Instructions for Capstone Project: Drug Counterfeiting

Initial Instruction:

- Unzip folder named **pharma-net.zip** folder. (make sure unzip within proper fabric network workspace and proper directory, I have unzipped insider **pharma-network** directory) (Refer Figure 1.1)
- Project contain below folders
  - **application:** NodeJS application containing APIs
    - Make sure .sh files are executable (fabricNetwork.sh, scripts/bootstrap.sh, scripts/installChaincode.sh, scripts/updateChaincode.sh, scripts/utils.sh)
      - *sudo chmod +x <file_name>*
  - **chaincode:** NodeJS application containing chaincode
  - **network:** Blockchain network setup
  - **test:** Contains postman collections with API endpoints.

```
divyesh@divyesh-G550:~/fabric-workspace/pharma-network(master)$ ls
application   chaincode   Instruction.docx   network   test
divyesh@divyesh-G550:~/fabric-workspace/pharma-network(master)$ 
```
Figure 1.1: Directory structure

- Install dependencies for NodeJS Applications (application and chaincode)
  - My **Node Version: 8.9.0** and **npm version: 5.5.1**
  - Go inside **application** folder and run below command.
    - *npm install*

```
divyesh@divyesh-G550:~/fabric-workspace/pharma-network(master)$ cd application/
divyesh@divyesh-G550:~/fabric-workspace/pharma-network/application(master)$ npm install
[                  ] \ fetchMetadata: sill install loadAllDepsIntoIdealTree
```
Figure 1.2: Install dependencies for NodeJS API application

  - Go inside **chaincode** folder and run below command.
  - *npm install*

```
divyesh@divyesh-G550:~/fabric-workspace/pharma-network(master)$ cd chaincode/
divyesh@divyesh-G550:~/fabric-workspace/pharma-network/chaincode(master)$ npm install
[                  ] \ fetchMetadata: sill install loadAllDepsIntoIdealTree
```
Figure 1.3: Install dependencies for NodeJS Chaincode application

Network Setup and Chaincode Installation:

- Open Terminal 1 (T1)
- Go inside **network** folder (Figure 2.1)
  - *cd network*

```
divyesh@divyesh-G550:~/fabric-workspace/pharma-network(master)$ cd network
divyesh@divyesh-G550:~/fabric-workspace/pharma-network/network(master)$ 
```
Figure 2.1: Change directory

- Check no docker container service is running and start network; run below commands
  - *docker ps -a*
- *./fabricNetwork.sh up*

```
divyesh@divyesh-G550:~/fabric-workspace/pharma-network/network(master)$ docker ps -a
CONTAINER ID    IMAGE           COMMAND         CREATED         STATUS          PORTS           NAMES
divyesh@divyesh-G550:~/fabric-workspace/pharma-network/network(master)$ ./fabricNetwork.sh up
```
Figure 2.2: Check docker container and start network

- Run below command to install chaincode.
  - *./fabricNetwork.sh install -v 1.1*

```
divyesh@divyesh-G550:~/fabric-workspace/pharma-network/network(master)$ ./fabricNetwork.sh install -v 1.1
```

- Once network is up and chaincode installed now its time to start node API application.

Start Node Application:

- Go inside **application** folder. Make sure node modules are installed.
- Run below command. It will ask for sudo password.
  - sudo node .
- Now it's time to check collection in postman.

Execute Postman Collection:

- From **test** folder import all collection like wallets, initiation, supply chain and history.
- Once collection imported you need to check them in below order
  - Wallet
  - Initiation
  - Supply Chain
  - History
- To execute wallet you have to add proper path of certificate and private key for each organization.
- For example: For manufacturer
  certificatePath = /home/divyesh/fabric-workspace/pharma-network/network/crypto-config/ peerOrganizations/manufacturer.pharma-network.com/users/Admin@manufacturer.pharma- network.com/msp/signcerts/Admin@manufacturer.pharma-network.com-cert.pem

  privateKeyPath = /home/divyesh/fabric-workspace/pharma-network/network/crypto-config/ peerOrganizations/manufacturer.pharma-network.com/users/Admin@manufacturer.pharma- network.com/msp/keystore/<key_file>

  Note: /home/divyesh/fabric-workspace/pharma-network/ is path where I have configured project; you need to use path where you have installed project
- Execute all APIs from wallet with different path for each organizations to register identity.
- Now step by step execure APIs from other collections in specified order like; Initiation, Supply Chain and History