ATM INTERFACE

Programming language	:	Python
Back-end database	:	MySQL

Setup of ATM Machine:

1. Initial setup of ATM machine is uploading CSV file of all account details using below columns:

Account_Holders table:
Accno, Account Holder Name, user name, password, account balance, DOB, Mobile number, login flag,pin
1001,Aditi,aditi@gmail.com,john@123,5000,05/15/1990,555-555-5555,0,4311
1002,Aniket,aniket@gmail.com,jane@456,7500,09/23/1985,555-555-5556,0,3423
1003,Bhavesh,bhavesh@gmail.com,robert@789,3000,02/10/1995,555-555-5557,0,5632
1004,Chetna,chetna@gmail.com,emily@101,6000,11/30/1988,555-555-5558,0,9876
1005,Deepak,deepak@gmail.com,michael@202,8500,07/18/1977,555-555-5559,0,3211

2. Initial setup of administrators, who controls entire system. Need to upload another CSV with below columns:

Admin Table:
admin username, password, security question, answer, login flag,pin
admin123,admin@123,What is your favorite color?,Blue,0,8911
superadmin,superpass123,What is your mother's maiden name?,Smith,0,2301
adminUser1,securePwd1,What city were you born in?,New York,0,1234
adminUser2,password123,What is your pet's name?,Rex,0,6755
admin3,adminP@ss,What is your favorite book?,To Kill a Mockingbird,0,3211

Note: The "login flag" is used to detect whether user/admin login is first time or not

3. Initial setup of Cash loading includes the following CSVs are uploaded

Machines table:
MachineID,Location,MaintenanceSchedule,Status,CashBalance
1, Main Street , Monthly,Operational,5000.00
2, Elm Street, Bi-Weekly,Out of Service,0.00
3, Oak Avenue, Monthly,Operational,7500.00

Denominations table:
MachineID,Denomination_Value, Quantity
1,1000,3
1,500,2
1,200,3
1,100,4
2,....
....

3...

Authentication/Authorization:

1. Adminstrator can login with credentials and he/she can reset the pin number(4-digit) with confirmation of password and security question and answer. Once confirmed, new pin number is accepted. And login flag changed to "1".

2. Account holders can reset their pin on confirmation with Date of Birth and registered mobile number. Once confirmed, new pin number is accepted. And login flag changed to "1".

Note: Initially login flag is 0 for any type of user.

Adminstrator after successful login:

Admin Dashboard
(XYZ Bank ATM)

1. Reset pin
2. View ATM Status
3. Manage Users
4. Cash Management
5. Transaction Logs
6. Exit
Enter option: xxx

1. Reset pin: Admin can reset own pin through security question and answer.

2. View ATM Status: Current status of cash balance, paper status and hardware health.

3. Manage Users: It has sub-menu to add, delete, or modify account holders details. Admin can add or modify all details of account holders except "password" and "pin number". These are generated automatically during adding or modifying the account holder details. And after adding/modifying the "login_flag" is always default set to "0".

4. Cash Management: It includes the sub operations Loading cash, Dispense cash(sample withdrawl), Balance in ATM and Empty cash cassettes.

5. Transaction logs: All transaction logs are exported into local CSV file with suffixed <time_stamp> to file name.

Transaction_logs table:
TID,Date_Time,MachineID, Accno,TType,Amount ,TStatus
1,2023-10-20 10:15:30,1,1234567890,W,100.00,Successful
2,2023-10-20 10:17:45,2,9876543210,BE,N/A,Successful
3,2023-10-20 10:22:10,1,5555555555,D,500.00,Successful
4,2023-10-20 10:25:55,1,1111222233,W,100.00,Failed (Insufficient Funds)

6. Exit: Logouts the admin.

Account holder(User):

In this interface no hardware is involved to insert ATM card. Here account holder will start the dashboard through valid Account Number instead of ATM card.

i) After first time successful login(detect login flag). He/she can set a FOUR digit pin number. Make sure pin number is stored in separate table in encrypted format

ii) Account holder can reset the pin number with confirmation of Date of Birth and registered mobile number

iii) Account holder can do deposits/withdrawls with confirmation of PIN number before transaction

iv) All transactions are recorded in separate table called account_transactions

Accno,trans_amt,transaction_type,amount,transaction_time_stamp
1001,200.00,W,200.00,2023-10-15 10:30:45
1002,500.00,D,500.00,2023-10-15 11:45:20
1001,250.00,D,250.00,2023-10-15 14:15:55
1003,100.00,W,100.00,2023-10-15 16:05:10
1002,300.00,D,300.00,2023-10-15 19:20:15

v) Account holder can view the statement of last ten transactions

User Dashboard
(XYZ Bank ATM)

1. Check Balance
2. Withdraw Cash
3. Deposit Funds
4. Change PIN
5. View Transaction History
6. Exit

Please enter your choice: xxxx

Entity Relationship Diagram:

PK accno

| Account_Holder |

1 attached to *****

FK accno

| Account_Transactions |

PK username

| Admin |

FK accno

| Transactions_log |

* Records *****

PK TID

FK machineid

*

1 Relationship

PK machineid

| Machines |

1 contains *****

FK machineid

| Denominations |