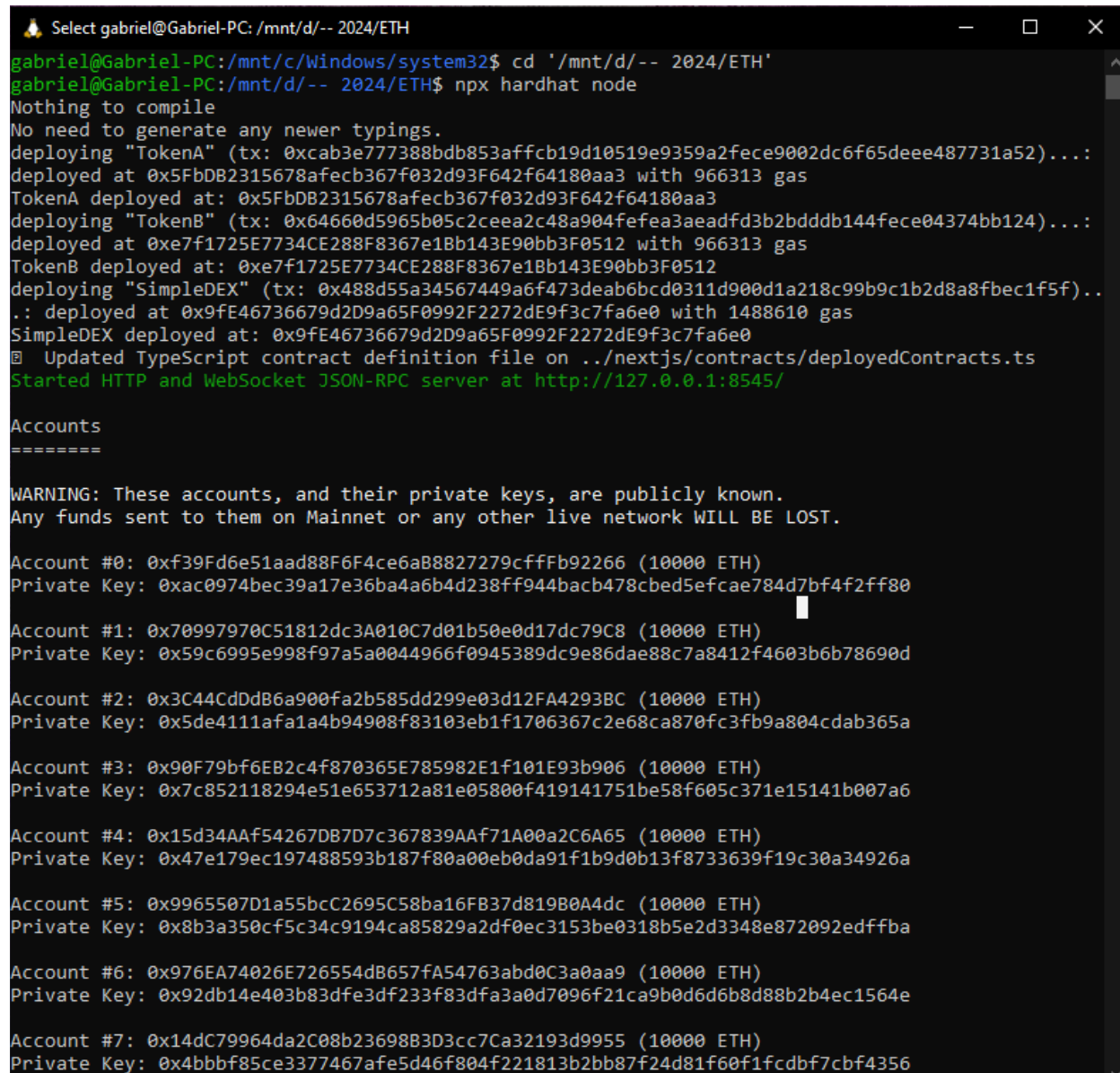# SimpleDEX. Manual de usuario

Para este proyecto, se usó node y las siguientes dependencias:

```
npm install --save-dev @nomicfoundation/hardhat-toolbox@^5.0.0 --verbose
npm install --save-dev @types/node@^22.10.2 --verbose
npm install --save-dev hardhat-deploy@^0.14.0 --verbose
npm install --save-dev ts-node@^10.0.0 --verbose
npm install --save-dev typescript@^5.0.0 --verbose
npm install @openzeppelin/contracts@^5.1.0 --verbose
npm install dotenv@^16.4.7 --verbose
npm install ethers@^6.13.4 --verbose
```

