Date :- 02.01.24

Start with installing truffle using **npm install -g truffle** . This will install truffle globally

Error:-

**truffle : File c:\users\91966\appdata\roaming\npm\truffle.ps1 cannot be loaded because running scripts is disabled on this system.**

Solution :-

**Set-ExecutionPolicy -ExecutionPolicy Bypass -Scope CurrentUser**

paste this in IDE terminal

Check truffle version -

Using **truffle --version**  
for this project these are the configrationss

Truffle v5.11.5 (core: 5.11.5)

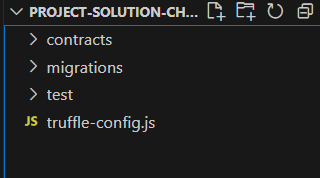
Ganache v7.9.1

Solidity v0.5.16 (solc-js)

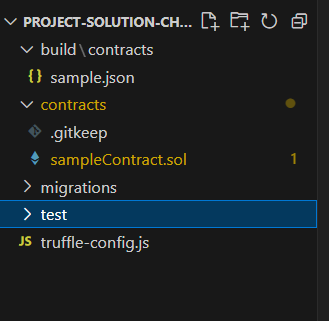
Node v18.17.0

Web3.js v1.10.0

Initial structure folder structure :-



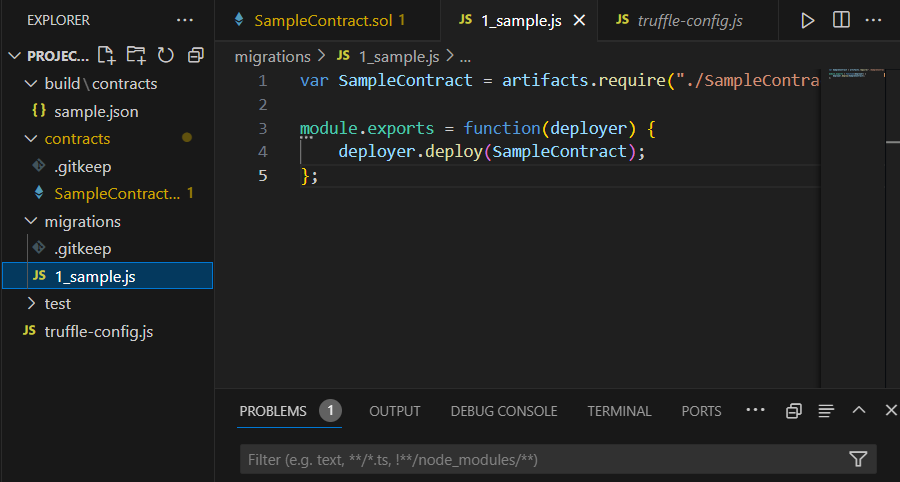
After Compilation



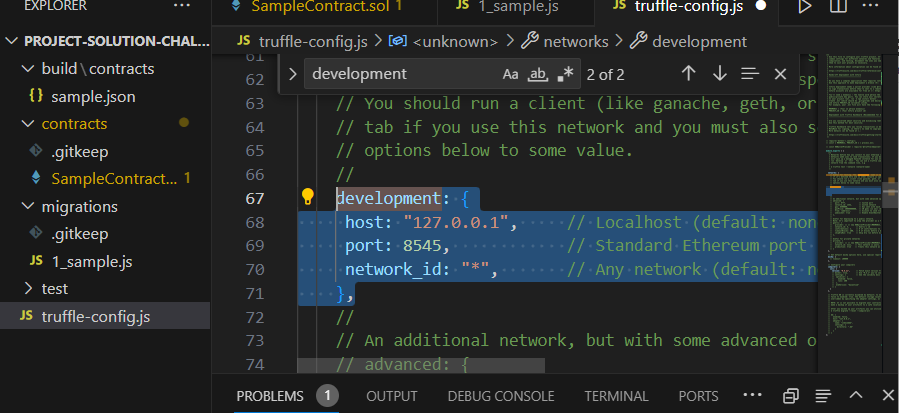
ABI and byte code get combined into a JSON file in ./build/sample.json

