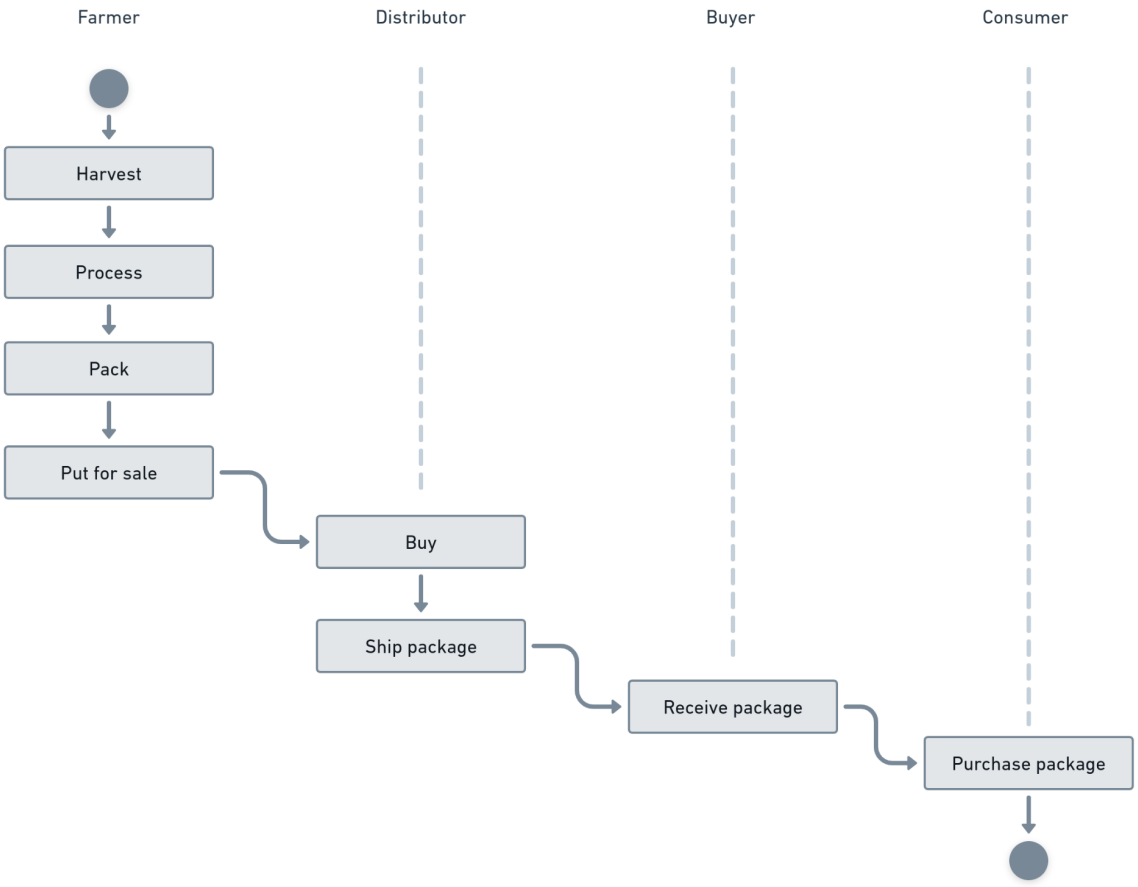
Architect a Blockchain Supply Chain Solution - Part B

