Banking System Project

Your task is to create a model for bank that still uses Excel databases and facing many problems with running tables. Here below you have all the tables they have

🏦 Banking System Database Schema (30+ Tables)

🟢 Core Banking Tables

1️ Customers – Stores bank customer information.

* CustomerID (PK)
* FullName, DOB, Email, PhoneNumber, Address
* NationalID, TaxID, EmploymentStatus, AnnualIncome
* CreatedAt, UpdatedAt

2️ Accounts – Stores customer bank accounts.

* AccountID (PK), CustomerID (FK)
* AccountType (Savings, Checking, Business, etc.)
* Balance, Currency, Status
* BranchID (FK), CreatedDate

3️ Transactions – Logs all banking transactions.

* TransactionID (PK), AccountID (FK)
* TransactionType (Deposit, Withdrawal, Transfer, Payment)
* Amount, Currency, Date, Status, ReferenceNo

4️ Branches – Bank branch details.

* BranchID (PK)
* BranchName, Address, City, State, Country
* ManagerID (FK), ContactNumber

5️ Employees – Stores bank staff details.

* EmployeeID (PK), BranchID (FK)
* FullName, Position, Department
* Salary, HireDate, Status

💳 Digital Banking & Payments

6️ CreditCards – Customer credit card details.

* CardID (PK), CustomerID (FK)
* CardNumber, CardType, CVV, ExpiryDate, Limit, Status

7️ CreditCardTransactions – Logs credit card transactions.

* TransactionID (PK), CardID (FK)
* Merchant, Amount, Currency, Date, Status

8️ OnlineBankingUsers – Customers registered for internet banking.

* UserID (PK), CustomerID (FK)
* Username, PasswordHash, LastLogin

9️ BillPayments – Tracks utility bill payments.

* PaymentID (PK), CustomerID (FK)
* BillerName, Amount, Date, Status

10 MobileBankingTransactions – Tracks mobile banking activity.

* TransactionID (PK), CustomerID (FK)
* DeviceID, AppVersion, TransactionType, Amount, Date

🏦 Loans & Credit

1️1️ Loans – Stores loan details.

* LoanID (PK), CustomerID (FK)
* LoanType (Mortgage, Personal, Auto, Business)
* Amount, InterestRate, StartDate, EndDate, Status

1️2️ LoanPayments – Tracks loan repayments.

* PaymentID (PK), LoanID (FK)
* AmountPaid, PaymentDate, RemainingBalance

1️3️ CreditScores – Customer credit scores.

* CustomerID (FK), CreditScore, UpdatedAt

1️4️ DebtCollection – Tracks overdue loans.

* DebtID (PK), CustomerID (FK)
* AmountDue, DueDate, CollectorAssigned

📊 Compliance & Risk Management

1️5️ KYC (Know Your Customer) – Stores customer verification info.

* KYCID (PK), CustomerID (FK)
* DocumentType, DocumentNumber, VerifiedBy

1️6️ FraudDetection – Flags suspicious transactions.

* FraudID (PK), CustomerID (FK)
* TransactionID, RiskLevel, ReportedDate

1️7️ AML (Anti-Money Laundering) Cases – Investigates financial crimes.

* CaseID (PK), CustomerID (FK)
* CaseType, Status, InvestigatorID

1️8️ RegulatoryReports – Stores financial reports for regulators.

* ReportID (PK), ReportType, SubmissionDate

🧑‍💼 Human Resources & Payroll

1️9️ Departments – Stores company departments.

* DepartmentID (PK), DepartmentName, ManagerID

2️0️ Salaries – Employee payroll data.

* SalaryID (PK), EmployeeID (FK)
* BaseSalary, Bonus, Deductions, PaymentDate

2️1️ EmployeeAttendance – Tracks work hours.

* AttendanceID (PK), EmployeeID (FK)
* CheckInTime, CheckOutTime, TotalHours

📈 Investments & Treasury

2️2️ Investments – Stores customer investment details.

* InvestmentID (PK), CustomerID (FK)
* InvestmentType, Amount, ROI, MaturityDate

2️3️ StockTradingAccounts – Customers trading stocks via bank.

* AccountID (PK), CustomerID (FK)
* BrokerageFirm, TotalInvested, CurrentValue

2️4️ ForeignExchange – Tracks forex transactions.

* FXID (PK), CustomerID (FK)
* CurrencyPair, ExchangeRate, AmountExchanged

📜 Insurance & Security

2️5️ InsurancePolicies – Customer insurance plans.

* PolicyID (PK), CustomerID (FK)
* InsuranceType, PremiumAmount, CoverageAmount

2️6️ Claims – Tracks insurance claims.

* ClaimID (PK), PolicyID (FK)
* ClaimAmount, Status, FiledDate

2️7️ UserAccessLogs – Security logs for banking system users.

* LogID (PK), UserID, ActionType, Timestamp

2️8️ CyberSecurityIncidents – Stores data breach or cyber attack cases.

* IncidentID (PK), AffectedSystem, ReportedDate, ResolutionStatus

🛒 Merchant Services

2️9️ Merchants – Stores merchant details for bank partnerships.

* MerchantID (PK), MerchantName, Industry, Location, CustomerID

3️0️ MerchantTransactions – Logs merchant banking transactions.

* TransactionID (PK), MerchantID (FK)
* Amount, PaymentMethod, Date

So now you have your model but still your tables have no data in it. So fill them with 10000 rows at least it will not be a problem since you have created data model.

Once you have created the model get ready to find different KPIs for your visuals, bank employees can give you some sort of questions like can you find C or D cards that are being robbed.

Get ready…

* Top 3 Customers with the Highest Total Balance Across All Accounts
* Customers Who Have More Than One Active Loan
* Transactions That Were Flagged as Fraudulent
* Total Loan Amount Issued Per Branch
* Customers who made multiple large transactions (above $10,000) within a short time frame (less than 1 hour apart)
* Customers who have made transactions from different countries within 10 minutes, a common red flag for fraud.

Now ask yourself why you have typed that much query.