Migrating the smart contract

This means creating a script to deploy your smart contract on a network

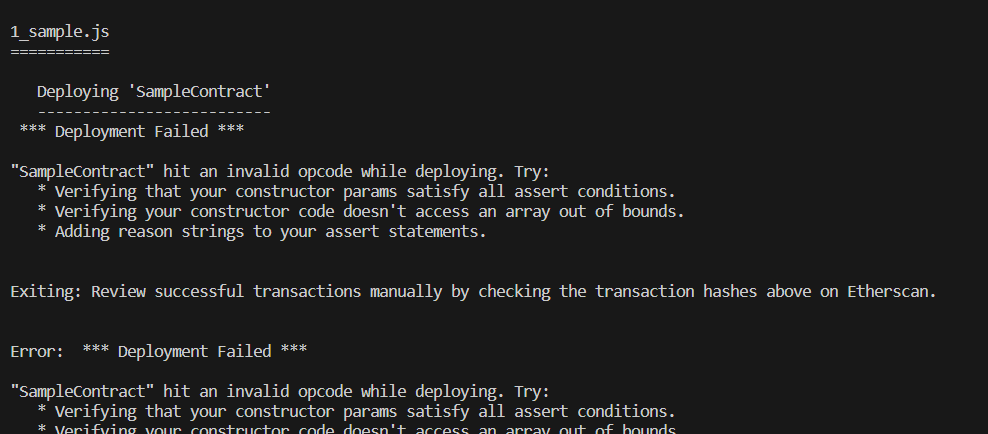


Deployment of smart contract on ganache



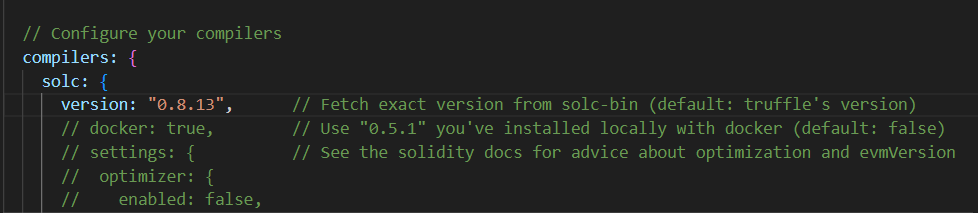
Uncomment the configration

Error :-

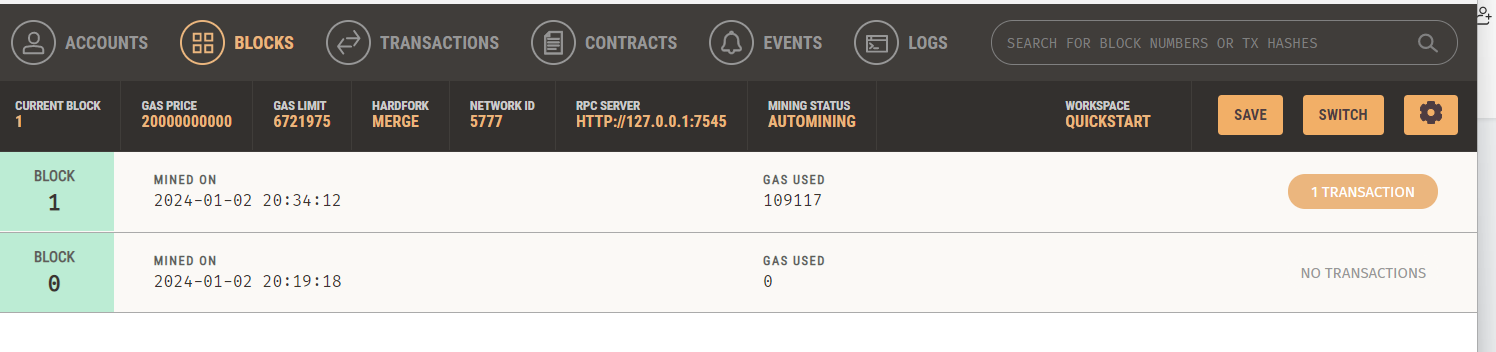


Solution :-

Downgrade Solidity compiler to 0.8.13 in truffle.js



Mined transaction in ganache



Result :- The Project is ready to develop Smart contract locally

Developing Smart Contracts

Contract for pushing student details to chain

contract StuDetails

{

    // Create a structure for

    // student details

    struct Student

    {

        uint256 ID;

        string FirstName;

        string LastName;

        address payable Address;

    }

    //Define variables

    address stuAdd;

    mapping(uint256 => Student) internal stuRecords;

    Student[] internal student;

    // Create a function to add

    // the new records

    function addStuRecords(uint256 \_ID,

                        string memory \_FirstName,

                        string memory \_LastName) public

    {   //error message if student try to enter using the same ID again

        require(stuRecords[\_ID].ID != \_ID,"\_\_\_\_Student ID already registered and cannot be altered\_\_\_\_");

        // Get the student address

        stuAdd = msg.sender;

        //Add to array

        student.push(Student({ID: \_ID, FirstName: \_FirstName,

                    LastName: \_LastName, Address: payable(stuAdd)}));

        // Fetch the student details

        // with the student ID

        stuRecords[\_ID] = Student(\_ID, \_FirstName,

                                    \_LastName, payable(stuAdd));

    }

    //function to view the student array

    function getStuDetails(uint256 \_ID) public view returns(uint256, string memory, string memory, address payable) {

        uint256 ID = stuRecords[\_ID].ID;

        string memory FirstName = stuRecords[\_ID].FirstName;

        string memory LastName = stuRecords[\_ID].LastName;

        address payable Address = stuRecords[\_ID].Address;

        return (ID, FirstName, LastName, Address);

    }

}