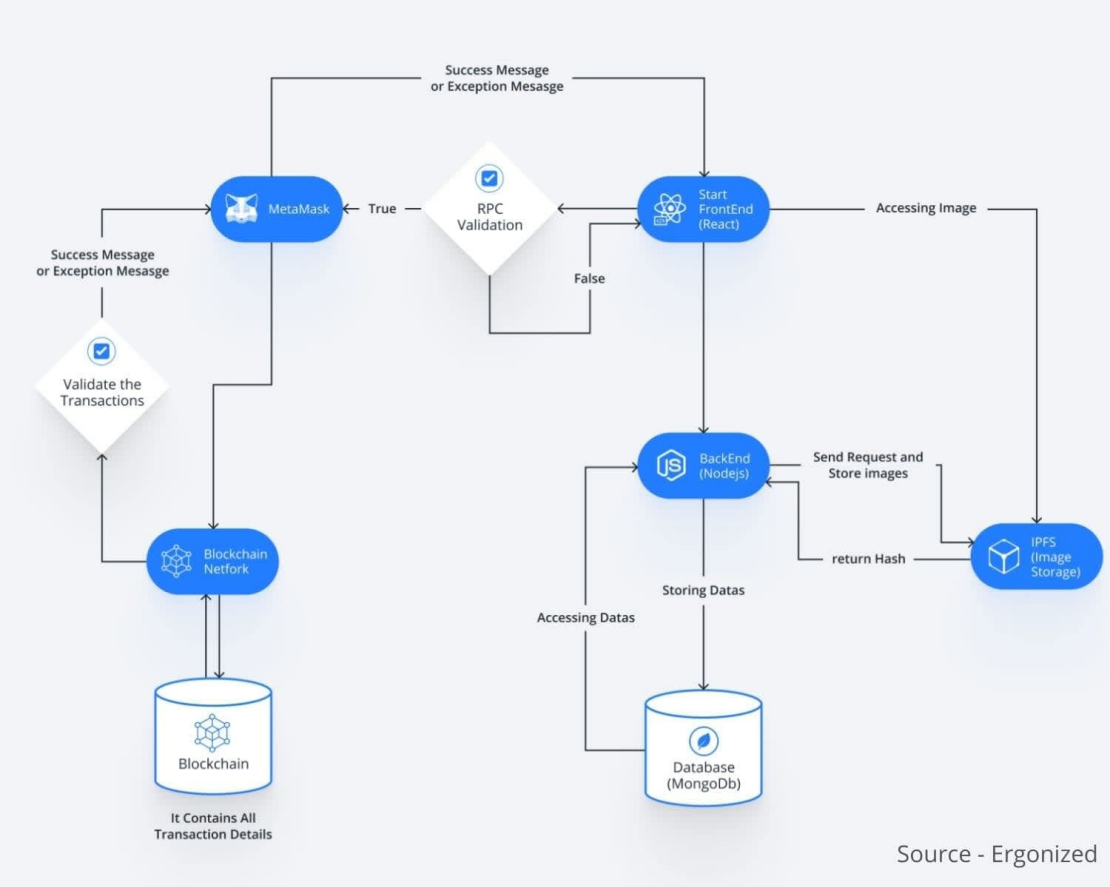

Fig No. 3.1 Use case Diagram

Fig No. 3.2 : Steps Involves In creating NFT marketplace

CHAPTER III
IMPLEMENTATION

3.1 User Flow :

1. User Registration and Onboarding

- User enters the website and clicks on the "Register" button.
- User provides basic information like name, email, and password.
- User verifies their email address and sets up their two-factor authentication.
- User creates a wallet or connects an existing wallet to the marketplace.

2. NFT Creation and Management

- User clicks on the "Create NFT" button.
- User uploads the NFT file and adds metadata like title, description, andimage.
- User sets ownership rights and rules for the NFT, including price, royaltyfees, and smart contract rules.
- User reviews and submits the NFT for approval.

3. Marketplace and Trading

- User browses the NFT marketplace and finds an NFT they are interested in.
- User clicks on the NFT to view details and make an offer or purchase.

- User can make a bid or an instant purchase, depending on the NFT's saletype.
- If the bid is accepted, the user's wallet is charged, and the NFT ownership istransferred.

4. Payment and Escrow

- User completes the payment using their wallet or a payment gateway.
- The payment is sent to an escrow smart contract that holds the funds untilthe transaction is completed.
- Once the transaction is completed, the funds are released to the seller, andthe NFT ownership is transferred to the buyer.