Ir al directorio del proyecto, y ejecutar npx hardhat node (para testearlo de forma local)

```
gabriel@Gabriel-PC:/mnt/c/Windows/system32$ cd '/mnt/d/-- 2024/ETH'
gabriel@Gabriel-PC:/mnt/d/-- 2024/ETH$ npx hardhat node
Nothing to compile
No need to generate any newer typings.
deploying "TokenA" (tx: 0xcab3e777388bdb853affcb19d10519e9359a2fece9002dc6f65deee487731a52)...:
deployed at 0x5FbDB2315678afecb367f032d93F642f64180aa3 with 966313 gas
TokenA deployed at: 0x5FbDB2315678afecb367f032d93F642f64180aa3
deploying "TokenB" (tx: 0x64660d5965b05c2ceea2c48a904fefea3aeadfd3b2bdddb144fece04374bb124)...:
deployed at 0xe7f1725E7734CE288F8367e1Bb143E90bb3F0512 with 966313 gas
TokenB deployed at: 0xe7f1725E7734CE288F8367e1Bb143E90bb3F0512
deploying "SimpleDEX" (tx: 0x488d55a34567449a6f473deab6bcd0311d900d1a218c99b9c1b2d8a8fbec1f5f)..
.: deployed at 0x9fE46736679d2D9a65F0992F2272dE9f3c7fa6e0 with 1488610 gas
SimpleDEX deployed at: 0x9fE46736679d2D9a65F0992F2272dE9f3c7fa6e0
⊡  Updated TypeScript contract definition file on ../nextjs/contracts/deployedContracts.ts
Started HTTP and WebSocket JSON-RPC server at http://127.0.0.1:8545/

Accounts
========

WARNING: These accounts, and their private keys, are publicly known.
Any funds sent to them on Mainnet or any other live network WILL BE LOST.

Account #0: 0xf39Fd6e51aad88F6F4ce6aB8827279cffFb92266 (10000 ETH)
Private Key: 0xac0974bec39a17e36ba4a6b4d238ff944bacb478cbed5efcae784d7bf4f2ff80

Account #1: 0x70997970C51812dc3A010C7d01b50e0d17dc79C8 (10000 ETH)
Private Key: 0x59c6995e998f97a5a0044966f0945389dc9e86dae88c7a8412f4603b6b78690d

Account #2: 0x3C44CdDdB6a900fa2b585dd299e03d12FA4293BC (10000 ETH)
Private Key: 0x5de4111afa1a4b94908f83103eb1f1706367c2e68ca870fc3fb9a804cdab365a

