# CMPE 483 Blockchain Programming
(This homework can be done in groups of at most 3 students)
(due Dec. 14th)

In this homework, you will develop a simple ERC721 token based supply chain traceability system on Ethereum blockhain. Your system will provide provenance information on individual (single quantity) products.   You can use the OpenZeppelin ERC721 (NFT) token contract code and modify it in order to implement the homework. The system you will develop is illustrated in the figure below:
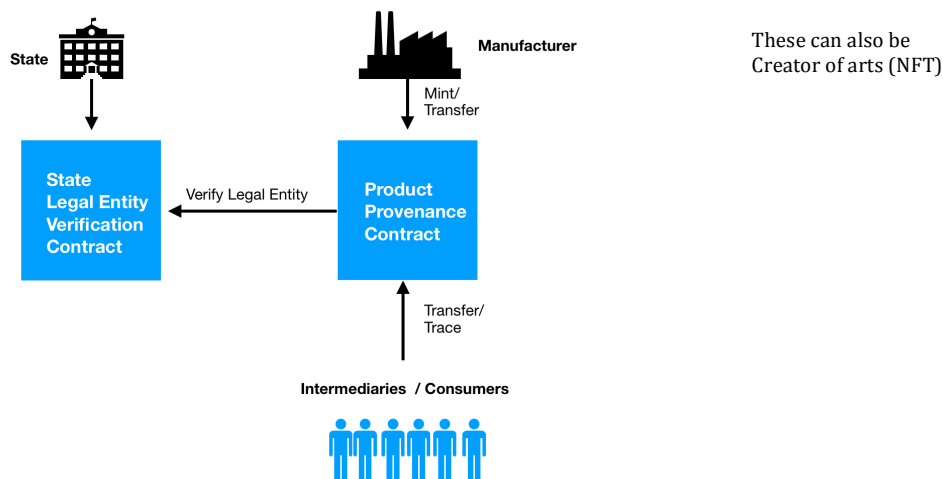
The system will work as follows. The manufacturer will mint a token that represents a product. You can assume a token will represent a single quantity product. Information such as hash of serial number of the product and zip code of factory's location will be entered. When the product is given to next entity or customer by the current owner, transfer function will be executed by the current owner to transfer the ownership to the next owner. The next owner should confirm the transfer of ownership. It should be possible to trace the product to its original manufacturer. This is illustrated in the figure below:
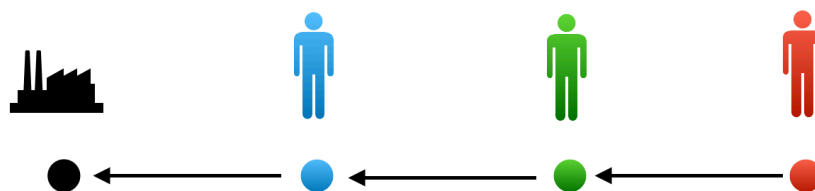
You can use the online solidity browser compiler http://remix.ethereum.org/ for smart contract development. Your system must be deployed on the Bloxberg or Ava Fuji Testnet or Binance Smart Chain Testnet blockchain. OpenZeppelin ERC721 Token contract implementation can be found here:

https://github.com/OpenZeppelin/openzeppelin-contracts/tree/master/contracts/token/ERC721

Grading
Your project will be graded according to the following criteria:

Documentation (written document describing how you implemented your project and also showing the correctness of your	30%

implementation). You should also provide average gas usages for the interface functions.	
Comments in your code	10%
Correctly functioning Solidity code, test scripts and tests	60%

Homework Submission:

Please submit your project to Moodle. Before you submit your project, please timestamp (notarize) your project zip file https://certify.bloxberg.org/ Do NOT lose the certification and the submitted project zip file. The certification is a proof that your project zip file existed during the time of submission.