5. Notifications and Messaging

- User receives real-time notifications about NFT transactions, walletbalances, and other events.
- User can communicate with other users via a messaging system to discussNFTs, transactions, and other topics.

6. Analytics and Reporting

- User can access analytics and reporting features that track the performanceof their NFTs, sales history, and user activity.
- User can view customizable charts and graphs that display key metrics, suchas revenue, traffic, and engagement.

7. Security and Compliance

- User's security and privacy are ensured through SSL certificates, encryption,and two-factor authentication.
- User's compliance is ensured through KYC and AML checks

3.2 Main Function:

Functions which are used in HTML:

HTML (Hypertext Markup Language) is the standard markup language used to create web pages. There are several main functions that are commonly used in HTML, including:

Text formatting: HTML allows you to format your text in different ways. Some of the most commonly used text formatting functions include headings, paragraphs, bold, italic, underline, and strike through.

Lists: HTML provides two types of lists, ordered and unordered lists. Ordered lists are numbered while unordered lists are bullet-pointed.

Links: HTML allows you to create hyperlinks or links between different pages. Links can be created using the anchor tag (a) and can point to other pages, sections within the same page, or external resources.

Images: HTML allows you to insert images on your web page. The imagetag (img) is used to display images, and you can specify the source (src)

and alternative text (alt) for the image.

Tables: HTML allows you to create tables to display data in rows and columns.The table tag (table) is used to define the table, and you can use other tags like tr (table row) and td (table data) to create the rows and columns.

Forms: HTML allows you to create forms that can be used to collect data from users. Forms are created using the form tag (form) and can include various types ofinput fields like text boxes, radio buttons, check boxes, and drop down lists.

Functions which are used in CSS:

In CSS (Cascading Style Sheets), functions are used to manipulate and transform values of properties. Here are some of the most commonly used functions in CSS:

color functions: CSS provides several functions to manipulate colors, such as rgba(), hsl(), and hexadecimals (#). These functions allow you to adjust the hue, saturation, and lightness of a color, as well as create transparent colors.

calc(): The calc() function is used to perform calculations within CSS. It can be used to combine different units, such as pixels and percentages, or to perform mathematical operations like addition, subtraction, multiplication, and division.

transform functions: CSS provides several transform functions, such as translate(), rotate(), scale(), and skew(), which allow you to manipulatethe position, size, and shape of elements on your web page.

url(): The url() function is used to specify the location of an external

resource, such as an image or font, that you want to use on your web page.

gradient functions: CSS provides several gradient functions, such as linear-gradient() and radial-gradient(), which allow you to create smooth transitions between two or more colors.

attr(): The attr() function is used to access the value of an attribute on an HTML element and use it as a value for a CSS property. This is useful when you want to dynamically style elements based on their attributes.

Main functions used in connecting a website:

There are several main functions that are used in connection with a website,including:

Hosting: A website needs to be hosted on a web server in order to be accessible on the internet. Web hosting services provide the infrastructure, hardware, and software necessary to store and run websites. There are different types of hosting services available, including shared hosting, dedicated hosting, and cloud hosting.

Domain Name System (DNS): The DNS is a system that translates domain names (e.g., example.com) into IP addresses (e.g., 192.0.2.1) that computers can understand. When a user types a domain name into their web browser, the DNS system looks up the IP address associated with that domain name and directs the user to the corresponding website.

Content Management System (CMS): A CMS is a software application that allows users to create, manage, and publish digital content, such as web pages, blog posts, and images. CMSs typically provide a user-friendly interface for managing websitecontent, without requiring advanced technical knowledge.

Web Development Frameworks: Web development frameworks are software platforms that provide a structure for building and organizing websites. Frameworks typically include a set of tools, libraries, and templates that make it easier to create websites by reducing the amount of code that needs to be written from scratch. Examples of popular web development frameworks include WordPress, Drupal, and Laravel.

Web Analytics: Web analytics tools are used to track and analyze website traffic and user behavior. These tools provide insights into how users interact with a website, which pages are most popular, and how long users spend on a website. This information can be used to optimize website design and content, and to improve user engagement.

Security: Website security is an essential function that protects websites from cyber attacks, data breaches, and other security threats. Security measures for websites may include firewalls, SSL certificates, access control, and monitoring and alerting systems.