Account #3: 0x90F79bf6EB2c4f870365E785982E1f101E93b906 (10000 ETH)
Private Key: 0x7c852118294e51e653712a81e05800f419141751be58f605c371e15141b007a6

Account #4: 0x15d34AAf54267DB7D7c367839AAf71A00a2C6A65 (10000 ETH)
Private Key: 0x47e179ec197488593b187f80a00eb0da91f1b9d0b13f8733639f19c30a34926a

Account #5: 0x9965507D1a55bcC2695C58ba16FB37d819B0A4dc (10000 ETH)
Private Key: 0x8b3a350cf5c34c9194ca85829a2df0ec3153be0318b5e2d3348e872092edffba

Account #6: 0x976EA74026E726554dB657fA54763abd0C3a0aa9 (10000 ETH)
Private Key: 0x92db14e403b83dfe3df233f83dfa3a0d7096f21ca9b0d6d6b8d88b2b4ec1564e

Account #7: 0x14dC79964da2C08b23698B3D3cc7Ca32193d9955 (10000 ETH)
Private Key: 0x4bbbf85ce3377467afe5d46f804f221813b2bb87f24d81f60f1fcdbf7cbf4356
```

```
Account #14: 0xdF3e18d64BC6A983f673Ab319CCaE4f1a57C7097 (10000 ETH)
Private Key: 0xc526ee95bf44d8fc405a158bb884d9d1238d99f0612e9f33d006bb0789009aaa

Account #15: 0xcd3B766CCDd6AE721141F452C550Ca635964ce71 (10000 ETH)
Private Key: 0x8166f546bab6da521a8369cab06c5d2b9e46670292d85c875ee9ec20e84ffb61

Account #16: 0x2546BcD3c84621e976D8185a91A922aE77ECEc30 (10000 ETH)
Private Key: 0xea6c44ac03bff858b476bba40716402b03e41b8e97e276d1baec7c37d42484a0

Account #17: 0xbDA5747bFD65F08deb54cb465eB87D40e51B197E (10000 ETH)
Private Key: 0x689af8efa8c651a91ad287602527f3af2fe9f6501a7ac4b061667b5a93e037fd

Account #18: 0xdD2FD4581271e230360230F9337D5c0430Bf44C0 (10000 ETH)
Private Key: 0xde9be858da4a475276426320d5e9262ecfc3ba460bfac56360bfa6c4c28b4ee0

Account #19: 0x8626f6940E2eb28930eFb4CeF49B2d1F2C9C1199 (10000 ETH)
Private Key: 0xdf57089febbacf7ba0bc227dafbffa9fc08a93fdc68e1e42411a14efcf23656e

WARNING: These accounts, and their private keys, are publicly known.
