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1 import tkinter as tk
2 from tkinter import messagebox
3 import hashlib
4 import time
5
6 # ----- Dummy Blockchain -----
7 class Block:
8     def __init__(self, index, value, prev_hash):
9         self.index = index
10        self.value = value
11        self.timestamp = time.strftime("%Y-%m-%d %H:%M:%S")
12        self.prev_hash = prev_hash
13        self.hash = self.calculate_hash()
14
15    def calculate_hash(self):
16        block_data = f"{self.index}{self.value}{self.timestamp}{self.prev_hash}"
17        return hashlib.sha256(block_data.encode()).hexdigest()
18
19 class DummyBlockchain:
20     def __init__(self):
21         self.chain = []
22         self.create_genesis_block()
23
24     def create_genesis_block(self):
25         genesis = Block(0, 0, "0")
26         self.chain.append(genesis)
27
28     def add_block(self, value):
29         prev_block = self.chain[-1]
30         new_block = Block(len(self.chain), value, prev_block.hash)
31         self.chain.append(new_block)
32
33     def get_latest_value(self):
34         return self.chain[-1].value
35
36 # ----- Smart Contract Simulation -----
37 class SimpleStorageContract:
38     def __init__(self, blockchain):
39         self.blockchain = blockchain
40
41     def set(self, value):
42         self.blockchain.add_block(value)
43
44     def get(self):
45         return self.blockchain.get_latest_value()
46
47 # ----- Tkinter GUI -----
48 blockchain = DummyBlockchain()
49 contract = SimpleStorageContract(blockchain)
50
51 def set_value():
52     try:
53         value = int(entry.get())
54         contract.set(value)
55         messagebox.showinfo("Transaction Successful", "Value stored on dummy blockchain!")
56         entry.delete(0, tk.END)
57         update_chain_display()
58     except ValueError:
59         messagebox.showerror("Error", "Please enter a valid integer")
60
61 def get_value():
62     value = contract.get()
63     messagebox.showinfo("Stored Value", f"Current Stored Value: {value}")
64
65 def update_chain_display():
66     chain_text.delete("1.0", tk.END)
67     for block in blockchain.chain:
68         chain_text.insert(tk.END,

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69         f"Block #{block.index}\n"
70         f"Stored Value: {block.value}\n"
71         f"Timestamp: {block.timestamp}\n"
72         f"Prev Hash: {block.prev_hash}\n"
73         f"Hash: {block.hash}\n"
74         f"{'-'*40}\n"
75     )
76
77 # GUI Window
78 root = tk.Tk()
79 root.title("Simple Storage Smart Contract (Dummy Blockchain)")
80 root.geometry("650x600")
81
82 tk.Label(root, text="Simple Storage Smart Contract", font=("Arial", 16, "bold")).pack(pady=10)
83
84 frame = tk.Frame(root)
85 frame.pack(pady=10)
86
87 tk.Label(frame, text="Enter Value: ").grid(row=0, column=0)
88 entry = tk.Entry(frame)
89 entry.grid(row=0, column=1)
90
91 tk.Button(frame, text="Set Value (Transaction)", command=set_value).grid(row=1, column=0,
pady=5)
92 tk.Button(frame, text="Get Value", command=get_value).grid(row=1, column=1, pady=5)
93
94 tk.Label(root, text="Dummy Blockchain Ledger", font=("Arial", 12, "bold")).pack(pady=10)
95
96 chain_text = tk.Text(root, height=20, width=75)
97 chain_text.pack()
98
99 update_chain_display()
100 root.mainloop()
101
```