- **3.2 Coding With Explanation:**

Transaction.sol :

```
// SPDX-License-Identifier:
MITpragma solidity ^0.8.0;

contract Transactions
    { uint256
    transactionCount;
```

```
event
    Transfer( address
    from, address
    receiver, uint256
    amount, string
    message, uint256
    timeStamp,string
    keyword
);

struct TransferStruct
    {address sender;
    address receiver;
    uint256 amount;
    string message;
    uint256
    timeStamp;string
    keyword;
}
TransferStruct[]

transactions;function

addToBlockchain(

    address payable
    receiver,uint256 amount,
    string memory
    keyword,string memory
    message
) public
    { transactionCount +=
    1;transactions.push(
        TransferStruct( m
          sg.sender,
```

receiver,
amount,
message,
block.timestamp
,keyword

```
            )
        );

        emit
            Transfer( msg.se
            nder, receiver,
            amount,
            message,
            block.timestamp
            ,keyword
        );
    }

    function getAllTransaction() public view returns (TransferStruct[] memory)
        {return transactions;
    }

    function getTransactionCount() public view returns (uint256)
        {return transactionCount;
    }
}
```

Deploy.js :

```
const main = async()=>{
// const currentTimestampInSeconds = Math.round(Date.now() / 1000);
// const ONE_YEAR_IN_SECS = 365 * 24 * 60 * 60;
// const unlockTime = currentTimestampInSeconds + ONE_YEAR_IN_SECS;

// const lockedAmount = hre.ethers.utils.parseEther("1");

const Transactions = await hre.ethers.getContractFactory("Transactions");
// const lock = await Lock.deploy(unlockTime, { value:
lockedAmount });const transactions = await Transactions.deploy()
```

```
  await transactions.deployed();

  console.log(
    `Transaction deployed to: ${transactions.address}`
  );
}



const runMain = async() =>
  {try {
    await main();
    process.exit(0);
  }
  catch (err)
    { console.error(er
    r);process.exit(1);

}
}

runMain();
```

