Name – Shubham Verma

Roll No- MCA/10012/23

Steps:

1. Create a new folder and run the command truffle init.

2. Now change the directory by command cd and open the desired folder.

3. Open Ganache and add the project from contract and press save and restart button.

4. Now, inside that folder, open truffle-config.js file and uncomment development part and change the port number from ganache port and also change the version of compiler to 0.8.19.

5. Now open vscode and run the command on terminal- truffle create contract Reverse.

6. Inside contracts, we will get Reverse.sol file, and then we write the code for reverse of a number.

```solidity
// SPDX-License-Identifier: MIT
pragma solidity >=0.4.22 <0.9.0;

contract reverse {
    int rev;
    constructor () {
        rev = 0;
    }

    function reverseDigits (int a) public {
        int temp = a;
        while (temp > 0) {
            int lastDigit = temp % 10;
            rev = rev * 10 + lastDigit;
            temp /= 10;
        }
    }

    function getResult () public view returns (int) {
        return rev;
    }
}
```

7. Now inside migrations folder, create one file 1_deploy.js write the code

migrations/1_deploy.js

```
const reverse = artifacts.require('reverse');

module.exports = function (deployer) {
    deployer.deploy(reverse);
}
```

8. Now open the terminal and write truffle migrate.

```
Starting migrations...
======================
> Network name:     'development'
> Network id:       5777
> Block gas limit: 6721975 (0x6691b7)


1_deploy.js
===========

   Replacing 'reverse'
   ------------------
   > transaction hash:    0x81d54d2dc0a25d20d563105d78275f3c827a717505b7d530a7a4c497906a2ca7
   > Blocks: 0            Seconds: 0
   > contract address:    0x440bc8bBd5Ba84B07E8740022B5A49d55B304538
   > block number:        1
   > block timestamp:     1710845700
   > account:             0x565Ec766b0A62Eb2Bd8384880e3482B934B49f18
   > balance:             99.9991973305
   > gas used:            237828 (0x3a104)
   > gas price:           3.375 gwei
   > value sent:          0 ETH
   > total cost:          0.0008026695 ETH

   > Saving artifacts
   -----------------------------------
   > Total cost:          0.0008026695 ETH

Summary
=======
> Total deployments:   1
> Final cost:          0.0008026695 ETH
```

9. Open Ganache and we have our project deployed successfully.

10. Create one foler src inside our project.

11. Move inside src folder and create one html file index.html for frontend.

src/templates/index.html

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Reverse</title>
</head>
<body>
    <h1>Reverse of a Number</h1>
    <form action="/handleclick" method="post">
        <input type="text" name="text" id="text" placeholder="Enter any
Number">
        <input type="submit" value="Reverse">
        <br>
        <input type="text">Output</input>
    </form>
</body>
</html>
```

12. For backend make one file test.py and write the code to connect with blockchain.

src/test.py

```python
from web3 import Web3,HTTPProvider
import json
def connect_with_blockchain ():

    web3=Web3(HTTPProvider('HTTP://127.0.0.1:7545'))
    web3.eth.defaultAccount=web3.eth.accounts[0]

    with open(r"build\contracts\Reverse.json") as f:
        artifact_json=json.load(f)
        contract_abi=artifact_json['abi']
        contract_address=artifact_json['networks']['5777']['address']
        contract=web3.eth.contract(abi=contract_abi, address=contract_address)

    return (contract, web3)
```

```
contract, web3=connect_with_blockchain ()
tx_hash=contract.functions.reverseDigits(154).transact()
web3.eth.waitForTransactionReceipt(tx_hash)
result =contract.functions.getResult().call()
print(result)
```

13. Create one more python file named app.py and import flask,
and test.py and then connect index.html. Then call the reverse
function inside this python file.

src/app.py

```
from flask import Flask,render_template,request
from test import connect_with_blockchain

app=Flask(__name__)

@app.route('/')
def homepage():
    return render_template('index.html')

@app.route('/handleclick',methods=['post'])
def cal():
    a=int(request.form['text'])
    c,w=connect_with_blockchain()
    h=c.functions.reverseDigits(a).transact()
    w.eth.waitForTransactionReceipt(h)
    r=c.functions.getResult().call()
    return f'{a} = {r}'



if __name__ == '__main__':
    app.run(debug=True)
```
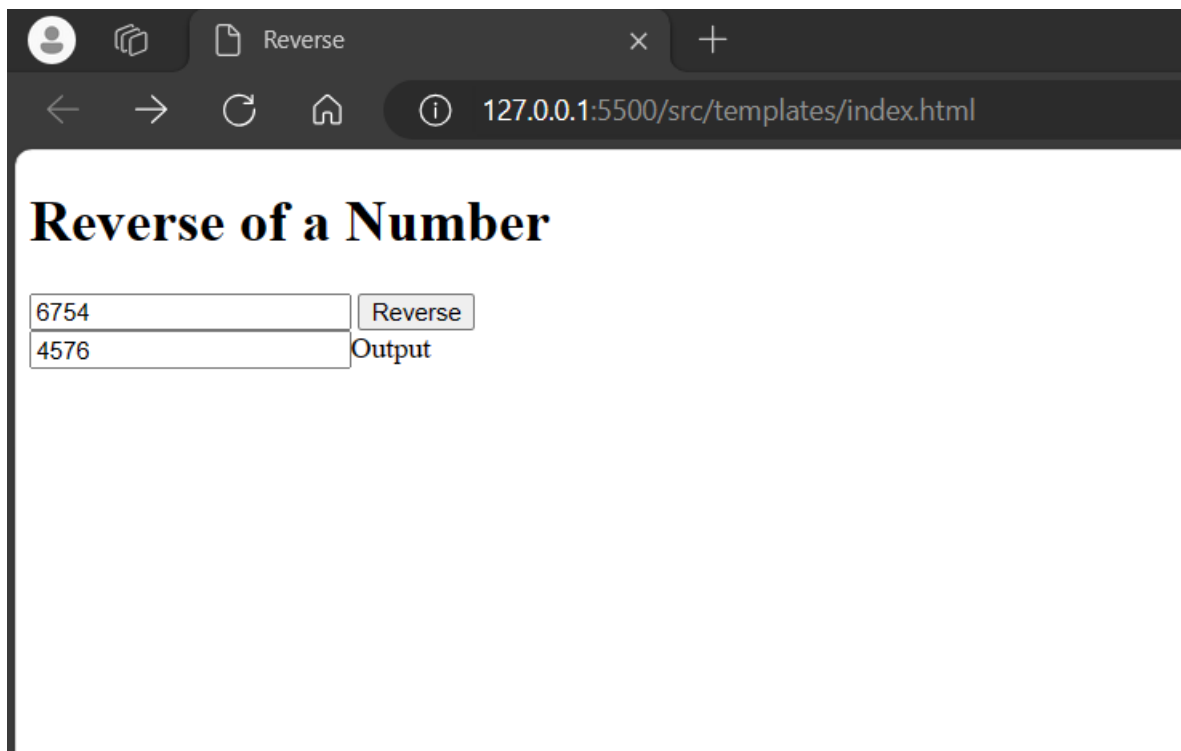
14. Now open index.html and run with a live server

15. Enter any value and get the reverse of that number.

Output