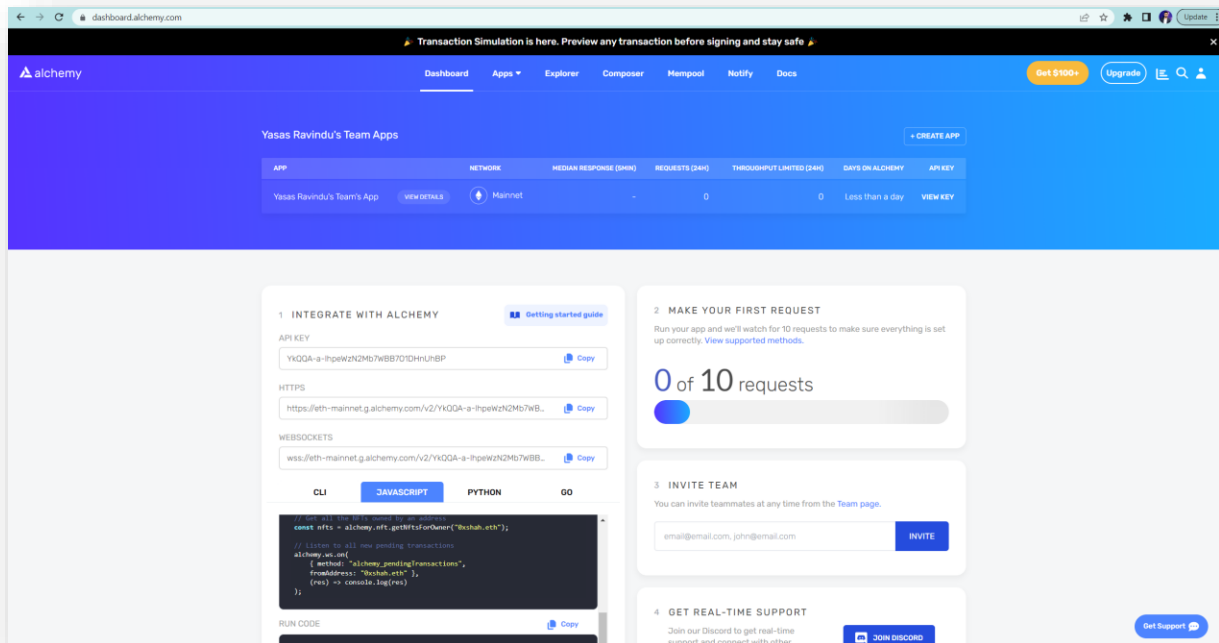


Steps of Develop and Deploy NFT contract

1. Connect with ETHEREUM Network

- a. create free account in alchemy block chain developer platform.
- b. Plan to deploy ERC-721 contracts into **Goerli** Test network.
 - i. Why Goerli?
 1. Lightweight and fast – block time about 15 secs



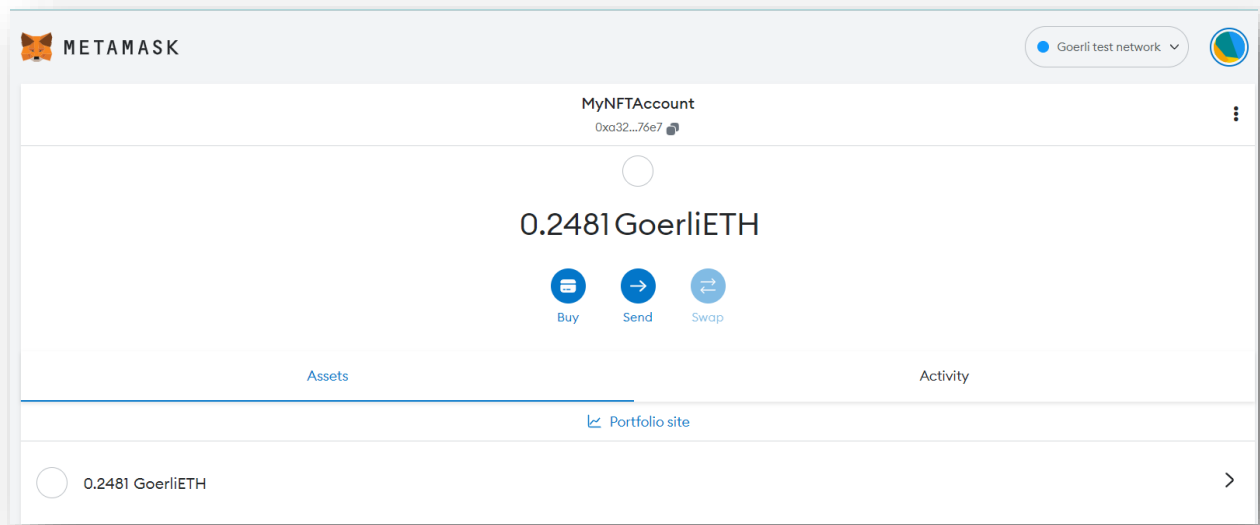
2. Generate API keys and access url in Alchemy for ETHEREUM Network