Transaction.json :

```
{
  "_format": "hh-sol-artifact-1",
  "contractName": "Transactions",
  "sourceName": "contracts/
  Transactions.sol","abi": [
    {
      "anonymous": false,
```

```
"inputs": [
 {
  "indexed": false,
  "internalType":
  "address","name":
  "from",
  "type": "address"
 },
 {
  "indexed": false,
  "internalType":
  "address","name":
  "receiver",
  "type": "address"
 },
 {
  "indexed": false,
  "internalType":
  "uint256","name":
  "amount",
  "type": "uint256"
 },
 {
  "indexed": false,
  "internalType":
  "string","name":
  "message",
  "type": "string"
 },
 {
  "indexed": false,
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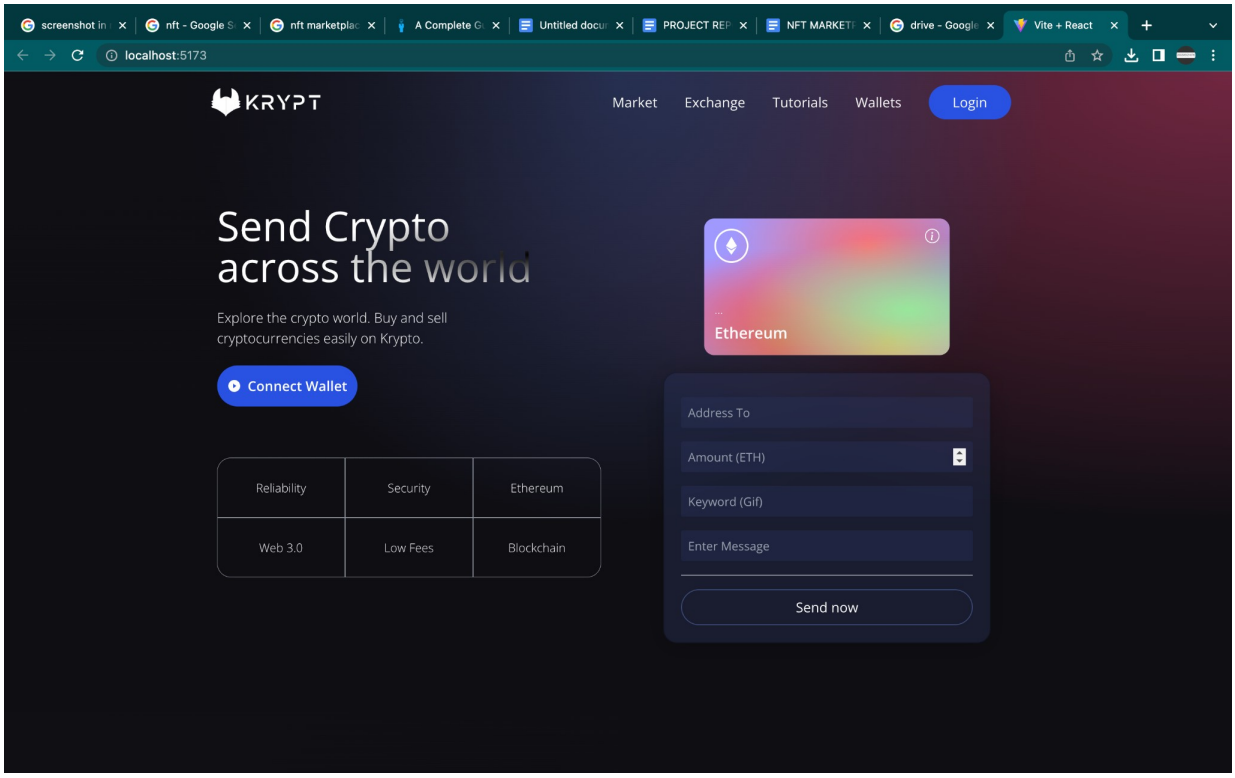
CHAPTER IV
RESULTS

- **RESULT :**

Fig No. : 4.1. Landing Page



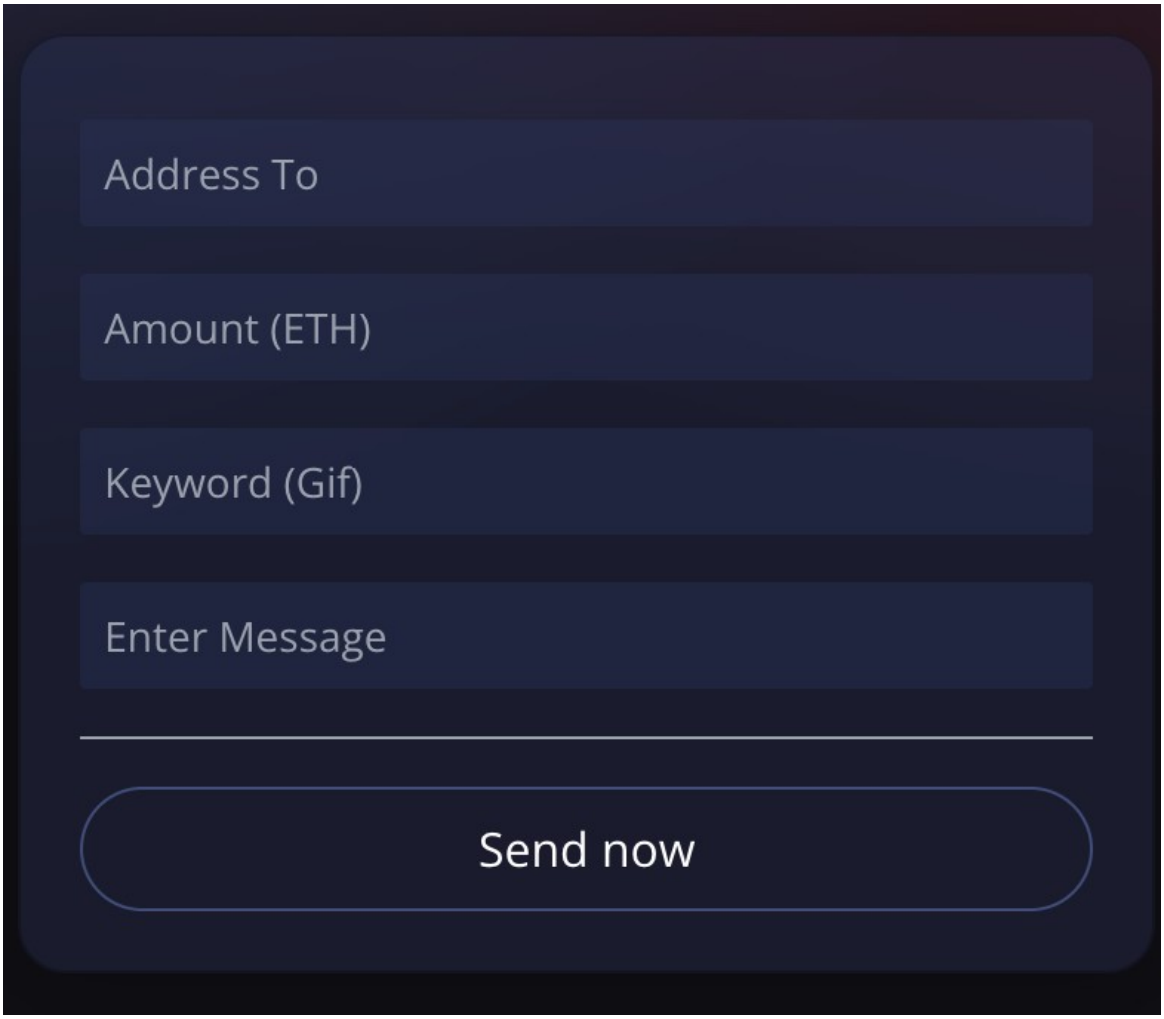


Fig No. : 4.2. Form Entry

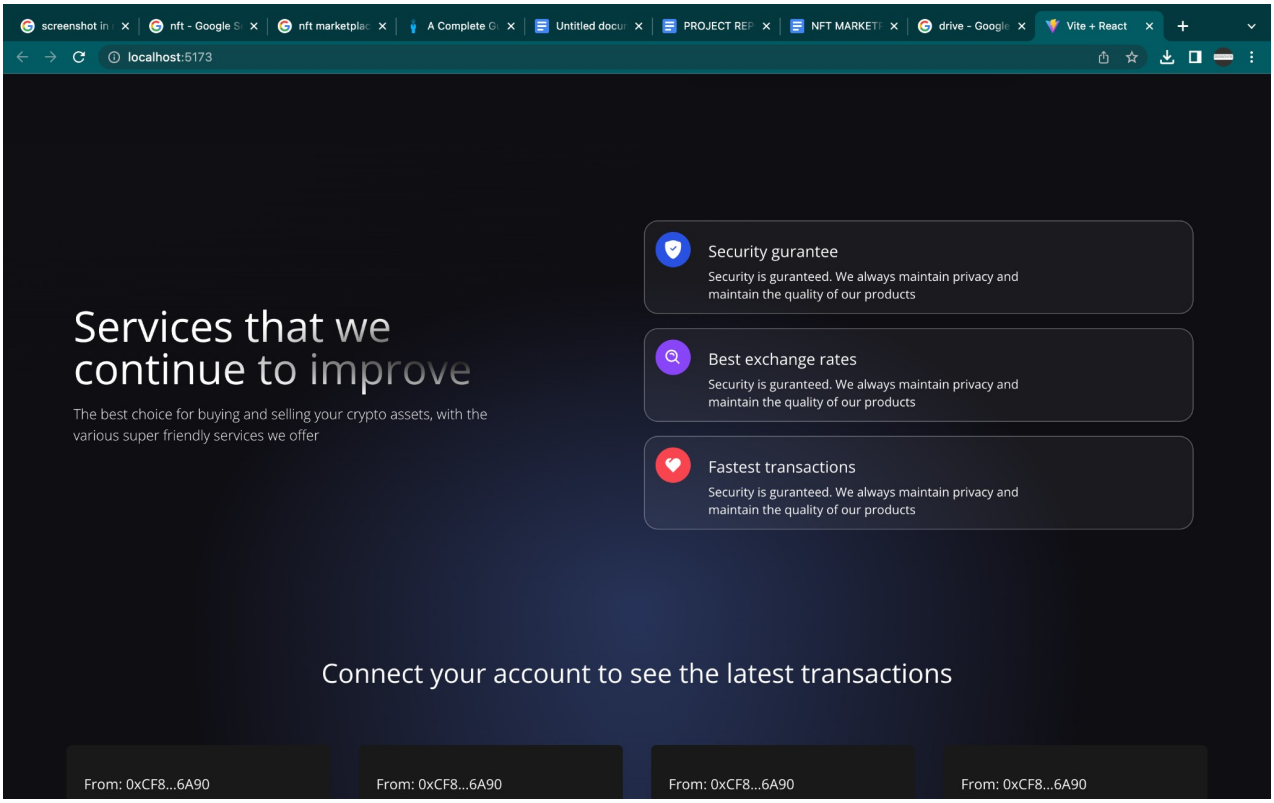


Fig No. : 4.3 Transaction Section

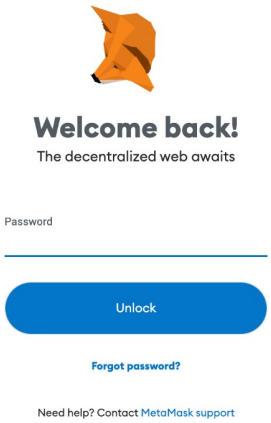


Fig No. : 4.4. Metamask Wallet

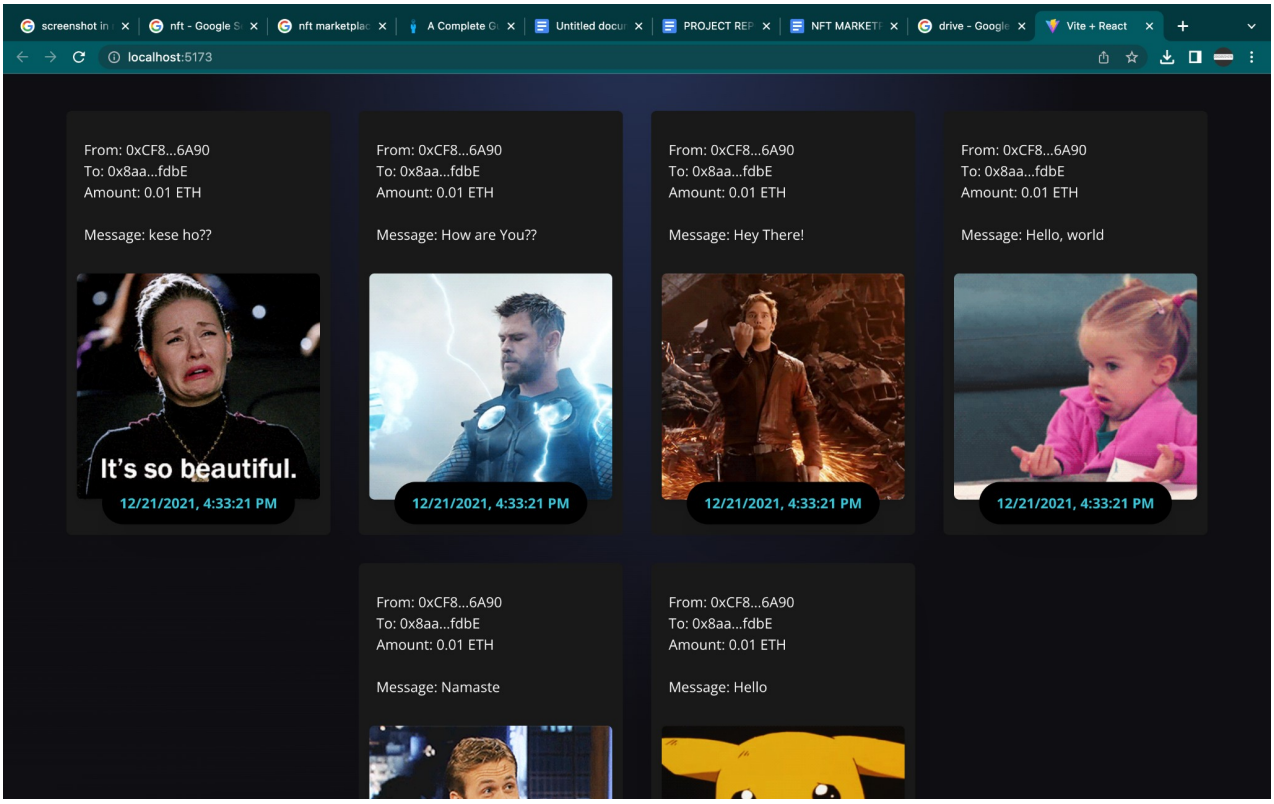


Fig No. : 4.5. Our NFTs

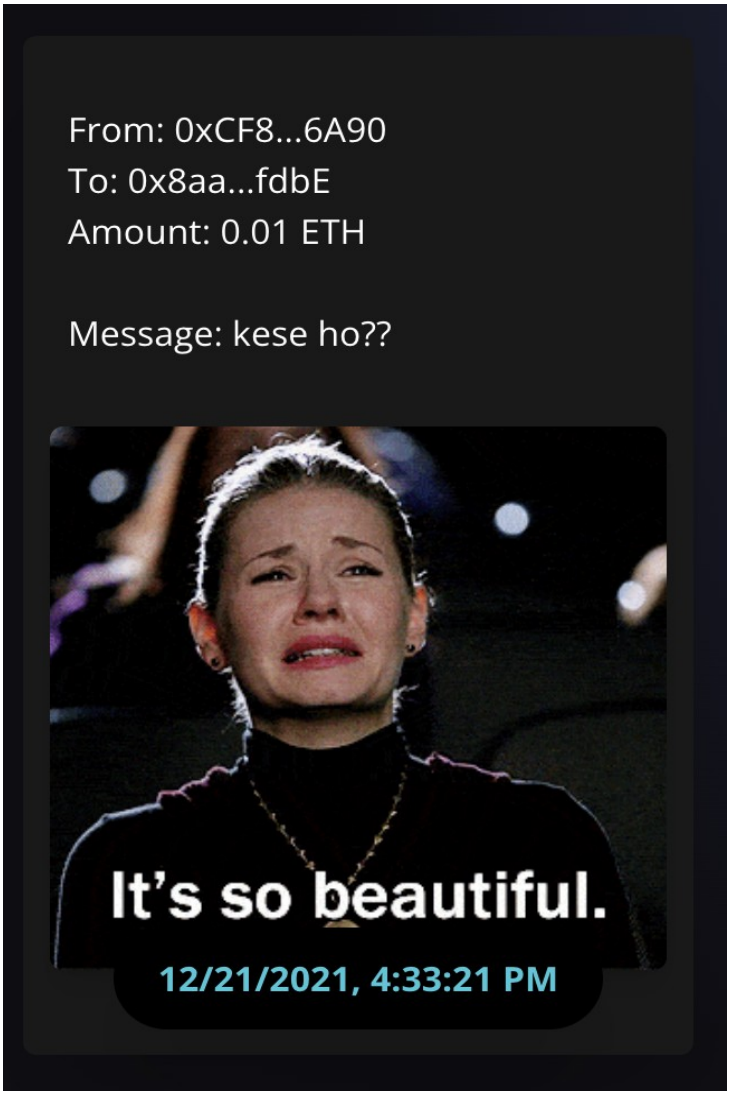


Fig No. : 4.6. Sample NFT

CHAPTER VI
USER MANUAL

6.1 Software Requirements:

To develop an NFT marketplace, We will need a combination of software tools and technologies to create a robust and scalable platform. Here are some of the essential software requirements you may need to consider:

1. Programming languages: You can use a variety of programming languages todevelop an NFT marketplace, including Solidity, JavaScript, Python, Ruby on Rails, and others.
2. Web Development Frameworks: You may want to use a web development framework like React, Vue.js, or AngularJS to build the front-end of your platform.
3. Backend Technologies: You will need a backend technology to build the core functionalities of your NFT marketplace. You may want to use technologies like Node.js, Django, or Ruby on Rails to develop the backend.
4. Cloud Computing Services: To host your NFT marketplace, you may need touse cloud computing services like AWS, Azure, or Google Cloud to ensure scalability and reliability.
5. Blockchain: Since NFTs are built on blockchain technology, you will need tointegrate a blockchain network into your NFT marketplace. Ethereum is currently the most widely used blockchain for NFT development.
