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BATCH-27

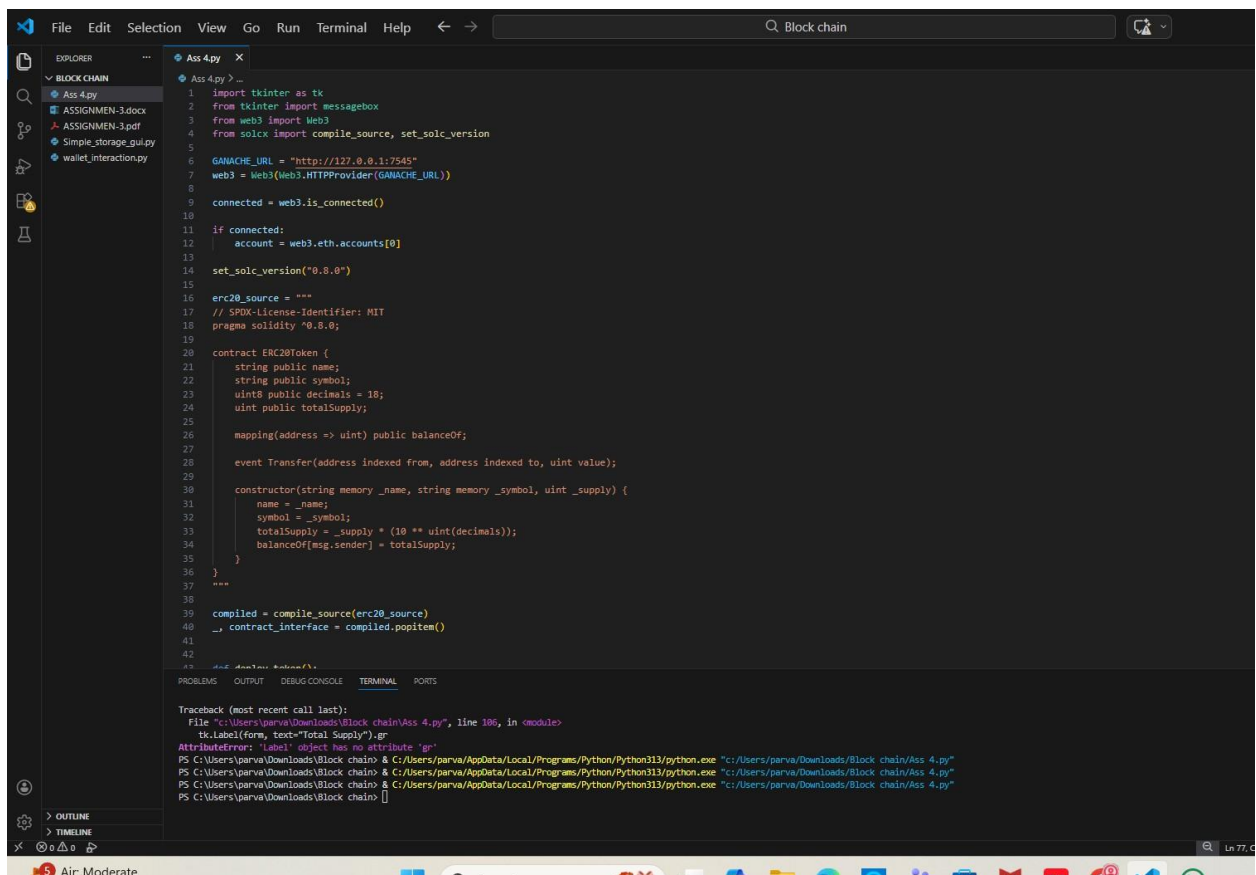
ASSIGNMENT-04

PROBLEM:

