# Project Writeup

## Background

"Fair Trade Coffee" is a company ensures that farmer get their rightful share. All the information related to supply chain is available on blockchain, so that consumer buying our product can contribute to fair trade and stop distributors from oppressing farmers due to information asymmetry.

In this project, we are going to make use of smart contract to keep track of the flow of product. Consumer can use our website to know the origin of their product, and how much they paid to the farmer for the product they buy.

## Definition

|  |  |
| --- | --- |
| Fair Trade Coffee | A company promoting fair trade.  Use smart contract to achieve the goal.  As a smart contract owner to keep track of a supply chain visible to all. |
| Farmer | Farmer use our platform to sell their product to Distributor. |
| Distributor | Distributor is the one who is trading directly with our farmer. They buy stocks from our inventory and pay farmer using Ethereum. |
| Retailer | Retailers buy coffee from distributor. They have no direct business with our company. They contribute data to our supply chain because they want their customer know that they are buying coffee fairly. |
| Consumer | Customers buy coffee from retailer. They can use our website to track the history of coffee they brought. |
| Ethereum | Ethereum is a global, decentralized platform for money and new kinds of applications |
| Smart contract | Smart contracts are applications that run on the Ethereum Virtual Machine. This is a decentralized “world computer” where the computing power is provided by all those Ethereum nodes. |
| Supply chain | A supply chain is a network between a company and its suppliers to produce and distribute a specific product to the final buyer. |

## System design in UML

### Activity

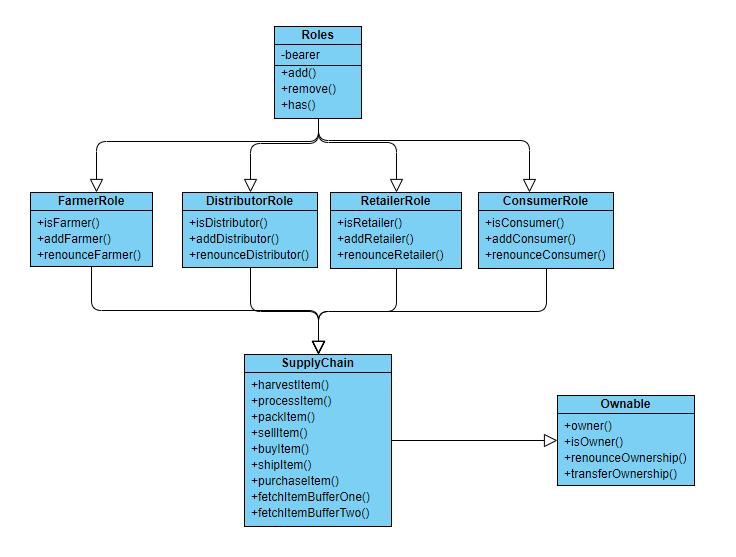
### 

### Sequence

### 

### State

### Class



## Technical specification

**Contract address:**

The contract is deployed on Rinkeby test network.

Contract address: [0x93A7e33FE9cBc53e80C06018e9b3e138005d94dD](https://rinkeby.etherscan.io/address/0x93a7e33fe9cbc53e80c06018e9b3e138005d94dd)

**Development environment:**

Truffle v5.1.21 (core: 5.1.21)

Solidity v0.5.16 (solc-js)

Node v9.4.0

Web3.js v1.2.1

**To build the project**

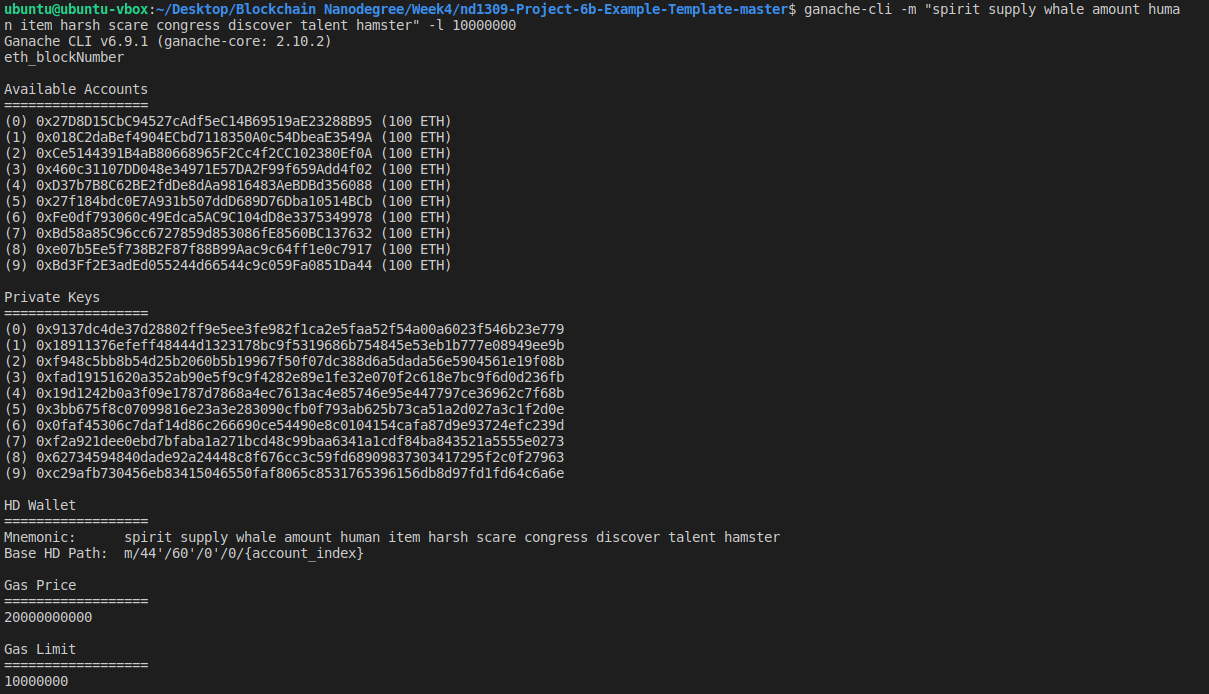
Change directory to project-6 folder and install all requisite npm packages (as listed in package.json):

