# BLOCKCHAIN TECHNOLOGY LAB (20CP406P)

**LAB ASSIGNMENT - 8**

B.Tech in Computer Science and Engineering Dept.,

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# Lab Assignment 8

**Aim:** Create the Private Ethereum Setup through Ganache Cli and Truffle

## Introduction:

- **Ganache Cli:** It's the command line version of Ganache. It's used to simulate full client behavior and make developing Ethereum applications faster, easier, and safer.

- **Truffle:** As one of the most popular Ethereum development frameworks, Truffle helps you create basic solidity templates to deploy.

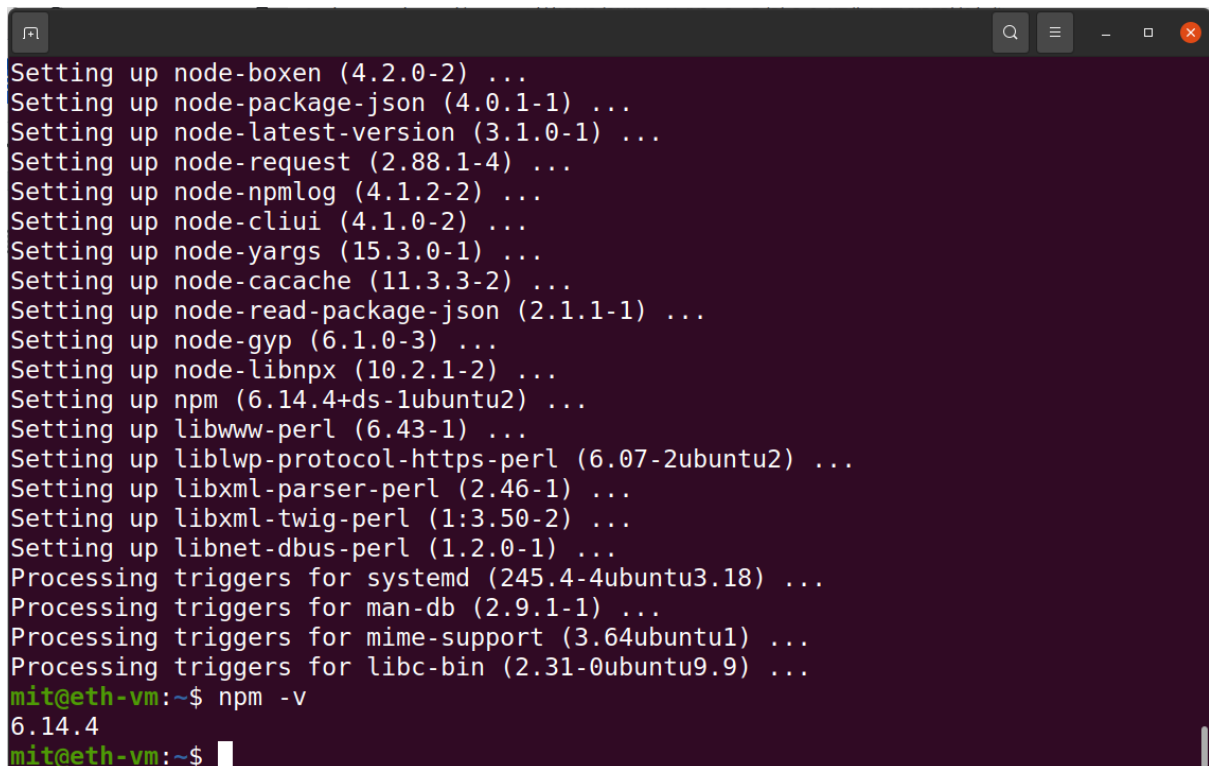# Experiment:

Run the following commands on ubuntu linux to setup ganach cli and Truffle.

*Command:*

*sudo apt update*

*sudo apt install -y nodejs npm*

*npm -v*

# Procedure:



*Command:*

*sudo npm install -g ganache-cli truffle*

*ganache-cli*

```
(9) 0x2fb4eCbaf7D4C3A6E7E892697bED67FB9D9D9795 (100 ETH)

Private Keys
==================
(0) 0x500bc9b0ccf5ea42df0cfdfff18d47d8cda6394222878f97ea89f5d2888dd307
(1) 0x279ede4b484c550cf685f33ea56e12f86af20da9cf2239a350fe87de47ad33ba
(2) 0x64bfef8486c7d9ebf12ce3304e1f00b4f1847a8e083a9af6a2d66475cc143491
(3) 0x2890e2c210ea335c77544796c43645965ec2d0b6db74f97476c93387231f3c4a
(4) 0xfceab99382426c0a27363d4e6f57a515d79c08403561d298ffb7957576dc88da
(5) 0x8d7d2474efe051b36ff976e17d89ee401e7055804cb46018d0d41144211ab65e
(6) 0x755cbd23ab3fe1c3e447bcad463cb7751f65811faa33faac7b2a4a10ae50ffee
(7) 0x5924b471171cf5af67b4f9dde43176f7b9907f37608add39d596a43a75c07802
(8) 0xe6d63d31c4b6d364945d286136c27ee7028a59566d5d485e25bf1db840b8bffa
(9) 0x8fcd6673bc6ca58dbe8187f34e88e13419490ded9e8f789efb231818ddf94aa3

HD Wallet
==================
Mnemonic:      pizza pizza arrive feed rabbit crunch kitchen earn speed rely present spot
Base HD Path:  m/44'/60'/0'/0/{account_index}

Gas Price
==================
20000000000

Gas Limit
==================
6721975

Call Gas Limit
==================
9007199254740991

Listening on 127.0.0.1:8545
```

