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 Experiment: Mint it Yourself – NFT Creation and Deployment**

## *Objectives/Aim:

The objective of this experiment is to understand and implement the complete lifecycle of an NFT (Non-Fungible Token) by creating metadata, hosting it on IPFS using Pinata, deploying an ERC-721 smart contract using Remix IDE, and minting the NFT to a wallet address with the associated metadata.

## *Coding Phase: Pseudo Code / Flow Chart / Algorithm

1. First we need to create a metadata.json file on our system with keys name,description, image and attributes.
2. Then we login to our pinata cloud system and open an .jpg or .png file and copy its url
3. In .json file with key as image we need to paste the image url and save the file
4. Then we need to upload the .josn file on pinate and open it and copy the meatadata uri
5. Then we need to go to the remix ide and create a smart contract and compile it
6. Upon successful compilation we need to deploy the contract by setting up the development environment to Injected Provider-MetaMask and by initializing the name(“Apecollection”), symbol(“APEC”) and initial owner(“our metamask wallet address”)
7. Then we need to deploy our transaction by confirming through metamask popup
8. After successful deployment under deployed contract section for minting we should go to the MINTTO section
9. Under this section we should input data to “to” and “metadataURI” field i.e in ‘to’ field our wallet address and in metadataURI filed our pinata metadata.json URI
10. Then click on transact and click on confirm by metamask popup
11. Then our contract will be minted successfully
12. In MetaMask wallet under NFTs section we can discover our NFTs tokens.



**** As applicable according to the experiment.***

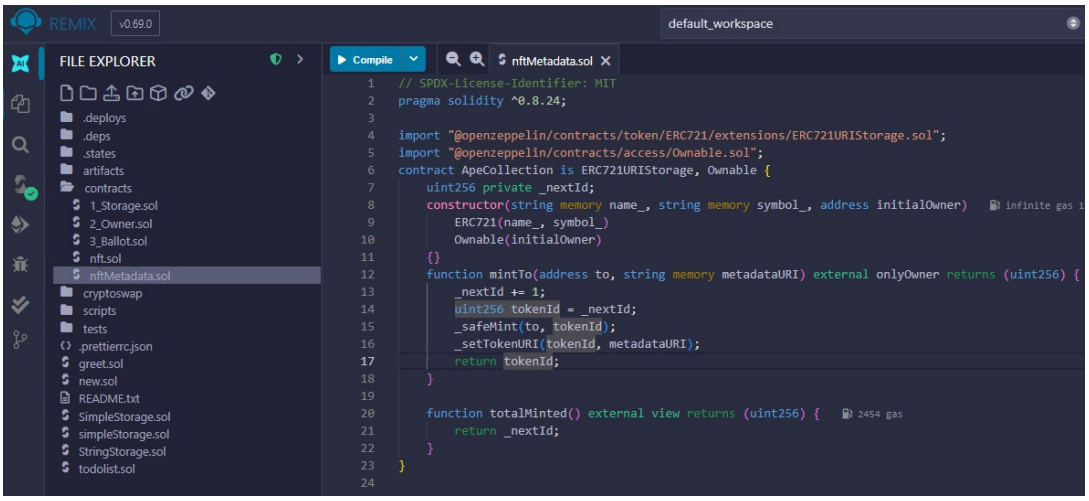
***Two sheets per experiment (10-20) to be used.***

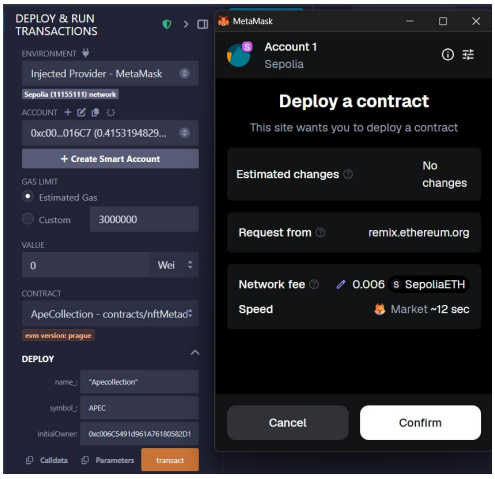
## * Testing Phase: Compilation of Code (error detection)