cd project-6

npm install

Launch Ganache:

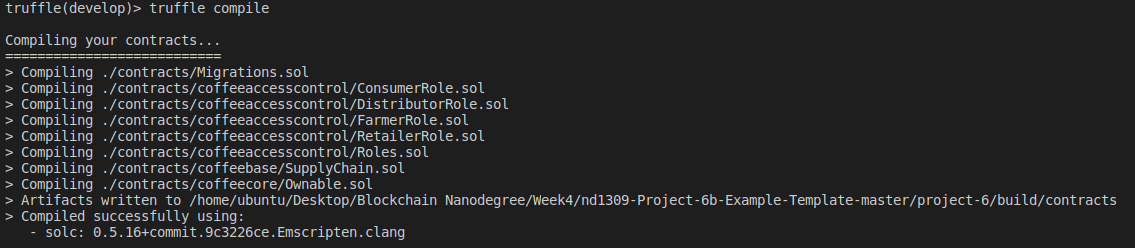
ganache-cli -m "spirit supply whale amount human item harsh scare congress discover talent hamster" -l 10000000

Your terminal should look something like this:

In a separate terminal window, Compile smart contracts:

truffle compile

Your terminal should look something like this:

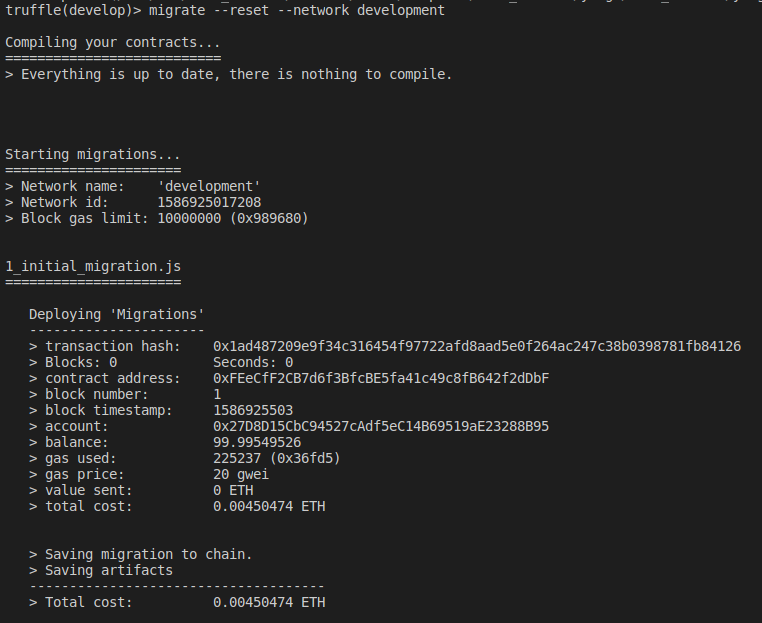


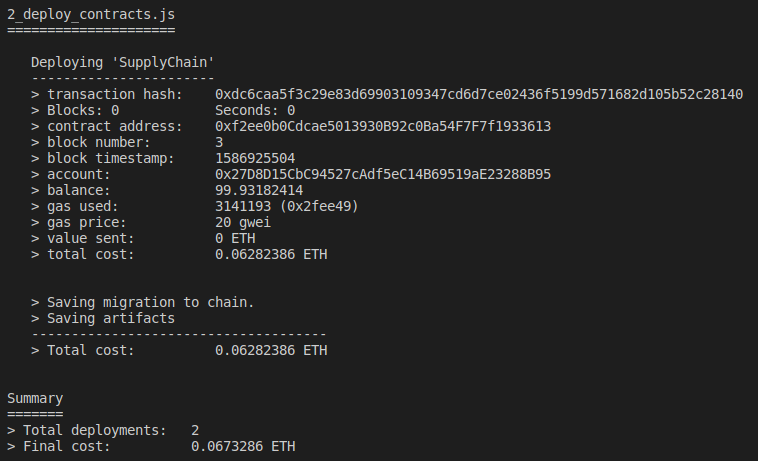
This will create the smart contract artifacts in folder build\contracts.