*Command:*

*mkdir SmartContractDemo*

*cd SmartContractDemo/*

*mkdir HelloWorld*

*cd HelloWorld/*

*truffle init*



```
3 updates can be applied immediately.
3 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Sat Nov 19 15:27:33 2022 from 1.38.167.163
mit@eth-vm:~$ mkdir SmartContractDemo
mit@eth-vm:~$
mit@eth-vm:~$ cd SmartContractDemo/
mit@eth-vm:~/SmartContractDemo$
mit@eth-vm:~/SmartContractDemo$ mkdir HelloWorld
mit@eth-vm:~/SmartContractDemo$
mit@eth-vm:~/SmartContractDemo$ cd HelloWorld/
mit@eth-vm:~/SmartContractDemo/HelloWorld$
mit@eth-vm:~/SmartContractDemo/HelloWorld$ truffle init

Starting init...
===============

> Copying project files to /home/mit/SmartContractDemo/HelloWorld

Init successful, sweet!

Try our scaffold commands to get started:
  $ truffle create contract YourContractName # scaffold a contract
  $ truffle create test YourTestName         # scaffold a test

http://trufflesuite.com/docs

mit@eth-vm:~/SmartContractDemo/HelloWorld$
```
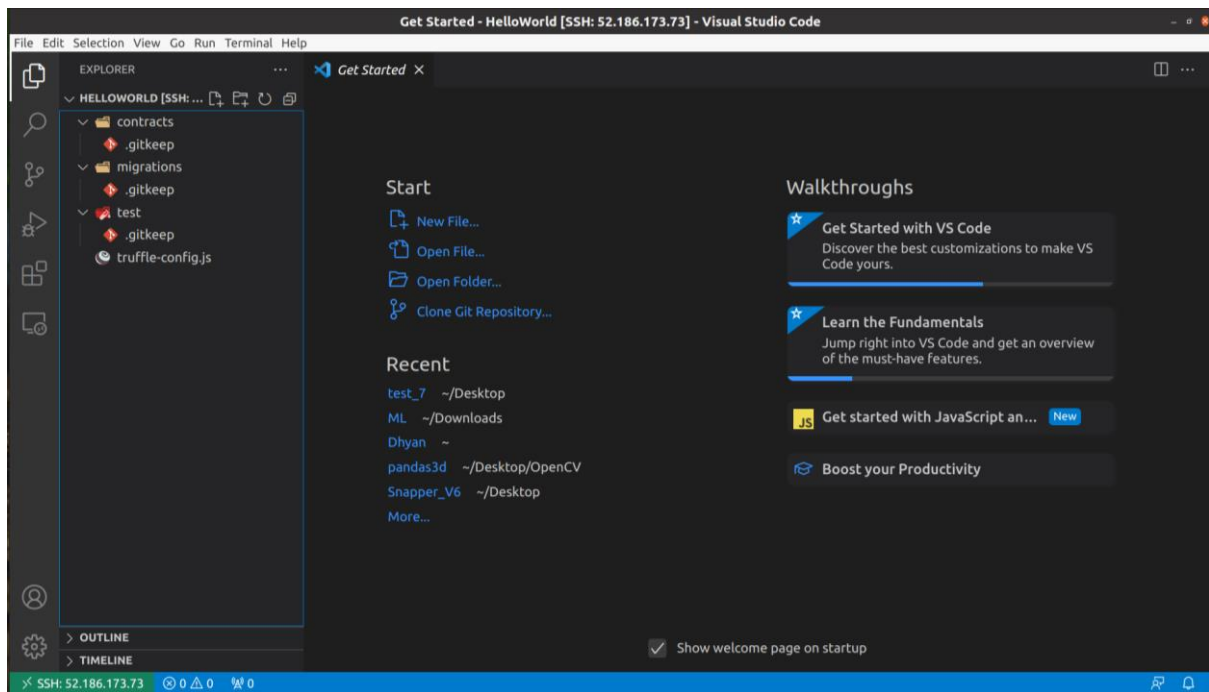
**Command:**

