

ASSIGNMENT

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Project github link: [parth5805/full-stack-ethereum-dapp-for-erc20 \(github.com\)](https://github.com/parth5805/full-stack-ethereum-dapp-for-erc20)

Project name:- **Full stack Dapp for accessing ERC20 functions**

Project description:- This is a full stack dapp which helps user to manage ERC20 function with simple user interface. This app includes following Features.

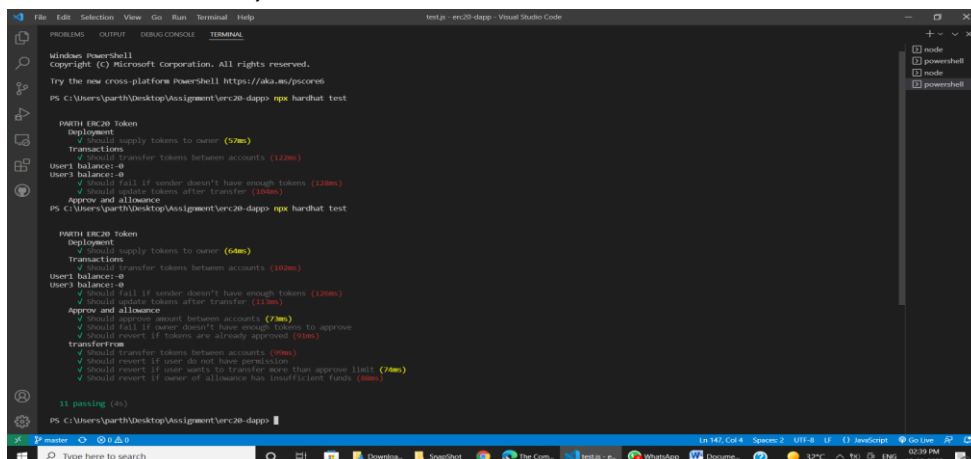
- Get token details
- Get user balance
- Send tokens
- Approve user to spend our tokens
- Send tokens from owner account

Tasks which I have performed

1. Create ERC20 token from scratch without using any library
2. Create Test cases for my token contract
3. I used hardhat to deploy and used chai library to test my contract
4. I created basic front end in React to interact with my contract methods
5. I deploy my contract on Ropsten testnet by using Alchemy

Here are some Snapshot of my project

Test case result of my contract



```
test.js - erc20-dapp - Visual Studio Code

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/powershell

PS C:\Users\parth\Desktop\Assignment\erc20-dapp> npm run hardhat test

PARTH ERC20 Token
Deployment
  ✓ should supply tokens to owner (97ms)
Transactions
  ✓ should transfer tokens between accounts (120ms)
User's balance: 0
  ✓ should fail if sender doesn't have enough tokens (120ms)
  ✓ should update tokens after transfer (100ms)
Approve and allowance
PS C:\Users\parth\Desktop\Assignment\erc20-dapp> npm run hardhat test

PARTH ERC20 Token
Deployment
  ✓ should supply tokens to owner (66ms)
Transactions
  ✓ should transfer tokens between accounts (102ms)
User's balance: 0
  ✓ should fail if sender doesn't have enough tokens (120ms)
  ✓ should update tokens after transfer (113ms)
Approve and allowance
  ✓ should approve amount between accounts (77ms)
  ✓ should fail if owner doesn't have enough tokens to approve
  ✓ should revert if tokens are already approved (91ms)
Transfer from
  ✓ should transfer tokens between accounts (90ms)
  ✓ should revert if user do not have permission
  ✓ should revert if user wants to transfer more than approve limit (74ms)
  ✓ should revert if owner of allowance has insufficient funds (80ms)

11 passing (8s)

PS C:\Users\parth\Desktop\Assignment\erc20-dapp>
```

User Interface Design

ERC20 Functions

METAMASK ACCOUNT:- : 0x34c86f8c5f14e1b3ec20b14694f663cce92f7f51

Function for Token Details()

See Token Details

Function balanceOf()

check your account balance

0

Function transfer()

recipient address

enter recipient address

Amount

enter token amount

Send Tokens

Function Approve()

Spender address

enter spender address

amount limit

enter maximum amount which spender can transfer

Approve

Function TransferFrom()

Owner address

enter tokens owner address

recipient address

enter recipient address

amount

enter amount which you want transfer from owner account

Transfer From

OUTPUT:- Token details

ERC20 Functions

METAMASK ACCOUNT:- : 0x34c86f8c5f14e1b3ec20b14694f663cce92f7f51

Function for Token Details()