Supply chain application

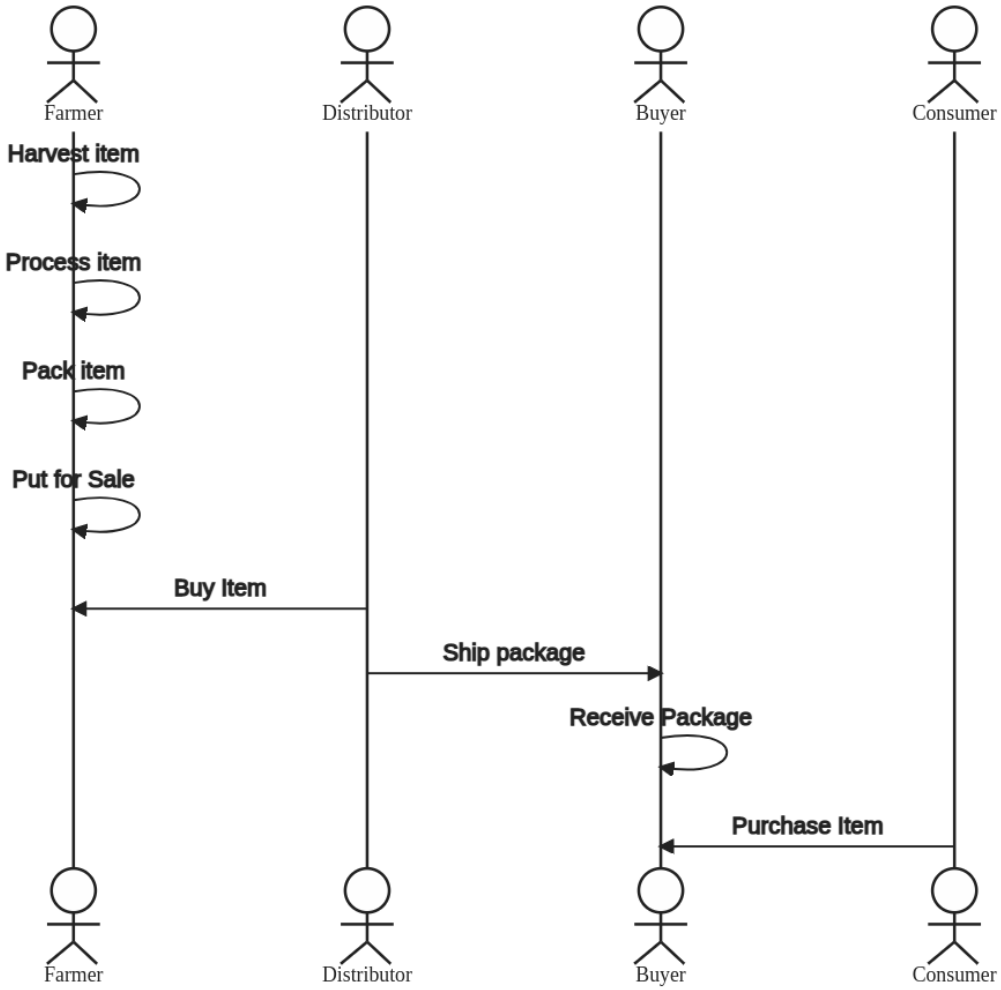
To prove the authenticity of items using the Ethereum blockchain

The contract allows an item to progress through the steps described below, from Farmer to Consumer, keeping track of ownership changes and original information. In the initial plan, the actors were Farmer, Exchange, Seller and Buyer for a Vegetable supply chain. Updated the plan to adapt to the Coffee seed supply chain provided in the example.