6. Smart Contracts: You will need to develop smart contracts to manage thecreation, buying, and selling of NFTs. You may want to use Solidity or another programming language to create smart contracts.
7. Payment Gateways: You will need to integrate payment gateways like Stripe,PayPal, or Coinbase to facilitate transactions between buyers and sellers.
8. Analytics and Reporting: You may want to use analytics and reporting tools like Google Analytics, Mixpanel, or Kibana to track user activity, sales data,and other key metrics.

9. Testing and Quality Assurance: You will need to conduct rigorous testing and quality assurance to ensure that your NFT marketplace is secure, user-friendly, and free of bugs and errors. You may want to use testing tools like Selenium, Mocha, or Jest to automate your testing processes.
10. Project Management: You will need project management tools like Trello, JIRA, or Asana to manage your project and track progress.

These are just a few of the software requirements you may need to consider when developing an NFT marketplace. The specific tools and technologies you choose will depend on the specific requirements of your project, your team's expertise, andyour budget.

• 6.1 Hardware Requirements:

The most common set of requirements defined by any operating system orsoftware application is the physical computer resources, also known as hardware, A hardware requirements list is often accompanied by a hardware compatibility list (HCL), especially in case of operating systems. An HCL lists tested, compatible, and sometimes incompatible hardware devices for a particular operating system or application. The following sub-sections discuss the various aspects of hardware requirements.

Architecture

All computer operating systems are designed for a particular computer architecture. Most software applications are limited to particular operating systems running on particular architectures. Although architecture-independent operating systems and applications exist, most need to be recompiled to run on a new architecture. See also a list of common operating systems and their supporting architectures.

Processing power