See Token Details

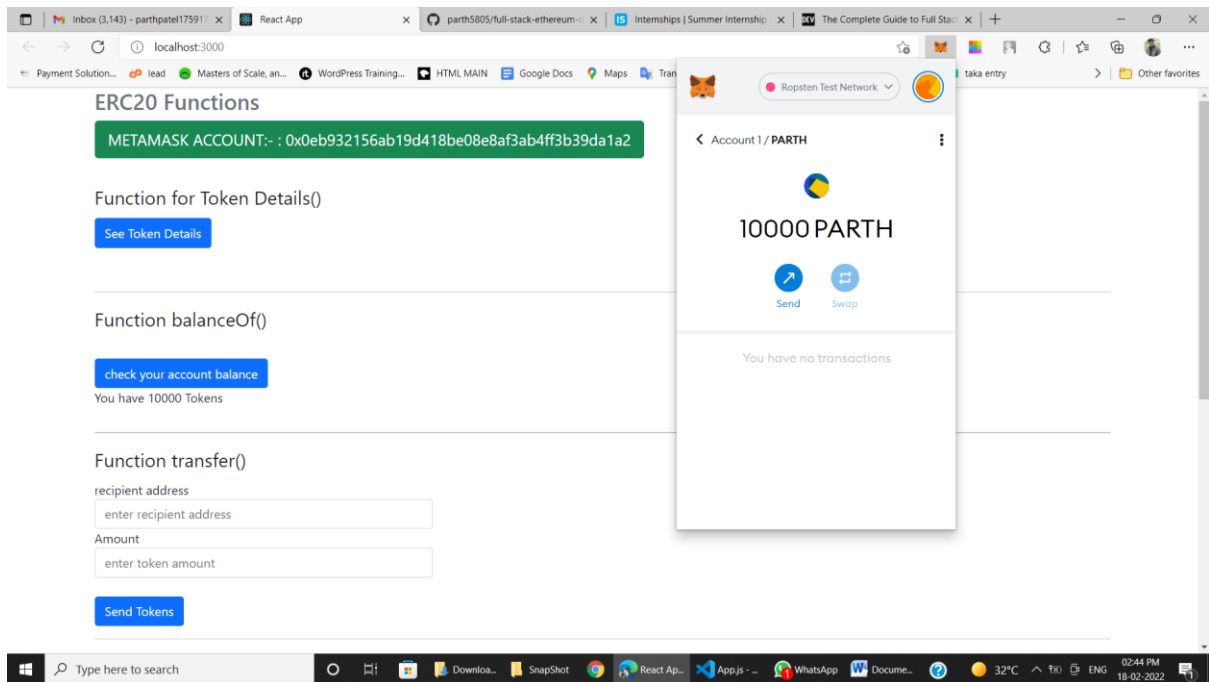
Token name Parth Token

Token standard PARTH v1.0

Token symbol PARTH

Total Supply 10000

OUTPUT:- Import token in metamask



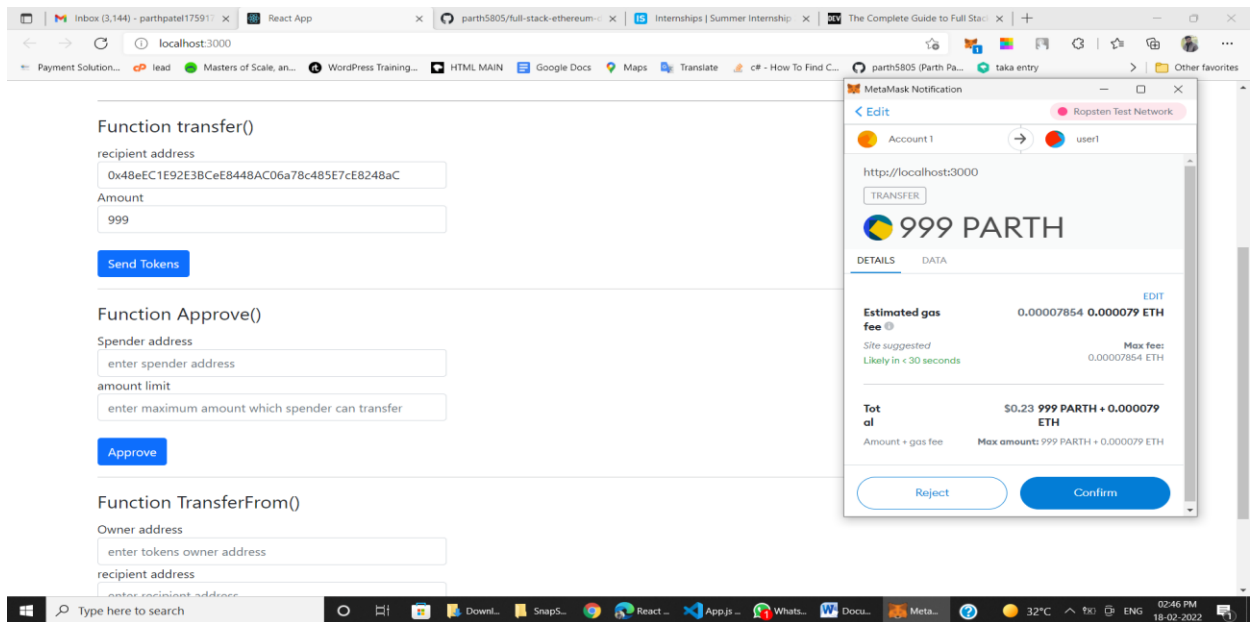
OUTPUT:- get balance()

