School: .... Campus: ....

Academic Year: .... Subject Name: .... Subject Code: ....

Semester: .... Program: .... Branch: .... Specialization: ....

Date: ....

Applied and Action Learning
(Learning by Doing and Discovery)

Name of the Experiement : Mint it Yourself – NFT Creation and Deployment

Objective/Aim:

To learn how to design, mint, and deploy a Non-Fungible Token (NFT) on the Ethereum test network (Sepolia), and to understand each step involved in the creation and storage of NFTs on the blockchain.

Apparatus/Software Used:

- Laptop
- Remix IDE
- MetaMask
- Pinata(ipfs)
- Visual Studio Code

Theory/Concept:

1. Understanding NFTs

A **Non-Fungible Token (NFT)** is a digital token that represents ownership of a specific, unique digital or physical item on a blockchain network.
Unlike cryptocurrencies such as Bitcoin or Ether, where each unit is identical and interchangeable, NFTs are **unique and cannot be swapped on a one-to-one basis**.

NFTs are commonly implemented using the **ERC-721** or **ERC-1155** token standards on Ethereum and other compatible blockchains.
They are widely used in areas like:

- Digital art and collectibles
- Music and videos
- Game items and avatars
- Virtual real estate
- Event tickets or certificates

Minting refers to the process of creating a new NFT on the blockchain, which permanently records its metadata and ownership details.

Metadata provides essential details such as the NFT's name, image link, and description. It is usually stored **off-chain** using platforms like **Pinata (IPFS)**, and a **URI (Uniform Resource Identifier)** connects it to the smart contract on-chain.

Procedure:

Upload the Digital File:

The digital asset (image, audio, or video) is uploaded to a decentralized file storage system such as **IPFS** using **Pinata**.

Create Metadata File:

Prepare a **JSON file** containing the NFT's details — name, description, and the IPFS link of the uploaded file.

Write Smart Contract:

Develop an **ERC-721 standard smart contract** in **Remix IDE** that defines the minting and ownership functions for NFTs.

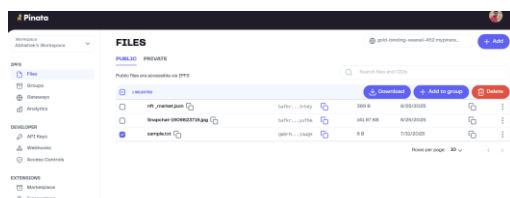**Deploy Contract and Mint NFT:**

Use **MetaMask** to connect to the **Ethereum Sepolia testnet**, deploy the contract, and call the **mint()** function to generate a new NFT.

1. **Record Ownership:**
   Once minted, the NFT is assigned to the wallet address of the creator (minter). Ownership details are securely stored on the blockchain and can be verified through any **blockchain explorer**

Observation Table:

Successfully deployed an NFT smart contract on the blockchain using Remix IDE and MetaMask. The minting process created unique tokens, each with a distinct token ID and ownership recorded on-chain. The minted NFTs were visible in the connected wallet and could be verified using

.

ASSESSMENT

Rubrics	Full Mark	Marks Obtained	Remarks
Concept	10		
Planning and Execution/ Practical Simulation/ Programming	10		
Result and Interpretation	10		
Record of Applied and Action Learning	10		
Viva	10		
Total	**50**		

Signature of the Faculty:

Signature of the Student:
Name :
Regn. No.