The power of the central processing unit (CPU) is a fundamental system requirement for any software. Most software running on x86 architecture define processing power as the model and the clock speed of the CPU. Many other features of a CPU that influence its speed and power, like bus speed, cache, and MIPS are often ignored.

This definition of power is often erroneous, as different makes and models of CPU's at similar clock speed often have different throughputspeeds

Memory

All software, when run, resides in the random access memory (RAM) of a computer. Memory requirements are defined after considering demands of the application, operating system, supporting software and files, and otherrunning processes. Optimal performance of other unrelated software running on a multi-tasking computer system is also considered when defining this requirement.

Secondary storage

Data storage device requirements vary, depending on the size of software installation, temporary files created and maintained while installing or running the software, and possible use of swap space (if RAM is insufficient).

Display adapter[

Software requiring a better than average computer graphics display, like graphics editors and high-end games, often define high-end display adapters in the system requirements.

Peripherals

Some software applications need to make extensive and/or special use of some peripherals, demanding the higher performance or functionality of such peripherals. Such peripherals include CD-ROM drives, keyboards, pointing devices, network devices, etc.

Network

A reliable and fast internet connection with sufficient bandwidth to handleexpected traffic and data transfers.

Operating system

The choice of operating system will depend on the technology used to build the website, but commonly used options include Windows Server,Linux, and mac-OS.

Web server

The web server, such as Apache is necessary to serve the website

content to users. **Database**

If the website requires a database, a separate server with sufficient memory and storage space should be used to host the database.

- **Basic steps to run the project:**

1. Open the project folder in Visual Studio Code.

2. Locate the main HTML file of your website. This file should be named "index.HTML" by default, and should be located in the root folder of yourproject.