Function balanceOf()

check your account balance

You have 10000 Tokens

OUTPUT:- transfer Token()



OUTPUT:- Transaction waiting

Function transfer()

recipient address

0x48eEC1E92E3BCeE8448AC06a78c485E7cE8248aC

Amount

999

Send Tokens

your txn is under process wait....

OUTPUT: AFTER 5-6 seconds

Function transfer()

recipient address

0x48eEC1E92E3BCeE8448AC06a78c485E7cE8248aC

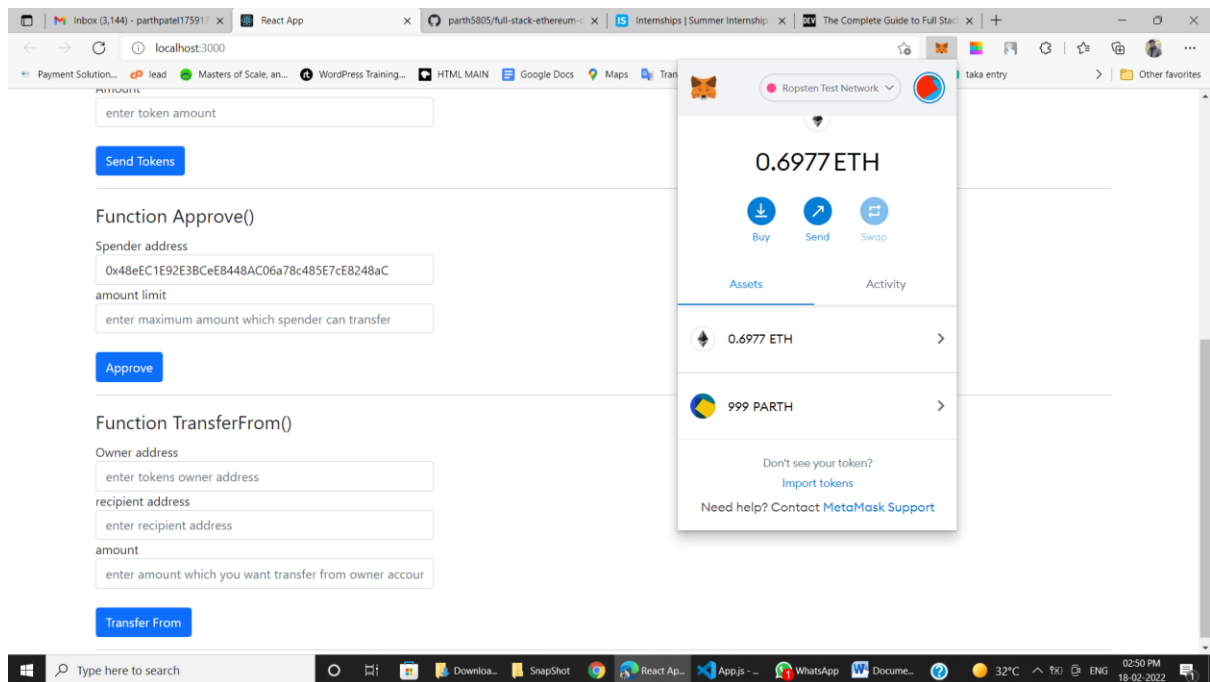
Amount

999

Send Tokens

Transaction Hash:-0x4b8f90d4c17bad7bc16ad02e915190c85f38de7f5ac14ea82bd3e94fcf641c3a

