ASSIGNMENT 4

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CODE:

```python
import tkinter as tk
from tkinter import messagebox, scrolledtext


class ERC20Token:
    def __init__(self, token_number):
        self.name = "MyToken"
        self.symbol = "MTK"
        self.decimals = 18
        self.total_supply = token_number * (10 ** self.decimals)

        # Store balances
        self.balances = {"creator": self.total_supply}

        # Store transaction history
        self.history = []


    def transfer(self, sender, receiver, amount):

        if self.balances.get(sender, 0) >= amount:

            # Update balances
            self.balances[sender] -= amount
            self.balances[receiver] = self.balances.get(receiver, 0) + amount

            # Save history
            record = f"{sender} → {receiver} : {amount} MTK"
            self.history.append(record)

            return "Transfer Successful"

        else:
            return "Insufficient Balance"


    def balance_of(self, user):
        return self.balances.get(user, 0)
```

```python
    def get_history(self):
        return self.history


# -------- GUI PART --------

def create_token():

    token_number = int(entry_supply.get())

    global token
    token = ERC20Token(token_number)

    # Clear old history
    history_box.delete("1.0", tk.END)

    messagebox.showinfo(
        "Token Created",
        f"Total Supply Generated:\n{token.total_supply}"
    )


def transfer_token():

    receiver = entry_receiver.get()
    amount = int(entry_amount.get())

    result = token.transfer("creator", receiver, amount)

    messagebox.showinfo("Transfer Status", result)

    # Update history display
    update_history()


def update_history():

    history_box.delete("1.0", tk.END)

    for tx in token.get_history():
        history_box.insert(tk.END, tx + "\n")


# Create window
```

```python
root = tk.Tk()
root.title("ERC20 Token Generator")
root.geometry("420x500")


# -------- UI Components --------

tk.Label(root, text="Enter Token Supply").pack()
entry_supply = tk.Entry(root)
entry_supply.pack()

tk.Button(
    root,
    text="Generate Token",
    command=create_token
).pack(pady=10)


tk.Label(root, text="Receiver Name").pack()
entry_receiver = tk.Entry(root)
entry_receiver.pack()


tk.Label(root, text="Amount to Transfer").pack()
entry_amount = tk.Entry(root)
entry_amount.pack()


tk.Button(
    root,
    text="Transfer Token",
    command=transfer_token
).pack(pady=10)


# -------- History Section --------

tk.Label(root, text="Transaction History").pack(pady=5)

history_box = scrolledtext.ScrolledText(
    root,
    width=45,
    height=12
)
history_box.pack(pady=5)
```

```
root.mainloop()
```