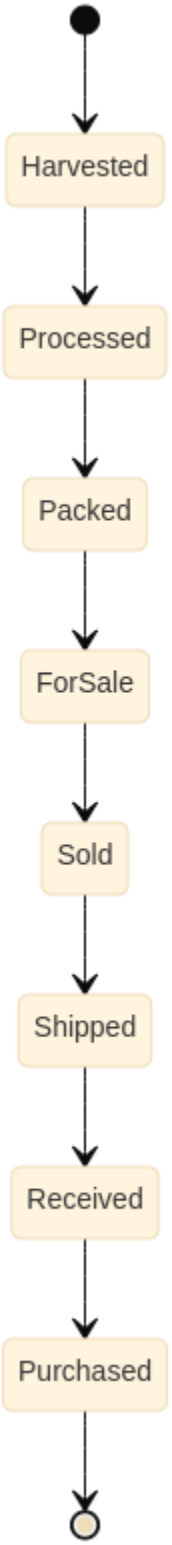
Activity Diagram



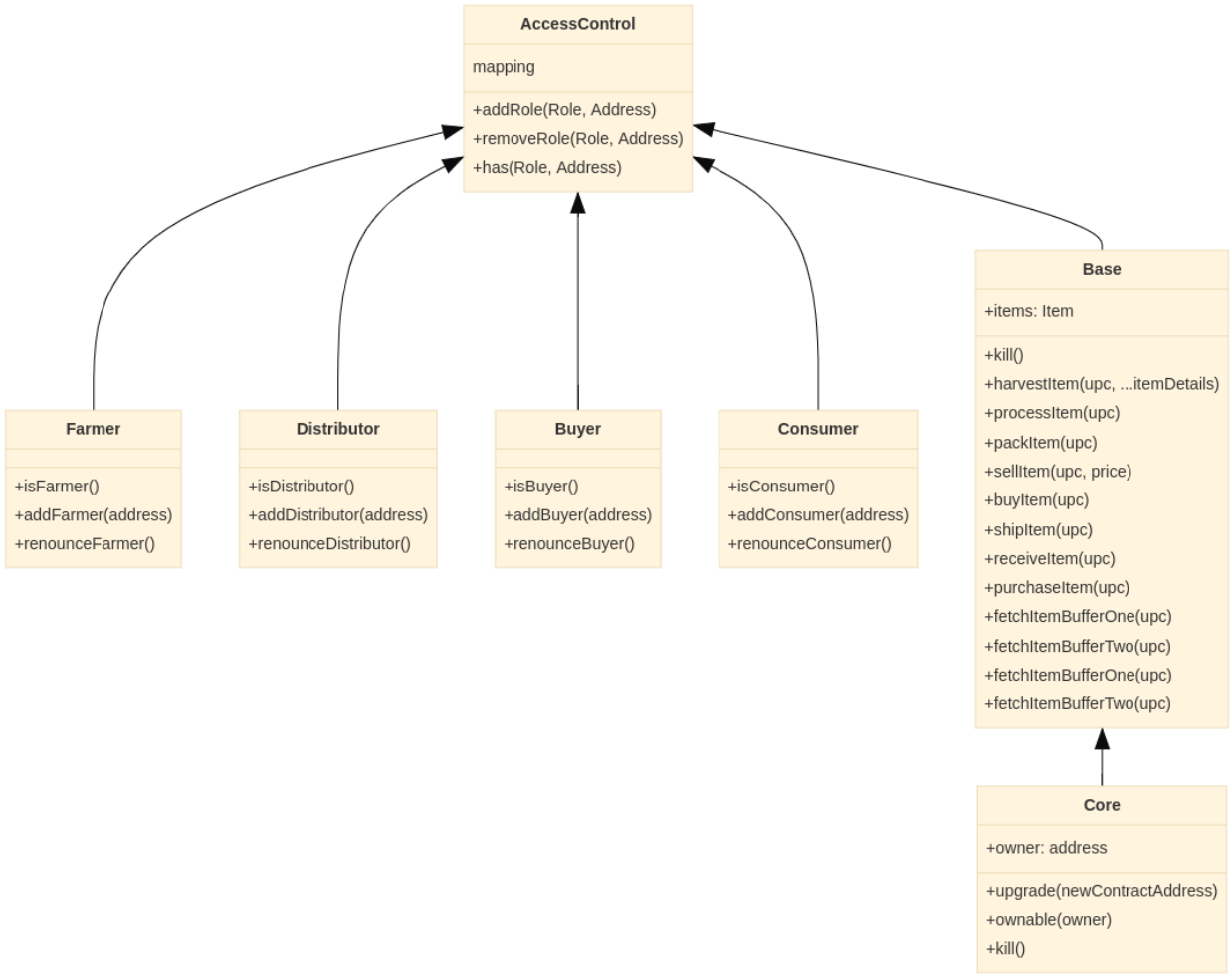
Sequence Diagram



State Diagram



Class diagram



Libraries used

The initial plan was to go ahead with OpenZepplin's helpers to implement ERC20 based. However, since the sample code provided was already there, followed the sample codebase.

- Used web3 for frontend

Versions

Node: v14.19.1
Truffle: v4.1.17
Web3: web3@0.20.1
Truffle Contract: @truffle/contract@4.3.5

Sample contracts and transactions on Etherscan

Contracts

- FarmerRole: 0xfff2894336e05467ee50aa2dcb4f5cc12a6ebc0f
- DistributorRole: 0x11eed5ccf62d3c4a770f08999432cbfd9871ad91
- RetailerRole: 0x9e2ed19125420944a8797c4fa952a502cc494b00
- ConsumerRole: 0x29a1c2d658aeb7a5f5f1b568e58a666fcf2a6495
- SupplyChain: 0x8d9575a58217f0805dc930c9f1b4a8a41aadc0e3

Transactions

- Harvested: 0xa27c82ba4d42340558253c1a0f79141f03d8b3e090266a85e7d36710262513c5
- Processed: 0x3d406f0ec78d7a89fb6eb2e411abb0714fa144e073625149eeeb4cad2179cf3d
- Packed: 0x1b78608361c409c6c206d783db9d1b26365689c7c278d04f9e769db33ad7c854
- ForSale: 0x4c69c20dda840627dcbb7e60f45af3c6ee6f9ff7bd1dd5a952098a2c632905d3
- Sold: 0x76456be6303c1d0b100aa9f7729725990848a26f759fe7e7ea28d537d0724b85
- Shipped: 0x48313928aa6f14ad838f5008a5d5b92d25b0b58ed04c5083684ee68cf264a497
- Received: 0x6a51ed830605a332b84da41573916e205715212e916fa9f51ecae5bd70aa5696
- Purchased: 0xb961badf46d11dbce4f20043d73b47d3f86b96420428c502f816532bb71bdaa8