3. Right-click on the "index.HTML" file and select "Open with Live Server" from the context menu. If you don't have Live Server extension installed, you can install it from the Visual Studio Code marketplace.

4. Visual Studio Code will automatically launch the website in your defaultbrowser.

5. You can now navigate through your website to ensure that all the pages,

features and functionality are working as expected.

6. If you make any changes to your code, Visual Studio Code will automatically reload the website in the browser to reflect the changes.

Chapter VI
Conclusion and Future Scope

• 6.1 Conclusion :

In conclusion, the development of an NFT marketplace is a complex and challenging project that requires a combination of programming languages, web development frameworks, backend technologies, blockchain integration, smart contracts, payment gateways, analytics, and testing tools.

The project involves several modules, including user registration and onboarding, NFT creation and management, NFT marketplace and trading, payment and escrow, notifications and messaging, analytics and reporting, security and compliance, and support and helpdesk.

To develop an NFT marketplace, it is essential to have a skilled team of developers, designers, project managers, and QA testers who can work together to create a user-friendly, secure, and scalable platform. The project requires a significant investment of time, resources, and money, and it is essential to conduct thorough planning, research, and analysis before beginning the development process.

Once developed, an NFT marketplace has the potential to revolutionize the way we buy, sell, and trade digital assets, providing a secure and transparent platform for artists, collectors, and investors to connect and transact. The growth of the NFT industry is showing no signs of slowing down, and an NFT marketplace can be a valuable addition to the digital asset ecosystem.

Overall, the development of an NFT marketplace is a challenging but rewarding project that requires a deep understanding of blockchain technology, programming, and web development. With careful planning, execution, and ongoing maintenance,

