ASSIGNMENT-1

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BATCH-30

Question-1:

Objective:

To learn blockchain interaction by creating a cryptocurrency

wallet, checking wallet balance, and simulating transactions using

Python and Web3

Requirements:

• Install Python 3.x

• Set up VS Code with Python extension

• Install required Python libraries:

• pip install web3

• Use a test blockchain network (Ethereum Sepolia /

Ganache local blockchain)

• Basic understanding of blockchain wallets and private keys

Practical Description:

Step 1: Environment Setup

• Install Python and VS Code

• Install Web3.py library

• Create a Python file named wallet_interaction.py

Step 2: Wallet and Blockchain Interaction Script

Create a Python script that:

• Connects to a blockchain network

• Loads a wallet using a private key

• Fetches wallet address

• Checks wallet balance

• Demonstrates transaction preparation (without real funds)

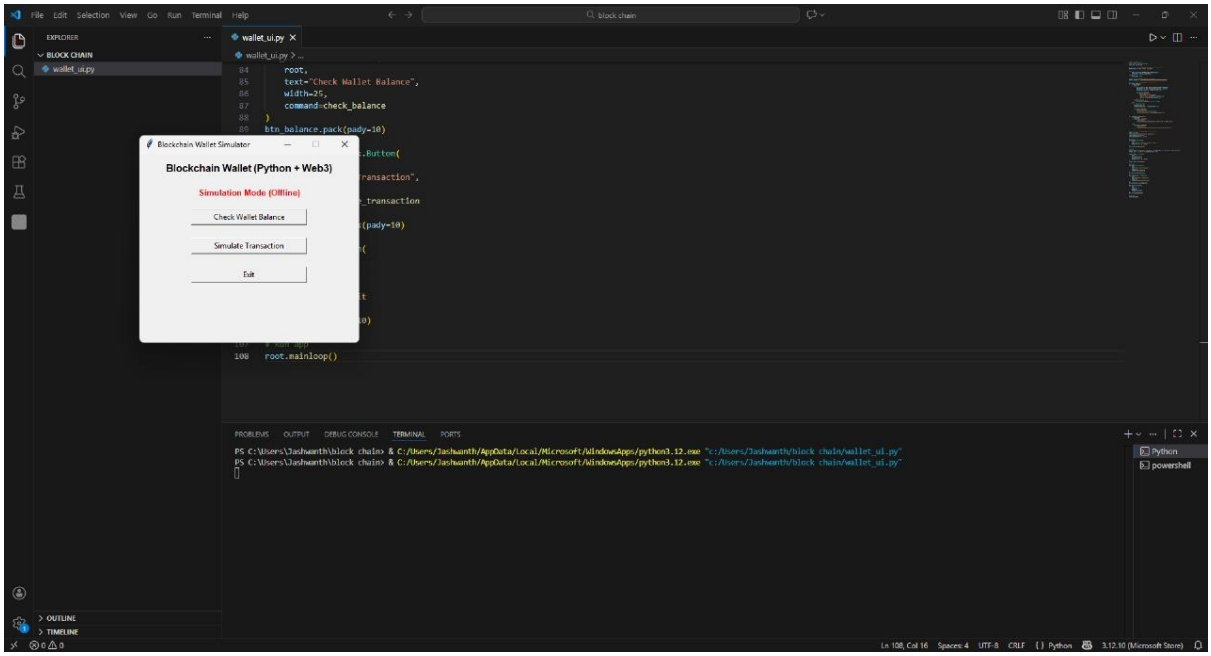
Code:

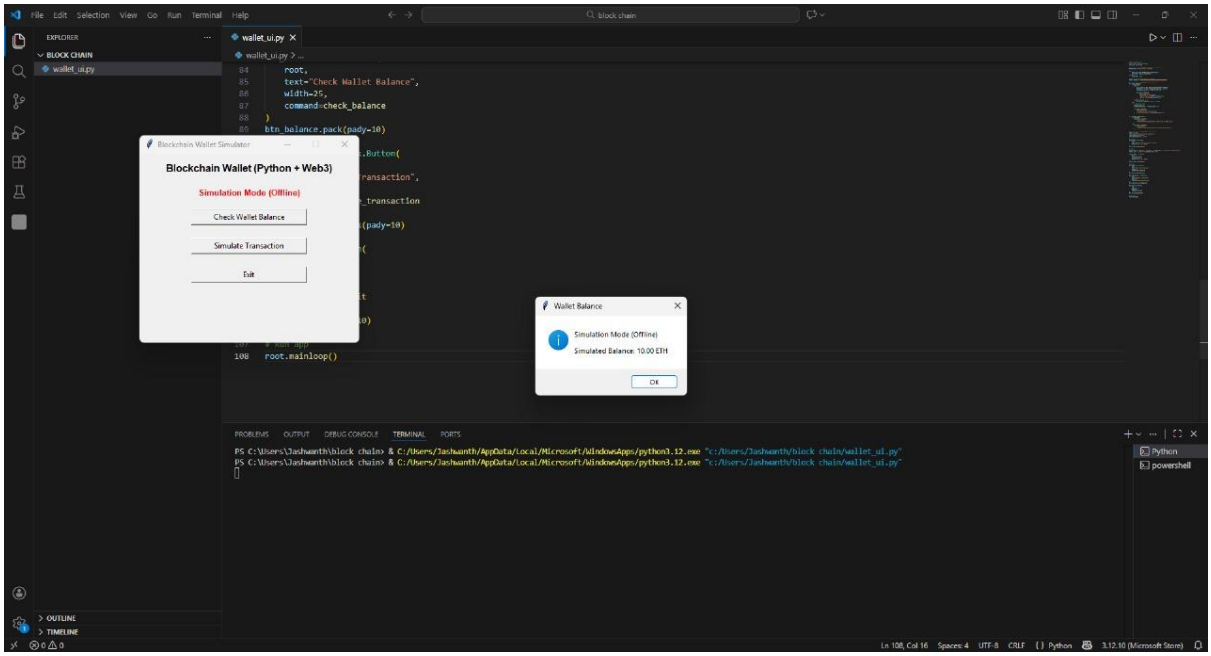
```
import tkinter as tk
from tkinter import messagebox
from web3 import Web3
# ------------------ Blockchain Setup ------------------
GANACHE_URL = "http://127.0.0.1:7545"
try:
web3 = Web3(Web3.HTTPProvider(GANACHE_URL))
connected = web3.is_connected()
except:
connected = False
# Sample wallet (Ganache default account)
SAMPLE_ADDRESS = "0x0000000000000000000000000000000000000000"
# ------------------ Functions ------------------
def check_balance():
if not connected:
messagebox.showinfo("Simulation Mode",
"Blockchain not connected.\nSimulated Balance: 10 ETH")
return
try:
balance_wei = web3.eth.get_balance(SAMPLE_ADDRESS)
balance_eth = web3.from_wei(balance_wei, 'ether')
messagebox.showinfo("Wallet Balance",
f"Wallet Address:\n{SAMPLE_ADDRESS}\n\nBalance: {balance_eth} ETH")
except Exception as e:
messagebox.showerror("Error", str(e))
def simulate_transaction():
```