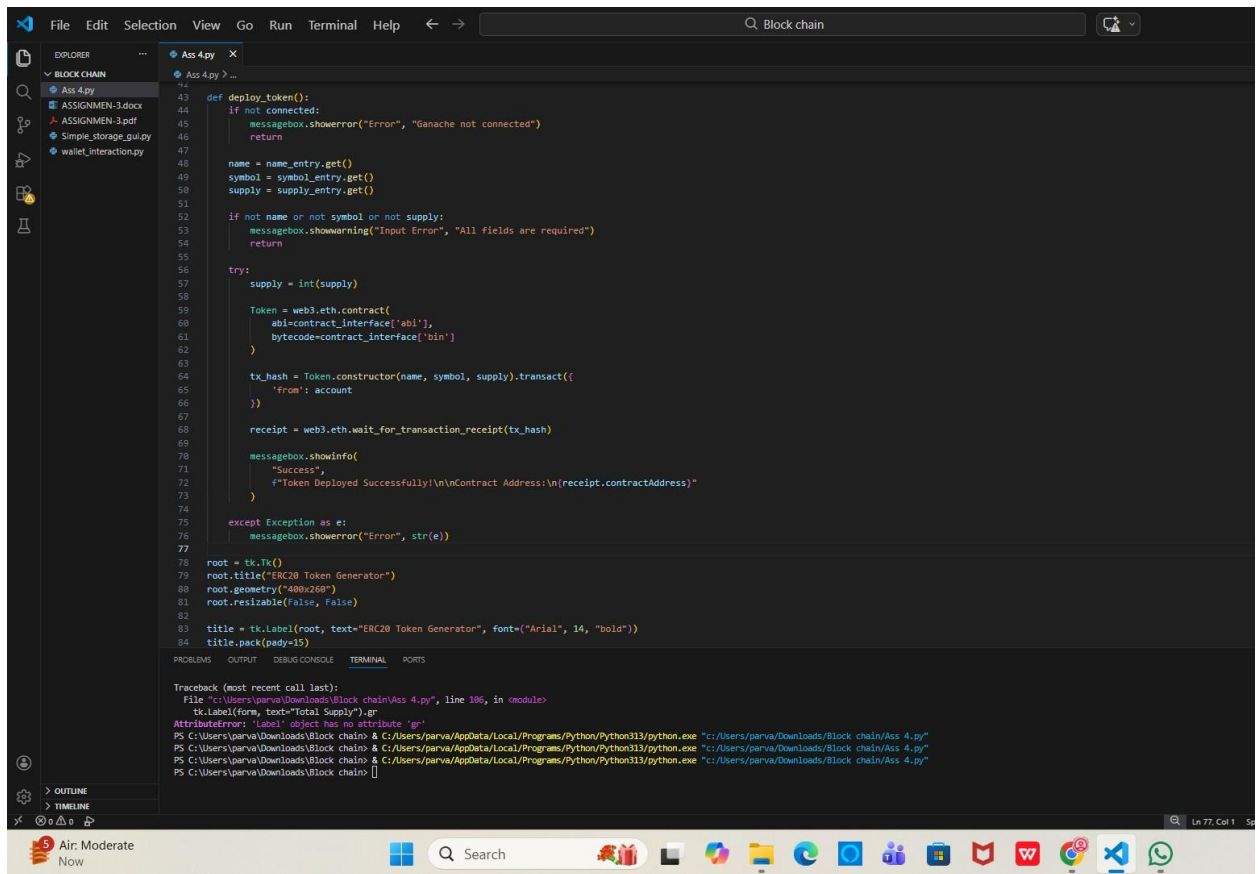
Develop a basic ERC-20 token smart contract using Solidity that allows users to:

- Define token details such as name, symbol, decimals, and total supply
- Transfer tokens between Ethereum accounts
- Store and manage user token balances
- Emit events to record token transfer activities on the blockchain

This practical helps understand state variables, mappings, constructors, events, and functions in Solidity, as well as the basics of Ethereum token standards.