OUTPUT:- recipient balace



OUTPUT:- Approve balance ERROR

Function Approve()

Spender address

0x48eEC1E92E3BCeE8448AC06a78c485E7cE8248aC

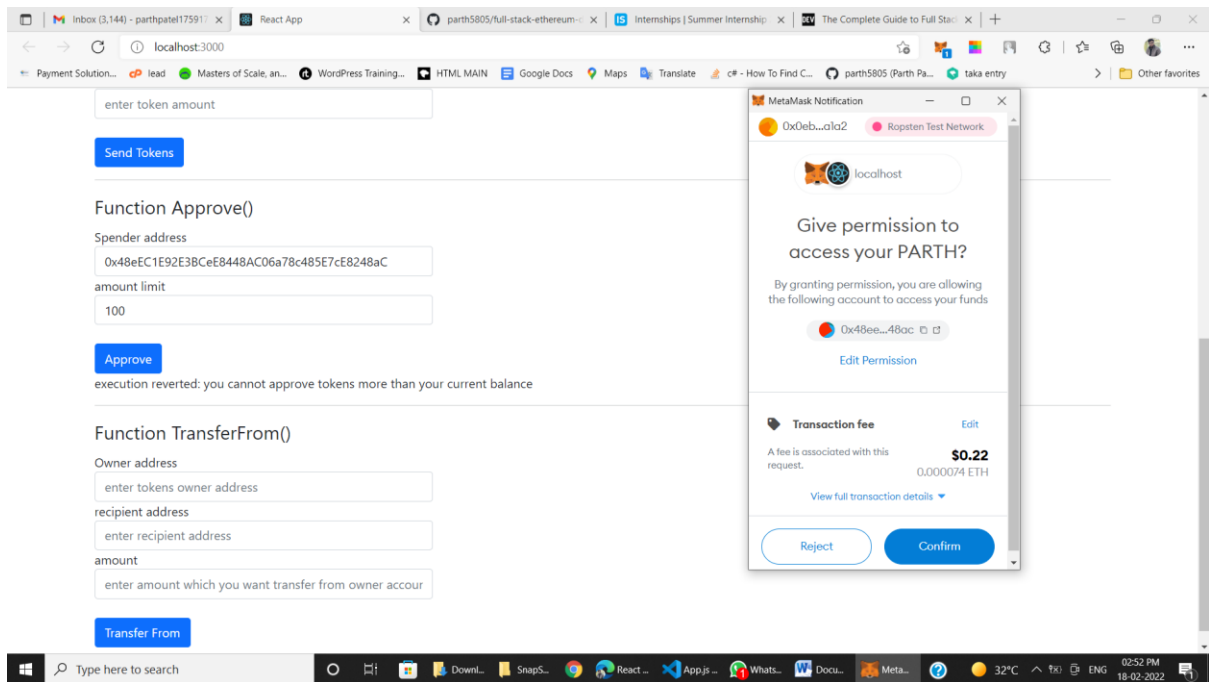
amount limit

111111

Approve

execution reverted: you cannot approve tokens more than your current balance

Output:- approve popup



Output:- approve success

Function Approve()

Spender address

0x48eEC1E92E3BCeE8448AC06a78c485E7cE8248aC

amount limit

100

Approve

Token Approved

your Transcation Hash:-0x325366a44ba0f454701b9d5638e1d08fd20f0ca0b60b3938ddc02887c89b8f45

Output:- Transfer form method errors

Function TransferFrom()

