



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:

To understand how to **create (mint)** and **deploy** an **NFT (Non-Fungible Token)** smart contract on the Ethereum blockchain using **Solidity** and **Web3 tools** such as **Remix**, **Truffle**, or **Hardhat**.

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

1. **Start**
2. Import ERC-721 standard from OpenZeppelin.
3. Define contract with name and symbol.
4. Define mintNFT() function:
5. generate unique token ID.
6. assign metadata URI.
7. assign ownership to caller.
8. Compile smart contract in Solidity.
9. Deploy contract using Remix or Hardhat.
10. Mint NFT → confirm transaction on blockchain.
11. Verify NFT details via Etherscan or OpenSea testnet.
12. **End**

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

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

**NO ERROR**

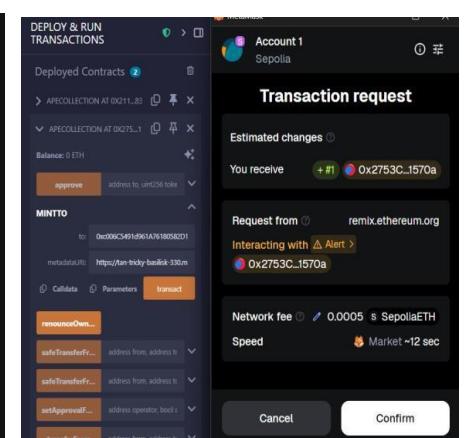
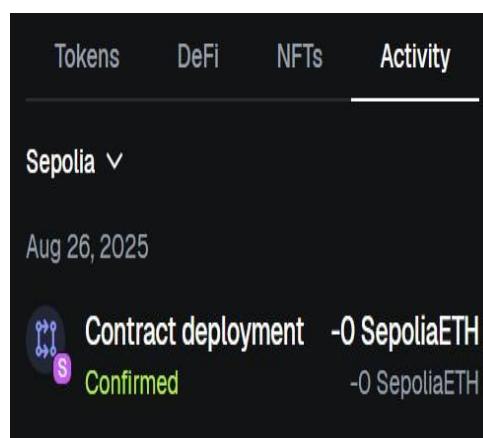
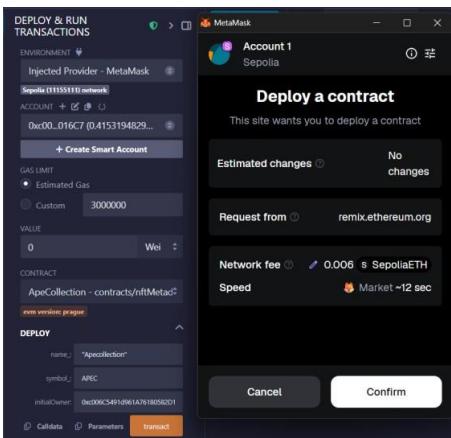
## \* Implementation Phase: Final Output (no error)

```
{
  "name": "CUTM Badge #2",
  "description": "NFT demo for Blockchain Studnets on Sepolia.",
  "image": "https://tan-tricky-basilisk-330.myipfs.bafybeibug46wzzinmk6hqprfyvq5e3n1skuzr5y5jdivxzh3psy3e5pvnu",
  "attributes": [
    {
      "trait_type": "Department",
      "value": "CSE"
    },
    {
      "trait_type": "Campus",
      "value": "BBSR"
    }
  ]
}
```

The screenshot shows the REMIX IDE interface with the file nftMetadata.sol selected in the left sidebar's file explorer. The main editor window displays the Solidity code for the ApeCollection contract, which includes imports for ERC721 and Ownable, and defines a constructor and two functions: mintTo and totalMinted. The code is highlighted in various colors according to the Solidity syntax.

```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.24;

import "@openzeppelin/contracts/token/ERC721/extensions/ERC721URIStorage.sol";
import "@openzeppelin/contracts/access/Ownable.sol";
contract ApeCollection is ERC721URIStorage, Ownable {
    uint256 private _nextId;
    constructor(string memory name_, string memory symbol_, address initialOwner) {
        ERC721(name_, symbol_);
        Ownable(initialOwner);
    }
    function mintTo(address to, string memory metadataURI) external onlyOwner returns (uint256) {
        _nextId += 1;
        uint256 tokenId = _nextId;
        _safeMint(to, tokenId);
        _setTokenURI(tokenId, metadataURI);
        return tokenId;
    }
    function totalMinted() external view returns (uint256) {
        return _nextId;
    }
}
```



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

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

Tokens	DeFi	NFTs	Activity
Sepolia ✓			
Aug 26, 2025			
 Mint To Confirmed	-0 SepoliaETH	-0 SepoliaETH	

Tokens	DeFi	NFTs	Activity
Sepolia ✓			
 The Exhibition	 The Exhibition	 The Exhibition	
College Tech Fe...	College Tech Fe...	College Tech Fe...	

### \* Observation :

From this experiment we observed that :

- 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		
<b>Total</b>	<b>50</b>		

*Signature of the Student :*

*Name :*

*Signature of the Faculty :*

*Regn. No. :*

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