Any funds sent to them on Mainnet or any other live network WILL BE LOST.

eth_chainId
  Contract deployment: TokenA
  Contract address:      0x5fbdb2315678afecb367f032d93f642f64180aa3
  Transaction:           0xcab3e777388bdb853affcb19d10519e9359a2fece9002dc6f65deee487731a52
  From:                  0xf39fd6e51aad88f6f4ce6ab8827279cfffb92266
  Value:                 0 ETH
  Gas used:              966313 of 966313
  Block #1:              0xf0e3a786da0502306047caefc2a6c47eb912e8c09d67cba31bc1eb00d0ab6c29
  Mined empty block #2 with base fee 772671033
  Contract deployment: TokenB
  Contract address:      0xe7f1725e7734ce288f8367e1bb143e90bb3f0512
  Transaction:           0x64660d5965b05c2ceea2c48a904fefea3aeadfd3b2bdddb144fece04374bb124
  From:                  0xf39fd6e51aad88f6f4ce6ab8827279cfffb92266
  Value:                 0 ETH
  Gas used:              966313 of 966313
  Block #3:              0x7dda2a1ad92b43949f4ec2407e8371faba9e900ef9cff15c922f3e454fd63d5c
  Mined empty block #4 with base fee 597020525
  Contract deployment: SimpleDEX
  Contract address:      0x9fe46736679d2d9a65f0992f2272de9f3c7fa6e0
  Transaction:           0x488d55a34567449a6f473deab6bcd0311d900d1a218c99b9c1b2d8a8fbec1f5f
  From:                  0xf39fd6e51aad88f6f4ce6ab8827279cfffb92266
  Value:                 0 ETH
  Gas used:              1488610 of 1488610
```
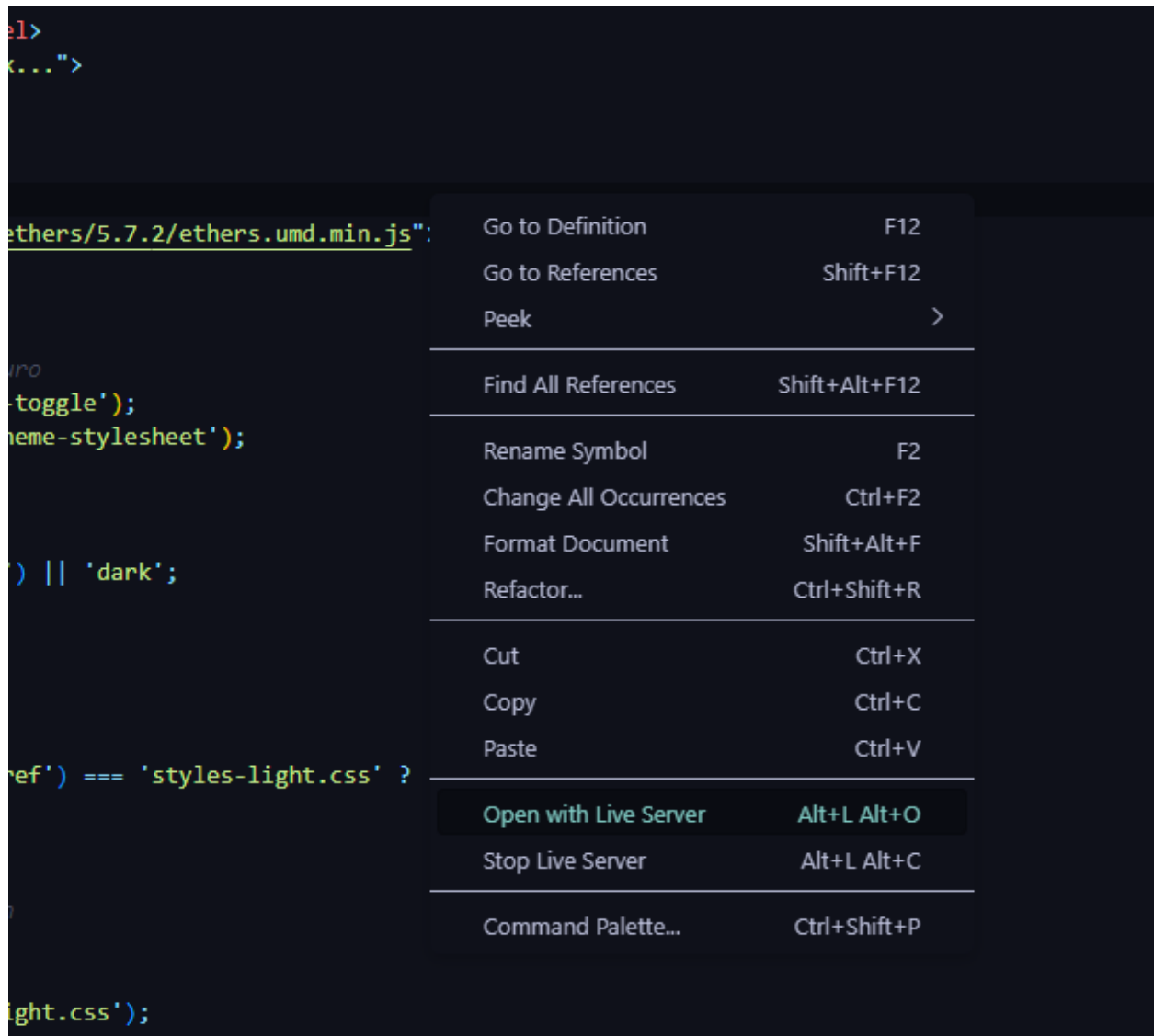
Para abrir el frontend, en VSCode, en el index.hmtl -> Open with Live Server.

```
el>
<...">
```

```
ethers/5.7.2/ethers.umd.min.js":
```

```
uro
-toggle');
heme-stylesheet');
```

```
) || 'dark';
```

```
ef') === 'styles-light.css' ?
```

```
)
```

```
ight.css');
```