Eg:

API KEY – wR-F2H3s29xwPrUxBQlftGuNFp771_qs

ACCESS URL - https://eth-goerli.g.alchemy.com/v2/wR-F2H3s29xwPrUxBQlftGuNFp771_qs

3. Create Account for Metamask and get the private key from metamask to integrate from our application code



4. Set private key, public key (wallet address) and API URL in .env file in the application.

```
.env
1 API_URL="https://eth-goerli.g.alchemy.com/v2/wR-F2H3s29xwPrUxBQ1fTGUNFp771_qs"
2 PRIVATE_KEY="f8f39c4f04c0353cd3e73335c69ce8eb00bb2f004ce342963f4ecd12abb51255"
3 PUBLIC_KEY = "0xa3277306462F05eBaB9AaC6BbFcB928c385576e7"
```

5. Deploy the smart contract using given script.
 - Deploy script - `\MercedeseNFT\scripts\deploy.js`
 - Smart Contract Script – `\MercedeseNFT\contracts\MerceNFT1.sol`
 - Command - `npm run hardhat --network goerli run scripts/deploy.js`

After successful deploy – should be able to appear these below logs

```
PS C:\Users\Administrator\Desktop\Job Hunt Selfstudy\Mercedes Benz Assignment\MercedesenFT> npx hardhat --network goerli run scripts/deploy.js
MerceNFT1 contract deployed to address: 0xf2C7770BCaCaf79c54C5F0172748fb547AF221d9
MerceNFT1 contract valid start date: 1673049600
MerceNFT1 contract valid end date: 1681430400
PS C:\Users\Administrator\Desktop\Job Hunt Selfstudy\Mercedes Benz Assignment\MercedesenFT>
```

6. Verify the contract from <https://goerli.etherscan.io/>

The screenshot shows the Etherscan interface for a contract on the Goerli testnet. The contract address is 0xf2C7770BCaCaf79c54C5F0172748fb547AF221d9. The overview section shows an ETH balance of 0. The 'More Info' section lists the contract creator as 0xa32773...385576e7 at transaction 0x1fbb17600bb88fa3... The 'Multi Chain' section shows no other addresses. The 'Transactions' tab is active, showing a single transaction: 0x1fbb17600bb88fa3... with a value of 0 ETH and a transaction fee of 0.05981997.

The screenshot shows the transaction details for 0x1fbb17600bb88fa3a309ea04984e573e7d817ba89f0a9d90ab30af7f7c0e830 on the Goerli testnet. The transaction is marked as 'Success' and occurred 6 minutes ago on March 16, 2023. It was created by 0xf2c7770bcacaf79c54c5f0172748fb547af221d9. The transaction value is 0 ETH, and the fee is 0.059819976488626432 ETH. The gas price is 20.570038736 Gwei. A note at the bottom states: 'A transaction is a cryptographically signed instruction that changes the blockchain state. Block explorers track the details of all transactions in the network. Learn more about transactions in our Knowledge Base.'

7. Get contract address from transaction details, as highlighted below

The screenshot shows the Etherscan 'Transaction Details' page for a Goerli Testnet transaction. The transaction is successful and has 24 block confirmations. The 'To' field, which is the contract address, is highlighted in yellow and reads: `0xf2c7770bcacaf79c54c5f0172748fb547af221d9`. The transaction hash is `0x1fbb17600bb88fa3a309ea04984e573e7d817ba89f0a9d90ab30af77c0e830`. The transaction value is 0 ETH, and the gas price is 20.570038736 Gwei.