*truffle create contract HelloWorld*

*truffle compile*

*Command:*

*Change config*

*development: {*

*host: "localhost",*

*port: 8545*

*}*

*Add to 2_deploy_contracts.js*

*var HelloWorld=artifacts.require ("./HelloWorld.sol");*

*module.exports = function(deployer) {*

*deployer.deploy(HelloWorld);*

*}*

```
CompileError: TypeError: Data location must be "memory" or "calldata" for return parameter in function, but none was given.
 --> project:/contracts/HelloWorld.sol:7:38:
  |
7 |    function hi() public pure returns (string) {
  |                                       ^^^^^^
Compilation failed. See above.
    at /usr/local/lib/node_modules/truffle/build/webpack:/packages/compile-solidity/dist/run.js:95:1
    at Generator.next (<anonymous>)
    at fulfilled (/usr/local/lib/node_modules/truffle/build/webpack:/packages/compile-solidity/dist/run.js:28:43)
Truffle v5.6.6 (core: 5.6.6)
Node v12.22.12
mit@eth-vm:~/SmartContractDemo/HelloWorld$ truffle compile

Compiling your contracts...
===========================
> Compiling ./contracts/HelloWorld.sol
> Artifacts written to /home/mit/SmartContractDemo/HelloWorld/build/contracts
> Compiled successfully using:
   - solc: 0.8.17+commit.8df45f5f.Emscripten.clang
mit@eth-vm:~/SmartContractDemo/HelloWorld$ truffle migrate

Compiling your contracts...
===========================
> Everything is up to date, there is nothing to compile.
Error: You must specify a network_id in your 'development' configuration in order to use this network.
    at Object.validateNetworkConfig (/usr/local/lib/node_modules/truffle/build/webpack:/packages/environment/environment.js:136:1)
    at Object.detect (/usr/local/lib/node_modules/truffle/build/webpack:/packages/environment/environment.js:16:1)
    at Object.module.exports [as run] (/usr/local/lib/node_modules/truffle/build/webpack:/packages/core/lib/commands/migrate/run.j
s:19:1)
    at runCommand (/usr/local/lib/node_modules/truffle/build/webpack:/packages/core/lib/command-utils.js:201:1)
Truffle v5.6.6 (core: 5.6.6)
Node v12.22.12
mit@eth-vm:~/SmartContractDemo/HelloWorld$
```
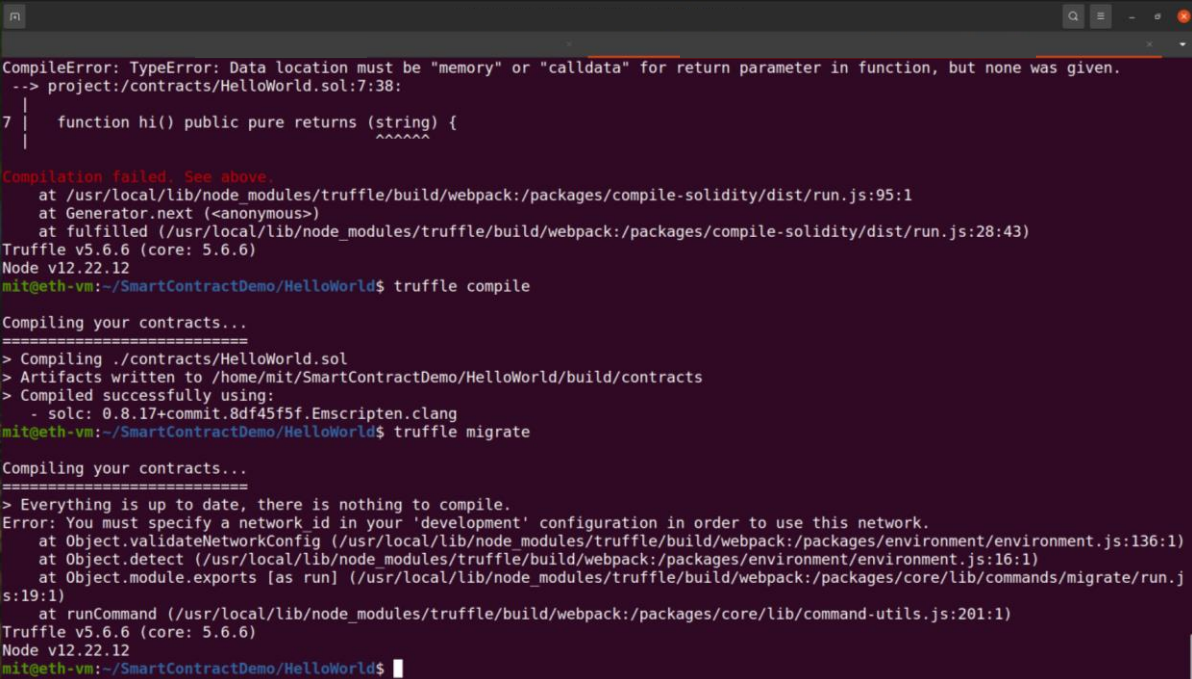
*Command:*

*truffle migrate*

*//To deploy the blockchain program.*