Go to Definition	F12
Go to References	Shift+F12
Peek	>
Find All References	Shift+Alt+F12
Rename Symbol	F2
Change All Occurrences	Ctrl+F2
Format Document	Shift+Alt+F
Refactor...	Ctrl+Shift+R
Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Open with Live Server	Alt+L Alt+O
Stop Live Server	Alt+L Alt+C
Command Palette...	Ctrl+Shift+P

En el navegador, ir a http://localhost:5500/frontend/

SimpleDEX

Conectar Billetera

Desconectar Billetera

Billetera conectada: 0xf39Fd6e51aad88F6F4ce6aB8827279cffFb92266

Aprobar Tokens para DEX

Cantidad Token A a aprobar:

1000

Aprobar Token A

Aprobación exitosa: 1000 tokens.

Cantidad Token B a aprobar:

1000

Aprobar Token B

Aprobación exitosa: 1000 tokens.

```
Contract deployment: SimpleDEX
Contract address:     0x9fe46736679d2d9a65f0992f2272de9f3c7fa6e0
Transaction:          0x488d55a34567449a6f473deab6bcd0311d900d1a218c99b9c1b2d8a8fbec1f5f
From:                 0xf39fd6e51aad88f6f4ce6ab8827279cfffb92266
Value:                0 ETH
Gas used:             1488610 of 1488610
Block #5:             0xfc563d0304a476a96b9c719871989acd365a98707a330df019218d5a6af9fbbf
Mined empty block #6 with base fee 463574169
eth_chainId (3)
eth_gasPrice
eth_getBlockByNumber
eth_chainId
eth_getTransactionCount
eth_chainId
eth_estimateGas
eth_chainId
eth_blockNumber
eth_chainId
eth_sendRawTransaction
Contract call:        TokenA#approve
Transaction:          0x9929952ad3d07adbfdbd329fd79ed1d34acc59821d4d9502c87495e2044cf262
From:                 0xf39fd6e51aad88f6f4ce6ab8827279cfffb92266
To:                   0x5fbdb2315678afecb367f032d93f642f64180aa3
Value:                0 ETH
Gas used:             46964 of 46964
Block #7:             0xcd3dfed99d9236fee1d8206cf5041d20aa23cd3248d054640a5a67d089eaf864

eth_chainId
eth_getTransactionReceipt
eth_chainId
eth_gasPrice
eth_getBlockByNumber
eth_chainId
eth_getTransactionCount
eth_chainId
eth_estimateGas
eth_chainId
eth_sendRawTransaction
Contract call:        TokenB#approve
Transaction:          0x102819fb145765128ce80d7a760e088ff56549fd29376f73e47a97daa0d39eea
From:                 0xf39fd6e51aad88f6f4ce6ab8827279cfffb92266
To:                   0xe7f1725e7734ce288f8367e1bb143e90bb3f0512
Value:                0 ETH
Gas used:             46964 of 46964
Block #8:             0xad05968cc67ef57dbf8db3b2045c5695f256028e24c761531dce92fea43146f7
```

Agregar Liquidez

Cantidad Token A:

100

Cantidad Token B:

200

Agregar Liquidez

Liquidez agregada exitosamente.

Remover Liquidez

Cantidad Token A:

10

Cantidad Token B:

20

Remover Liquidez

Liquidez removida exitosamente.

Intercambiar Tokens

Cantidad Token A:

10

Intercambiar A por B

Cantidad Token B:

20

Intercambiar B por A

Intercambio B por A exitoso.

Consultar Precio

Dirección del token:

0x5FbDB2315678afecb367f032d93F642f64180aa3

Obtener Precio

Precio: 2.022222222222222222

```
eth_getTransactionCount
eth_chainId
eth_estimateGas
eth_chainId
eth_sendRawTransaction
  Contract call:       SimpleDEX#addLiquidity
  Transaction:         0xdeb7fe23e6515c3ed54d56171b28aab9608d834d1316428d9e873961902092c4
  From:                0xf39fd6e51aad88f6f4ce6ab8827279cfffb92266
  To:                  0x9fe46736679d2d9a65f0992f2272de9f3c7fa6e0
  Value:               0 ETH
  Gas used:            109922 of 109922
  Block #11:           0x5e2d374e38f6e4295dae19f960c581d9a867df2cb160c68c24352eb6aea98d61

eth_chainId
eth_getTransactionReceipt
eth_chainId
eth_gasPrice
eth_getBlockByNumber
eth_chainId
eth_getTransactionCount
eth_chainId
eth_estimateGas
eth_chainId
eth_blockNumber
eth_chainId
eth_sendRawTransaction
  Contract call:       SimpleDEX#removeLiquidity
  Transaction:         0x8d3c31b109fbf4df7844d83faaad1c41a07693308342793fc34c7e60abf9d771
  From:                0xf39fd6e51aad88f6f4ce6ab8827279cfffb92266
  To:                  0x9fe46736679d2d9a65f0992f2272de9f3c7fa6e0
  Value:               0 ETH
  Gas used:            67097 of 67097
  Block #12:           0x783fba00170247815eb620f74b598cded2b1d11c7a8c43bec65266437db25f21

eth_chainId
eth_getTransactionReceipt
eth_chainId
eth_gasPrice
eth_getBlockByNumber
eth_chainId
eth_getTransactionCount
eth_chainId
eth_estimateGas
eth_chainId
eth_sendRawTransaction
```

```
 🐧  gabriel@Gabriel-PC: /mnt/d/-- 2024/ETH                              —    ☐    ✕

eth_chainId
eth_getTransactionReceipt
eth_chainId
eth_gasPrice
eth_getBlockByNumber
eth_chainId
eth_getTransactionCount
eth_chainId
eth_estimateGas
eth_chainId
eth_sendRawTransaction
   Contract call:       SimpleDEX#swapBforA
   Transaction:         0x27ac64b55398708ee22045aedb9fe5f4f2421eef6408344b8afe2632b0d4ad55
   From:                0xf39fd6e51aad88f6f4ce6ab8827279cfffb92266
   To:                  0x9fe46736679d2d9a65f0992f2272de9f3c7fa6e0
   Value:               0 ETH
   Gas used:            71629 of 71629
   Block #16:           0x01a08236d7c46fac2d3e8f9bc7216642b9bcbc2a8c7bea50c3424bf59de2f8e2

eth_chainId
eth_getTransactionReceipt
eth_chainId
eth_call
   Contract call:       SimpleDEX#getPrice
   From:                0xf39fd6e51aad88f6f4ce6ab8827279cfffb92266
   To:                  0x9fe46736679d2d9a65f0992f2272de9f3c7fa6e0

▂
```

Modo oscuro :D

SimpleDEX

Modo Claro

Conectar Billetera

Desconectar Billetera

Billetera conectada: 0xf39Fd6e51aad88F6F4ce6aB8827279cfffFb92266

Aprobar Tokens para DEX

Cantidad Token A a aprobar:

1000

Aprobar Token A

Aprobación exitosa: 1000 tokens.

Cantidad Token B a aprobar:

1000

Aprobar Token B

Aprobación exitosa: 1000 tokens.

Las direcciones de los contratos son:

Localhost (con la address por defecto de hardhat)

Simple Dex Corregido: 0x9fE46736679d2D9a65F0992F2272dE9f3c7fa6e0
TKA: 0x5FbDB2315678afecb367f032d93F642f64180aa3
TKB: 0xe7f1725E7734CE288F8367e1Bb143E90bb3F0512

Scroll Sepolia

Simple Dex Corregido: 0x5a5d8ebcedee9cb88f2a00151e6c723a062c6e27
TKA: 0xe652b0f103561052cdd0B143c0171eCbb6b0e683
TKB: 0xbD997ab4c6B41f82ef996079940a73da5C32f520

Para Scroll Sepolia se debe editar el archivo .env con las claves correspondientes.

Para el fronted se debe modificar index.html para que haga referencia a script.js, en lugar de script-local.js.

Si se desea editar algo más del script, recomiendo crear script-test.js y redireccionar el html.

Funciona!

En la Metamask, se pueden ver las transacciones. Gustav es mi usuario.