



CARBON MARKET DAPP

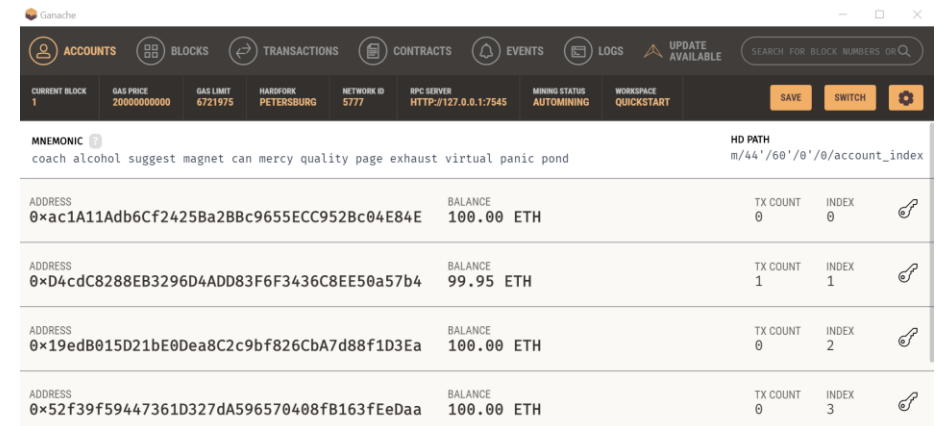
INSTRUCTIONS TO RUN THE APPLICATION

WHAT YOU WILL NEED TO RUN THE PROOF-OF-CONCEPT DAPP

- Ganache personal Ethereum blockchain with a few accounts loaded with fake ether
- Anaconda and Python 3.6+ with Flask
- Internet browser such as Chrome

STEP 1: DEPLOYING THE SMART CONTRACT

1. Run Ganache application to host a local blockchain with 10 addresses loaded with 100 fake ether each
2. Run Anaconda prompt and navigate to the directory where **app.py** is located
3. OPTIONAL: create and activate a new environment with python 3.6+ installed
4. Activate virtual environment by simply running **activate_venv.bat**
5. Run **deploy.bat**
6. Enter the Ganache address index that you would like to use to deploy the smart contract; note that this address will become the address of the carbon market authority for the entire life of the smart contract



```
Anaconda Prompt (Anaconda3)

(py36) C:\Users\fahad\Documents\UoFT\UoFT_books\APS1050H - Crypto\DApp\py_DApp1>activate_venv
(py36) C:\Users\fahad\Documents\UoFT\UoFT_books\APS1050H - Crypto\DApp\py_DApp1>carbonmarket\Scripts\activate
(carbonmarket) (py36) C:\Users\fahad\Documents\UoFT\UoFT_books\APS1050H - Crypto\DApp\py_DApp1>deploy
(carbonmarket) (py36) C:\Users\fahad\Documents\UoFT\UoFT_books\APS1050H - Crypto\DApp\py_DApp1>python deploy_contract.py
Connection to node: True
Enter default index of Ganache address:1
Contract deployed at: 0x681c33CC3164E19f15af3cD31Ee9De534f064d0C
(carbonmarket) (py36) C:\Users\fahad\Documents\UoFT\UoFT_books\APS1050H - Crypto\DApp\py_DApp1>
```

STEP 2: RUNNING THE DAPP

1. Run **run.bat** or use the commands **python app.py**
2. Enter the Ganache address index with which you want to interact with the smart contract; if you choose the address used earlier to deploy the contract, you will be accessing the system as the government authority
3. Open a browser and visit <http://localhost:5000/> and you are done
4. If you would like to switch to a different account, then go back to the anaconda prompt, stop the application by Ctrl+C and re-run **run.bat** and enter a different Ganache address index

The screenshot displays the Anaconda Prompt (Anaconda3) - run window and a web browser showing the Carbon Market DApp interface.

Anaconda Prompt (Anaconda3) - run

```
(carbonmarket) (py36) C:\Users\fahad\Documents\UofT\UofT_books\APS1050H - Crypto\DApp\py_DApp1>run
(carbonmarket) (py36) C:\Users\fahad\Documents\UofT\UofT_books\APS1050H - Crypto\DApp\py_DApp1>python app.py
Connection to node: True
Enter default index of Ganache address:0
0xac1A11Adb6Cf2425Ba2BBc9655ECC952Bc04E84E
* Serving Flask app "app" (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: on
* Restarting with stat
Connection to node: True
Enter default index of Ganache address:0
0xac1A11Adb6Cf2425Ba2BBc9655ECC952Bc04E84E
* Debugger is active!
* Debugger PIN: 111-456-935
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
127.0.0.1 - - [11/Apr/2020 17:11:30] "[37mGET / HTTP/1.1[0m" 200 -
```

The Carbon Market

localhost:5000

Apps UN imperial screw t... Canada Immigratio... Singtel Top Up Tax IRAS table d

Welcome to the carbon market!

Market Information	
Tokens Left	1000000000 CT
Price Per Token	0.001 ETH

[Register New Entity](#)
[Login](#)

CARBON MARKET DAPP

SOME SCREENSHOTS OF THE APPLICATION



LANDING PAGE

Government Entity

The screenshot shows a web browser window with the title 'The Carbon Market Authority'. The address bar shows 'localhost:5000'. The page content is on a black background. At the top, the text 'The Carbon Market Authority' is displayed in a light purple serif font. Below this, a table with a purple header 'Market Information' contains the following data:

Market Information	
Tokens Left	1000000000 CT
Price Per Token	0.001 ETH
Days to Expiry	364.991388888889

At the bottom of the page, there are two links in a light purple serif font: [Set Market Price and Supply](#) and [View Registered Entities](#).

Regular User

The screenshot shows a web browser window with the title 'The Carbon Market'. The address bar shows 'localhost:5000'. The page content is on a black background. At the top, the text 'Welcome to the carbon market!' is displayed in a light purple serif font. Below this, a table with a purple header 'Market Information' contains the following data:

Market Information	
Tokens Left	1000000000 CT
Price Per Token	0.001 ETH

At the bottom of the page, there are two links in a light purple serif font: [Register New Entity](#) and [Login](#).

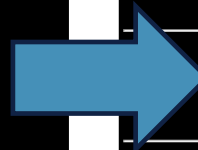
NEW ENTITY REGISTRATION – REGULAR USER

New Entity Registration

localhost:5000/register

Username:

[Go Back](#)



The Carbon Market

Market Information

Tokens Left	1000000000 CT
Price Per Token	0.001 ETH

User Account Details

User Name	Fahad Azam
Ethereum Address	0x19edB015D21bE0Dea8C2c9bf826CbA7d88f1D3Ea
Ether Balance	99.99667708 ETH
Carbon Token Balance	0 CT
Time Till Token Expiry	364 day(s), 23 hour(s), 37 minute(s), 4 sec(s)
Sale Status	Sale of tokens permitted

[Buy Tokens](#)
[Sell Tokens](#)
[Donate Tokens](#)
[Update](#)
[Back to Home](#)

- A new entity must register with a name before being able to buy carbon tokens from the market

LIST OF REGISTERED ENTITIES – GOVERNMENT AUTHORITY

List of Registered Entities			
Entity Name	Entity Address	Entity Balance	Registration Date
Fahad Azam	0x19edB015D21bE0Dea8C2c9bf826CbA7d88f1D3Ea	4200 CT	Apr-11-2020
Fahad Khan	0xac1A11Adb6Cf2425Ba2BBc9655ECC952Bc04E84E	5000 CT	Apr-11-2020
Go Back			