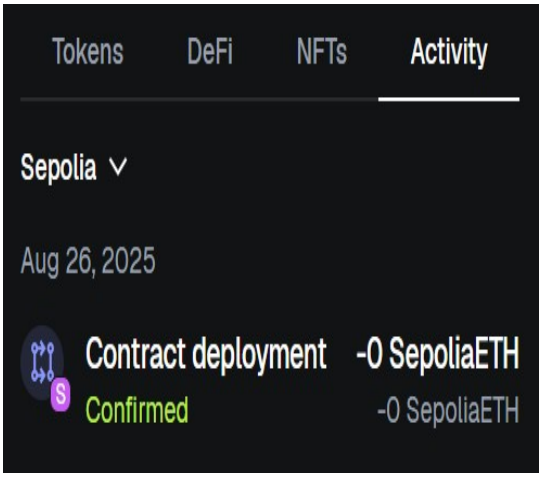
**NO ERROR**

## * Implementation Phase: Final Output (no error)


```
{
  "name": "CUTM Badge #2",
  "description": "NFT demo for Blockchain Studnets on Sepolia.",
  "image": "https://tan-tricky-basilisk-330.mypinata.cloud/ipfs/bafybeibug46wz2inmk6hqprfyvq5e3nl5kuzr5y5jdivxzh3psy3e5pvnu",
  "attributes": [
    {
      "trait_type": "Department",
      "value": "CSE"
    },
    {
      "trait_type": "Campus",
      "value": "BBSR"
    }
  ]
}
```

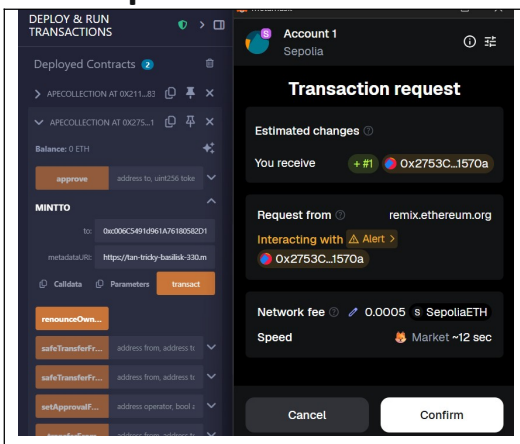



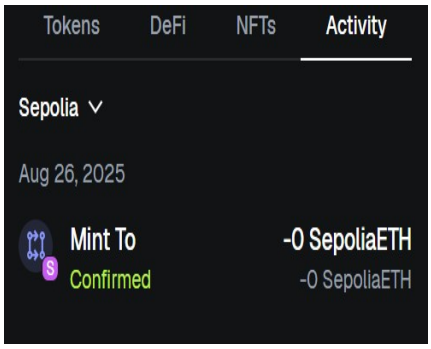



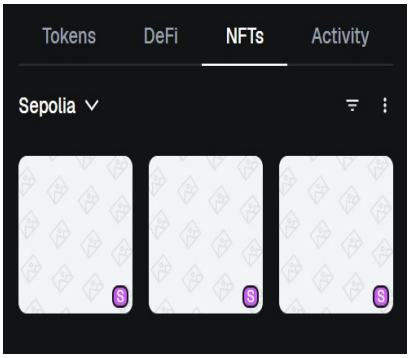



**** As applicable according to the experiment.***
***Two sheets per experiment (10-20) to be used.***

## * Implementation Phase: Final Output (no error)




## * Observation :

**From this experiment we observed that :**

- The NFT creation process integrates both off-chain (Pinata) and on-chain (smart contract) components.
- Manual metadata and URI management are essential steps before minting.
- Remix IDE and MetaMask provide a beginner-friendly environment for smart contract deployment.
- Pinata ensures reliable and decentralized storage of NFT assets.
- Successful NFT minting requires accurate input of wallet address and metadata URI.
- MetaMask acts as both a deployment tool and wallet for holding the minted NFTs.
- The entire process demonstrates a clear workflow for self-minting NFTs without third-party platforms.

## 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 Student :***

***Name :***

***Signature of the Faculty :***

***Regn. No. :***



**** As applicable according to the experiment.***
***Two sheets per experiment (10-20) to be used***