Transaction Details

[This is a Goerli Testnet transaction only]

Transaction Hash: `0x1fbb17600bb88fa3a309ea04984e573e7d817ba89f0a9d90ab30af77c0e830`

Status: Success

Block: `8665128` 24 Block Confirmations

Timestamp: 6 mins ago (Mar-16-2023 01:49:36 PM +UTC)

From: `0xa3277306462F05eBaB9AaC6BbFcB928c38557e7`

To: `0xf2c7770bcacaf79c54c5f0172748fb547af221d9` Created

Value: 0 ETH (\$0.00)

Transaction Fee: 0.059819976488626432 ETH (\$0.00)

Gas Price: 20.570038736 Gwei (0.000000020570038736 ETH)

More Details: [+ Click to show more](#)

A transaction is a cryptographically signed instruction that changes the blockchain state. Block explorers track the details of all transactions in the network. Learn more about transactions in our [Knowledge Base](#).

8. Create account in pinata for create nft token and specific meta data

The screenshot shows the Pinata Files management interface. It displays a list of files with their names, content identifiers (CIDs), and submission status. The files listed are 'nft-metadata.json' and 'MERCFutureNFT'. The interface includes a sidebar with navigation options like Files, Gateways, API Keys, Submarine Keys, Access Controls, and Documentation. The main area shows the 'Files' section with a table of uploaded files.

Pinata

Files

Gateways

API Keys

Submarine Keys

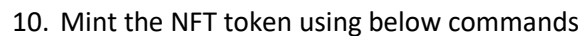
Access Controls

Documentation

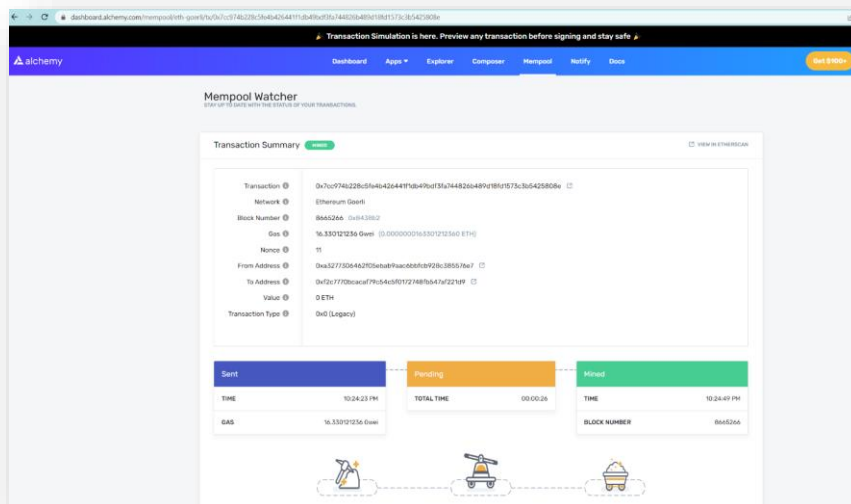
Files

Name	Content Identifier (CID)	Submitted	Actions
nft-metadata.json 3/16/2023 3:41 a	QmQ11EMYUGQubkhUEqk7qr3AjP2BMSxIRDFdJPqI	False	Share More
MERCFutureNFT 3/16/2023 1:27:34 ko	QmP2RLHhKdQJhKRGNg2r5g98LmRNEgA5u8uFAPkocK	False	Share More

<https://gateway.pinata.cloud/ipfs/QmP2ftLHHdGjHxRGNgZr9gf88LnfBNEqA5u8ujFaP6o0K>



Check result from Alchemy mempool watcher



Goerli Testnet

Search by Address / Txn Hash / Block / Token

Etherscan

HomeBlockchainTokensNFTsMisc

Transaction Details

OverviewLogs (2)State

More

[This is a Goerli Testnet transaction only]

Transaction Hash:

0x7cc974b228c5fe4b426441f1db49bdf3fa744826b489d18fd1573c3b5425808e

Status:

Success

Block:

86652664 Block Confirmations

Timestamp:

1 min ago (Mar-16-2023 02:24:48 PM +UTC)

From:

0xa3277306462F05eBaB9AaC6BbFcB928c385576e7

Interacted With (To):

0xf2C7770BCAcAF79c54C5F0172748fb547AF221d9

ERC-721 Tokens Transferred:

ERC-721 Token ID [1] MerceNFT1... (NFT...)

From 0x000000...00000000 To 0xa32773...385576e7

Value:

0 ETH (\$0.00)

Transaction Fee:

0.003143597328293708 ETH (\$0.00)

Gas Price:

16.330121236 Gwei (0.000000016330121236 ETH)

More Details:

+ Click to show more

A transaction is a cryptographically signed instruction that changes the blockchain state. Block explorers track the details of all transactions in the network. Learn more about transactions in our Knowledge Base.