Migrate smart contracts to the locally running blockchain, ganache-cli:

truffle migrate development

Your terminal should look something like this:

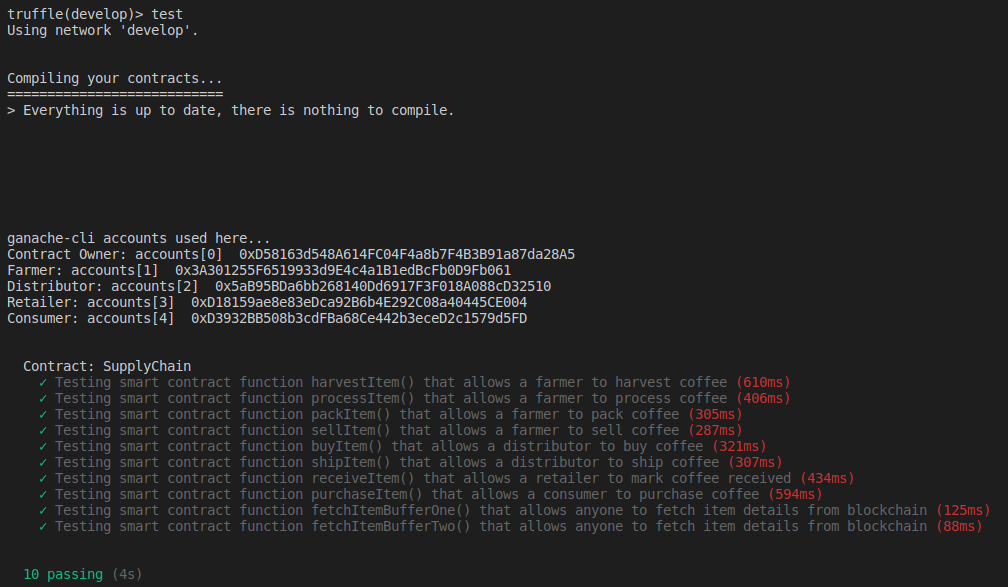




Test smart contracts:

truffle test

All 10 tests pass.



In a separate terminal window, launch the DApp:

npm run dev

Migrate smart contracts to the Rinkeby test network:

truffle(develop)> migrate --reset --network rinkeby

|  |
| --- |
| Starting migrations...  ======================  > Network name: 'rinkeby'  > Network id: 4  > Block gas limit: 10000000 (0x989680)  1\_initial\_migration.js  ======================  Replacing 'Migrations'  ----------------------  > transaction hash: 0xa387bf793a9166dd3e82d9e8f522662ed48e38895804af1104ecd5967174d661  > Blocks: 4 Seconds: 71  > contract address: 0x84C40700C267F96bfCB0e4bea71915Ec6F31A4e7  > block number: 6389378  > block timestamp: 1587996098  > account: 0x7734bF52F5F4C2278d3bA2B6f0C2Fa76d2356273  > balance: 7.63110803  > gas used: 225237 (0x36fd5)  > gas price: 10 gwei  > value sent: 0 ETH  > total cost: 0.00225237 ETH  > Saving migration to chain.  > Saving artifacts  -------------------------------------  > Total cost: 0.00225237 ETH  2\_deploy\_contracts.js  =====================  Replacing 'SupplyChain'  -----------------------  > transaction hash: 0xbf34892645696a29d38fa7c61ebcbff6ef7d7637612e875b71046e34dd9fadcf  > Blocks: 2 Seconds: 17  > contract address: 0x93A7e33FE9cBc53e80C06018e9b3e138005d94dD  > block number: 6389382  > block timestamp: 1587996158  > account: 0x7734bF52F5F4C2278d3bA2B6f0C2Fa76d2356273  > balance: 7.59859551  > gas used: 3208889 (0x30f6b9)  > gas price: 10 gwei  > value sent: 0 ETH  > total cost: 0.03208889 ETH  > Saving migration to chain.  > Saving artifacts  -------------------------------------  > Total cost: 0.03208889 ETH  Summary  =======  > Total deployments: 2  > Final cost: 0.03434126 ETH |

**Front end**

View:

