Case2

October 16, 2025

```python
[3]: import base64
     import datetime as dt
     import random
     import pickle
     import os

     # File paths
     ACCOUNTS_FILE = "accounts.pkl"
     TRANSACTIONS_FILE = "transactions.pkl"

     # Load existing data if available
     if os.path.exists(ACCOUNTS_FILE):
         with open(ACCOUNTS_FILE, "rb") as f:
             account_details = pickle.load(f)
     else:
         account_details = {}

     if os.path.exists(TRANSACTIONS_FILE):
         with open(TRANSACTIONS_FILE, "rb") as f:
             transactions = pickle.load(f)
     else:
         transactions = {}

     # Helper Functions

     def encrypt_pan(pan_card):
         """Encrypt PAN for privacy"""
         return base64.b64encode(pan_card.encode()).decode()

     def decrypt_pan(encrypted_pan):
         """Decrypt PAN if needed"""
         return base64.b64decode(encrypted_pan.encode()).decode()

     def save_data():
         """Save account and transaction data to files"""
         with open(ACCOUNTS_FILE, "wb") as f:
             pickle.dump(account_details, f)
```

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    with open(TRANSACTIONS_FILE, "wb") as f:
        pickle.dump(transactions, f)

def record_transaction(account_no, t_type, amount):
    """Store each transaction"""
    if account_no not in transactions:
        transactions[account_no] = []
    transactions[account_no].append({
        "date": dt.datetime.now().strftime("%Y-%m-%d %H:%M:%S"),
        "type": t_type,
        "amount": amount
    })

# Main Program

print("Welcome to LOOTERA Bank")

while True:
    print("\nMenu Options:")
    print("""
    1. Open a new account
    2. View account details
    3. Deposit / Withdraw / Transfer
    4. View transaction history
    5. Exit program
    """)

    try:
        choice = int(input("Enter your choice between 1-5: "))
    except ValueError:
        print("Invalid input! Please enter a number between 1 and 5.")
        continue

    # Option 1: Open Account
    if choice == 1:
        pan_card = input("Enter PAN card number: ")
        name = input("Enter your name: ")
        account_type = input("Savings/Current? ").capitalize()
        try:
            initial_deposit = float(input("Enter initial deposit: "))
        except ValueError:
            print("Invalid deposit amount!")
            continue

        password = input("Set your account password: ")
        encrypted_pan = encrypt_pan(pan_card)
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        account_no = "9876543210" + str(random.randint(1000, 9999))
        while account_no in [d[3] for d in account_details.values()]:
            account_no = "9876543210" + str(random.randint(1000, 9999))

        details = [name, account_type, initial_deposit, account_no, password]
        account_details[encrypted_pan] = details
        record_transaction(account_no, "Account Opened", initial_deposit)

        save_data()
        print("Account created successfully!")
        print("Your account number is:", account_no)

    # Option 2: View Details
    elif choice == 2:
        pan_card = input("Enter your PAN card number: ")
        encrypted_pan = encrypt_pan(pan_card)
        if encrypted_pan in account_details:
            password = input("Enter your account password: ")
            if password == account_details[encrypted_pan][4]:
                acc = account_details[encrypted_pan]
                print("\nYour Account Details:")
                print(f"Name: {acc[0]}")
                print(f"Account Type: {acc[1]}")
                print(f"Account Number: {acc[3]}")
                print(f"Balance: Rs.{acc[2]}")
            else:
                print("Incorrect password!")
        else:
            print("Account not found!")

    # Option 3: Deposit / Withdraw / Transfer
    elif choice == 3:
        pan_card = input("Enter your PAN card number: ")
        encrypted_pan = encrypt_pan(pan_card)
        if encrypted_pan not in account_details:
            print("Account not found!")
            continue

        acc = account_details[encrypted_pan]
        password = input("Enter password: ")
        if password != acc[4]:
            print("Incorrect password!")
            continue

        print("""
        1. Deposit
        2. Withdraw
```

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        3. Transfer
        """)
        try:
            t_choice = int(input("Enter transaction type: "))
        except ValueError:
            print("Invalid input! Enter a valid number.")
            continue

        if t_choice == 1:  # Deposit
            amt = float(input("Enter deposit amount: "))
            if amt > 0:
                acc[2] += amt
                record_transaction(acc[3], "Deposit", amt)
                save_data()
                print(f"Rs.{amt} deposited successfully. New balance: Rs.
↪{acc[2]}")
            else:
                print("Invalid amount.")

        elif t_choice == 2:  # Withdraw
            amt = float(input("Enter withdrawal amount: "))
            if 0 < amt <= acc[2]:
                acc[2] -= amt
                record_transaction(acc[3], "Withdraw", amt)
                save_data()
                print(f"Rs.{amt} withdrawn successfully. New balance: Rs.
↪{acc[2]}")
            else:
                print("Insufficient balance or invalid amount.")

        elif t_choice == 3:  # Transfer
            target_acc_no = input("Enter target account number: ")
            amt = float(input("Enter amount to transfer: "))
            if amt <= 0 or amt > acc[2]:
                print("Invalid or insufficient funds.")
                continue

            # Find target account
            target_key = None
            for k, v in account_details.items():
                if v[3] == target_acc_no:
                    target_key = k
                    break

            if not target_key:
                print("Target account not found!")
                continue
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            acc[2] -= amt
            account_details[target_key][2] += amt
            record_transaction(acc[3], "Transfer Sent", amt)
            record_transaction(target_acc_no, "Transfer Received", amt)
            save_data()
            print(f"Rs.{amt} transferred successfully to {target_acc_no}")

    # Option 4: View Transaction History
    elif choice == 4:
        acc_no = input("Enter your account number: ")
        if acc_no in transactions:
            print(f"\nTransaction history for account {acc_no}:")
            for t in transactions[acc_no]:
                print(f"{t['date']} | {t['type']} | Rs.{t['amount']}")
        else:
            print("No transactions found for this account.")

    # Option 5: Exit
    elif choice == 5:
        print("Thank you for banking with LOOTERA Bank.")
        break

    else:
        print("Invalid choice! Please select between 1 and 5.")
```

Welcome to LOOTERA Bank

Menu Options:

    1. Open a new account
    2. View account details
    3. Deposit / Withdraw / Transfer
    4. View transaction history
    5. Exit program

Enter your choice between 1-5: 1
Enter PAN card number: 123654789
Enter your name: NNN
Savings/Current? Savings
Enter initial deposit: 500000
Set your account password: ABCDE

Account created successfully!
Your account number is: 98765432108799

Menu Options:

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    1. Open a new account
    2. View account details
    3. Deposit / Withdraw / Transfer
    4. View transaction history
    5. Exit program


Enter your choice between 1-5:   65

Invalid choice! Please select between 1 and 5.

Menu Options:

    1. Open a new account
    2. View account details
    3. Deposit / Withdraw / Transfer
    4. View transaction history
    5. Exit program


Enter your choice between 1-5:   5

Thank you for banking with LOOTERA Bank.
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