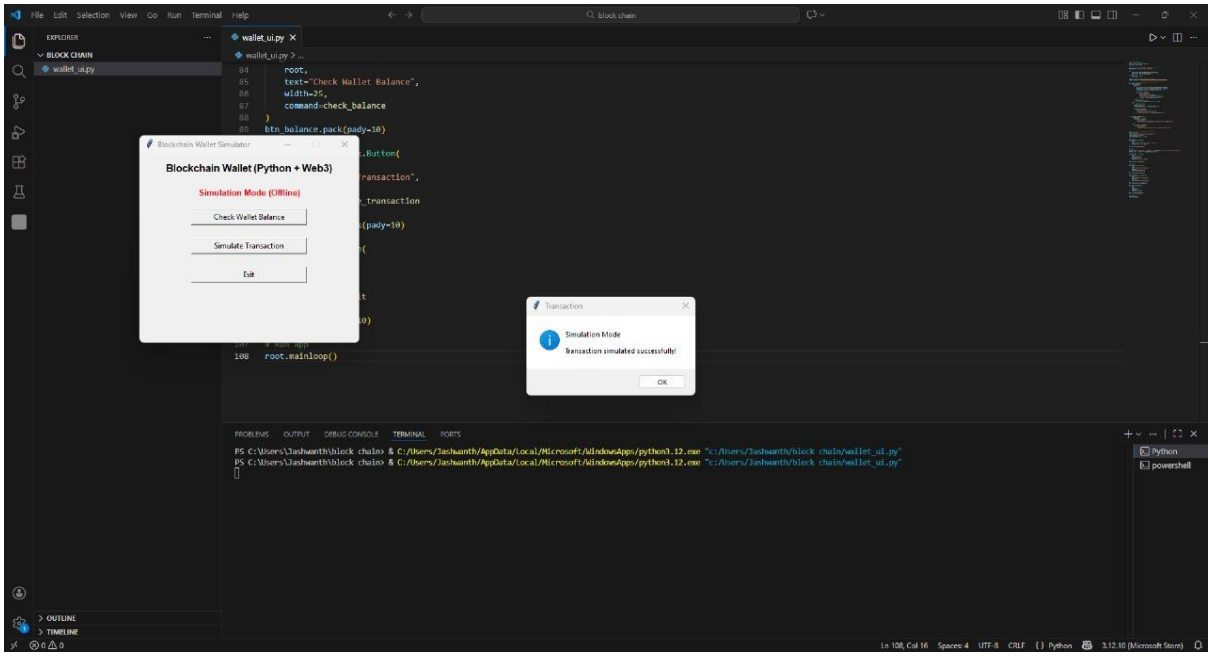
```
tx_details = (
"Transaction Simulation\n\n"
"From: Your Wallet\n"
"To: Receiver Wallet\n"
"Amount: 1 ETH\n\n"
"Note: This is only a simulation.\n"
"No real transaction is performed."
)
messagebox.showinfo("Transaction", tx_details)
# ------------------ GUI Setup ------------------
root = tk.Tk()
root.title("Blockchain Wallet Simulator")
root.geometry("400x300")
root.resizable(False, False)
title_label = tk.Label(
root,
text="Blockchain Wallet (Python + Web3)",
font=("Arial", 14, "bold")
)
title_label.pack(pady=15)
status_text = "Connected to Blockchain" if connected else "Simulation Mode (Offline)"
status_label = tk.Label(root, text=status_text, fg="green" if connected else "red")
status_label.pack(pady=5)
balance_btn = tk.Button(
root,
text="Check Wallet Balance",
width=25,
command=check_balance
```

```
)
balance_btn.pack(pady=10)
tx_btn = tk.Button(
root,
text="Simulate Transaction",
width=25,
command=simulate_transaction
)
tx_btn.pack(pady=10)
exit_btn = tk.Button(
root,
text="Exit",
width=25,
command=root.destroy
)
exit_btn.pack(pady=10)
root.mainloop()
```

OUTPUT:


Blockchain Wallet Simulator
Blockchain Wallet (Python + Web3)
Simulation Mode (Offline)
Check Wallet Balance
Simulate Transaction
Exit
wallet_ui.py
PS C:\Users\Jashwanth\block chain> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe "c:/Users/Jashwanth/block chain/wallet_ui.py"
PS C:\Users\Jashwanth\block chain> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe "c:/Users/Jashwanth/block chain/wallet_ui.py"


Blockchain Wallet Simulator
Blockchain Wallet (Python + Web3)
Simulation Mode (Offline)
Check Wallet Balance
Simulate Transaction
Exit
Wallet Balance
Simulation Mode (Offline)
Simulated Balance: 10.00 ETH
OK
wallet_ui.py
PS C:\Users\Jashwanth\block chain> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe "c:/Users/Jashwanth/block chain/wallet_ui.py"
PS C:\Users\Jashwanth\block chain> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe "c:/Users/Jashwanth/block chain/wallet_ui.py"


Blockchain Wallet Simulator
Blockchain Wallet (Python + Web3)
Simulation Mode (Offline)
Check Wallet Balance
Simulate Transaction
Exit
Transaction
Simulation Mode
Transaction simulated successfully!
OK
PS C:\Users\Jashwanth\block chain> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe "c:/Users/Jashwanth/block chain/wallet_ui.py"
PS C:\Users\Jashwanth\block chain> & C:/Users/Jashwanth/AppData/Local/Microsoft/WindowsApps/python3.12.exe "c:/Users/Jashwanth/block chain/wallet_ui.py"