Owner address

0x0eb932156Ab19d418Be08e8af3ab4fF3B39da1A2

recipient address

0x34C86f8C5F14e1b3ec20b14694f663cCE92f7f51

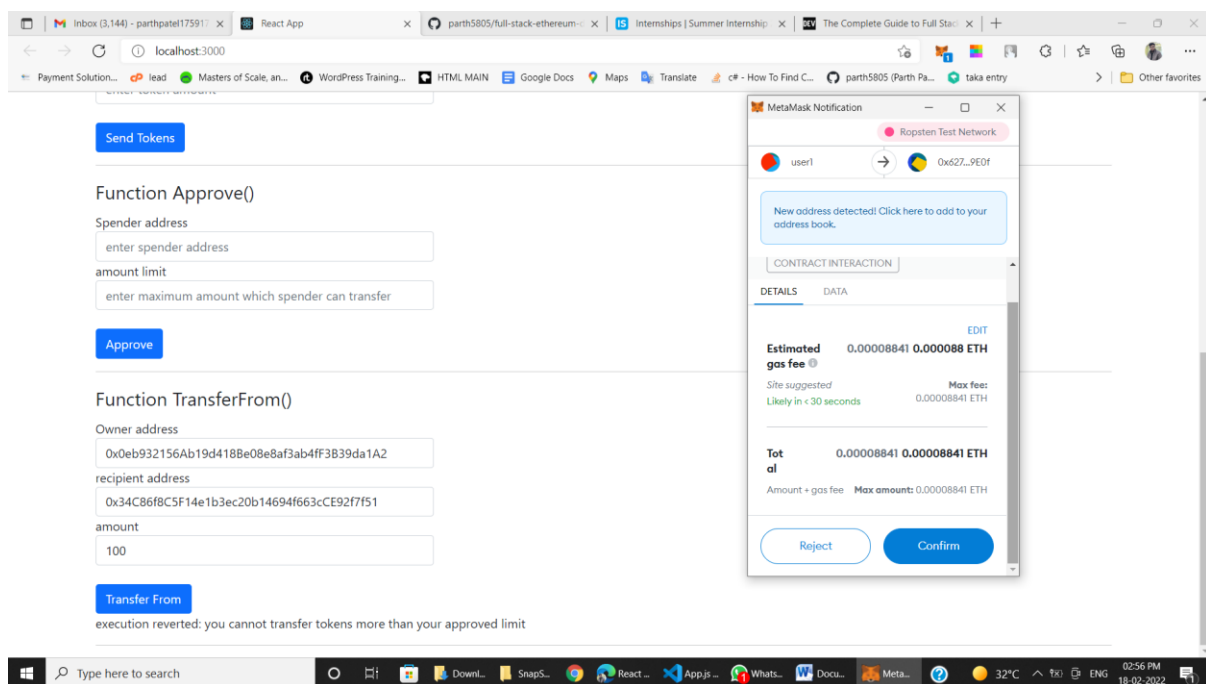
amount

101

Transfer From

execution reverted: you cannot transfer tokens more than your approved limit

Output:- transfer form metamask popup



Output :- transferform success

Function TransferFrom()

Owner address

0x0eb932156Ab19d418Be08e8af3ab4fF3B39da1A2

recipient address

0x34C86f8C5F14e1b3ec20b14694f663cCE92f7f51

amount

100

Transfer From

You successfully transfer token from owner account.

Your Transaction Hash:-0xf1a701800be7d3ef896ea40c2e2ef99b695e97f7973a768135325f27693ab47a

OUTPUT:-recipient address got 100 tokens through transferFrom()

ERC20 Functions

METAMASK ACCOUNT:- : 0x34c86f8c5f14e1b3ec20b14694f663cce92f7f51

Function for Token Details()

See Token Details

Function balanceOf()

check your account balance

You have 100 Tokens

NOTE:-

You can also see all this transaction on ropsten etherscan

My token address is 0x6276062Cf638b53811A2DBE4133f36745d499E0f

LINK:- <https://ropsten.etherscan.io/>

Contract Overview

Balance: 0 Ether

More Info

My Name Tag: Not Available

Contract Creator: 0x0eb932156ab19d418b... at txn 0x3745a72ec6bd66cdc7...

Token Tracker: Parth Token (PARTH)

TransactionsContractEvents

Latest 4 from a total of 4 transactions

Txn Hash	Method	Block	Age	From	To	Value	Txn Fee
0x1a701800be7d3ef896...	Transfer From	11983478	5 mins ago	0x48eec1e92e3bcee844...	IN 0x6276062cf638b53811...	0 Ether	0.000081213018
0x325366a44ba0f45470...	Approve	11983465	8 mins ago	0x0eb932156ab19d418b...	IN 0x6276062cf638b53811...	0 Ether	0.000073630518
0x4b8f90d4c17bad7bc1...	Transfer	11983443	15 mins ago	0x0eb932156ab19d418b...	IN 0x6276062cf638b53811...	0 Ether	0.000078543049
0x3745a72ec6bd66cdc7...	0x60806040	11983430	19 mins ago	0x0eb932156ab19d418b...	IN Contract Creation	0 Ether	0.001873401155

Download CSV Export

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SnapShot

Contract ...

App.js - ...

WhatsApp

ASSIGN...

33°C

ENG

03:02 PM 18-02-2022