an NFT marketplace can be a powerful tool for creators and investors alike, unlocking new opportunities and driving innovation in the digital asset space.

• 6.2 Future Scope :

The future scope of an NFT marketplace project is significant, considering the current trend of the NFT industry and its growing adoption. Some of the potential future scope of an NFT marketplace project could include:

1. Expansion of the platform: Once the NFT marketplace is established, it canbe expanded to include additional features and functionalities to cater to the needs of users. This can include adding new categories of NFTs, improvingthe user interface, and enhancing the overall user experience.
2. Integration with more blockchain networks: While Ethereum is currently themost popular blockchain used for NFT development, other blockchain networks, such as Binance Smart Chain and Polygon, are also gaining traction. Integrating with more blockchain networks can open up new opportunities for creators and investors to transact in a more cost-effective and efficient manner.
3. Collaboration with other NFT platforms: Collaboration with other NFT platforms can provide a broader user base and help promote the NFT marketplace. Partnering with other NFT marketplaces can also help facilitatecross-platform trading, thereby increasing liquidity.
4. Development of mobile applications: As mobile usage continues to grow, developing a mobile application for the NFT marketplace can be a crucial step in reaching a wider audience. Mobile applications can provide a more seamless and convenient way for users to interact with the NFT marketplace.
5. Integration with decentralized finance (DeFi): Integration with DeFi platforms can enable NFT owners to leverage their NFTs as collateral for loans or provide liquidity to earn interest. Integrating with DeFi platforms can also enable the creation of new financial instruments, such as NFT indexfunds.

In conclusion, the future scope of an NFT marketplace project is vast and exciting, with opportunities for expansion, collaboration, and integration with other technologies. Keeping up with the latest trends and technologies can help the NFT marketplace project remain relevant and competitive in the rapidly evolving NFT industry.

Chapter VII
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