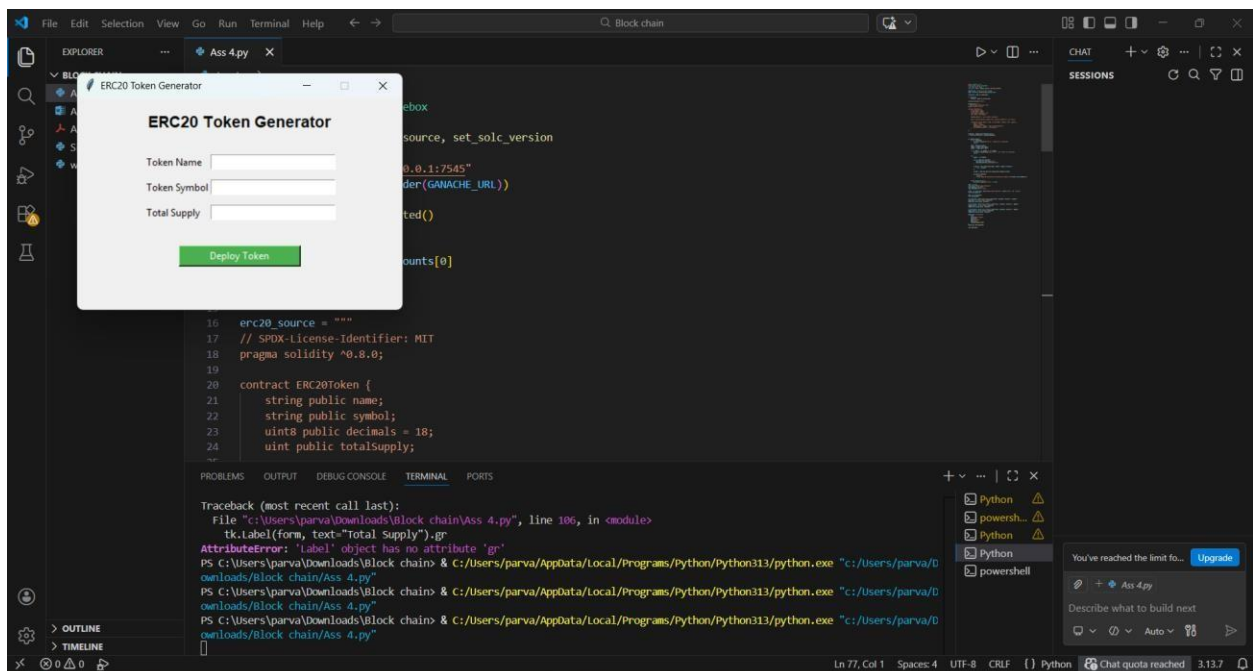
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File Edit Selection View Go Run Terminal Help < -> Block chain
EXPLORER
BLOCK CHAIN
Ass 4.py
ASSIGNMEN-3.docx
ASSIGNMEN-3.pdf
Simple_storage_gui.py
wallet_interaction.py
Ass 4.py
1 import tkinter as tk
2 from tkinter import messagebox
3 from web3 import Web3
4 from solcx import compile_source, set_solc_version
5
6 GANACHE_URL = "http://127.0.0.1:7545"
7 web3 = Web3(Web3.HTTPProvider(GANACHE_URL))
8
9 connected = web3.is_connected()
10
11 if connected:
12     account = web3.eth.accounts[0]
13
14 set_solc_version("0.8.0")
15
16 erc20_source = """
17 // SPDX-License-Identifier: MIT
18 pragma solidity "0.8.0";
19
20 contract ERC20Token {
21     string public name;
22     string public symbol;
23     uint8 public decimals = 18;
24     uint public totalSupply;
25
26     mapping(address => uint) public balanceOf;
27
28     event Transfer(address indexed from, address indexed to, uint value);
29
30     constructor(string memory _name, string memory _symbol, uint _supply) {
31         name = _name;
32         symbol = _symbol;
33         totalSupply = _supply * (10 ** uint(decimals));
34         balanceOf[msg.sender] = totalSupply;
35     }
36 }
37 """
38
39 compiled = compile_source(erc20_source)
40 _, contract_interface = compiled.popitem()
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```



The screenshot shows the Visual Studio Code editor with the file `Ass 4.py` open. The code is a Python script for an ERC20 Token Generator GUI. The terminal window at the bottom displays a traceback error:

```
Traceback (most recent call last):
  File "c:\Users\parva\Downloads\Block chain\Ass 4.py", line 106, in <module>
    tk.Label(form, text="Total Supply").gr
AttributeError: 'Label' object has no attribute 'gr'
```

The error occurs at line 106 of the script, where the `tk.Label` widget is being used with the `gr` attribute, which is not a valid attribute for the `tk.Label` class.



Observation:

- **State variables** = name, symbol, decimals, totalSupply, balanceOf
- **Constructor** = constructor(uint initialSupply)
- **Token transfer function** = transfer(address to, uint value)
- **Balance storage** = mapping(address => uint) balanceOf
- **Event used** = Transfer(address from, address to, uint value)