### ****Tables:****

### ****1. Core Account Management****

1. **Accounts** – Stores account details (ID, type, balance, status).
2. **Account\_Types** – Defines account types (Savings, Checking, Loan, etc.).
3. **Account\_History** – Tracks changes to account details (modifications, upgrades).
4. **Account\_Status** – Stores account statuses (Active, Blocked, Closed).

### ****2. Transactions & Ledger****

1. **Transactions** – Stores transaction details (debit, credit, amount, status).
2. **Transaction\_Types** – Defines transaction categories (Transfer, Payment, Deposit, etc.).
3. **Transaction\_Limits** – Stores user-specific or account-specific transaction limits.
4. **Ledger** – Stores financial records for compliance and reconciliation.
5. **Transaction\_Status** – Tracks transaction progress (Pending, Success, Failed).

### ****3. Beneficiaries & External Links****

1. **Beneficiaries** – Stores trusted payees for quick transfers.
2. **Linked\_Accounts** – Stores linked external bank accounts.

### ****4. Security & Compliance****

1. **Fraud\_Detection** – Logs suspicious transactions for risk analysis.
2. **Account\_Logs** – Stores account activity logs.
3. **Fraud\_Status** – Stores fraud investigation statuses.
4. **Account\_Freeze** – Tracks frozen accounts.
5. **KYC\_Status** – Stores KYC verification status for accounts.
6. **Audit\_Logs** – Stores logs for all critical actions on accounts.

### ****5. Account Services & Preferences****

1. **Account\_Notifications** – Stores notification preferences (SMS, email, etc.).
2. **Auto\_Debit** – Stores auto-debit settings for bills, loans, etc.

### ****6. Interest Management****

1. **Interest\_Rates** – Stores rates for different accounts (savings, loans).
2. **Interest\_Calculations** – Tracks interest earned.

### ****7. Enterprise & Multi-Tenancy Tables****

1. **Account\_Access** – Allows multi-user access for enterprises.
2. **Account\_Roles** – Stores roles for account access (Owner, Manager, Employee).
3. **Business\_Accounts** – Stores business-specific banking details.
4. **Business\_Types** – Stores types of businesses (LLC, Partnership, etc.).

## ****Structures:****

## ****1. Core Account Management****

### ****1.1 Accounts****

Stores account details.

* account\_id **(UUID, PK)** – Unique account identifier.
* account\_number **(VARCHAR(20), UNIQUE, NOT NULL)** – Account number.
* account\_type\_id **(UUID, FK -> Account\_Types)** – Type of account.
* balance **(DECIMAL(15,2), NOT NULL, DEFAULT 0.00)** – Account balance.
* status\_id **(UUID, FK -> Account\_Status)** – Account status.
* created\_at **(TIMESTAMP, DEFAULT NOW())** – Account creation date.
* updated\_at **(TIMESTAMP, DEFAULT NOW())** – Last updated time.

### ****1.2 Account\_Types****

Defines types of accounts.

* type\_id **(UUID, PK)** – Unique identifier.
* type\_name **(VARCHAR(50), UNIQUE, NOT NULL)** – Account type (Savings, Checking, etc.).
* description **(TEXT)** – Type description.

### ****1.3 Account\_History****

Tracks changes in account details.

* history\_id **(UUID, PK)** – Unique ID.
* account\_id **(UUID, FK -> Accounts, NOT NULL)** – Reference to the account.
* change\_type **(VARCHAR(50), NOT NULL)** – Type of change (Upgrade, Status Change, etc.).
* previous\_value **(TEXT)** – Old value.
* new\_value **(TEXT)** – New value.
* changed\_at **(TIMESTAMP, DEFAULT NOW())** – When the change was made.

### ****1.4 Account\_Status****

Stores possible account statuses.

* status\_id **(UUID, PK)** – Unique status ID.
* status\_name **(VARCHAR(50), UNIQUE, NOT NULL)** – Status (Active, Blocked, Closed).

## ****2. Transactions & Ledger****

### ****2.1 Transactions****

Stores transaction details.

* transaction\_id **(UUID, PK)** – Unique transaction ID.
* account\_id **(UUID, FK -> Accounts, NOT NULL)** – Account involved.
* transaction\_type\_id **(UUID, FK -> Transaction\_Types, NOT NULL)** – Type of transaction.
* amount **(DECIMAL(15,2), NOT NULL)** – Amount involved.
* status\_id **(UUID, FK -> Transaction\_Status)** – Transaction status.
* timestamp **(TIMESTAMP, DEFAULT NOW())** – Transaction time.

### ****2.2 Transaction\_Types****

Defines transaction categories.

* type\_id **(UUID, PK)** – Unique type ID.
* type\_name **(VARCHAR(50), UNIQUE, NOT NULL)** – Type of transaction (Deposit, Withdrawal, etc.).

### ****2.3 Transaction\_Limits****

Stores account-specific transaction limits.

* limit\_id **(UUID, PK)** – Unique limit ID.
* account\_id **(UUID, FK -> Accounts, NOT NULL)** – Account reference.
* max\_limit **(DECIMAL(15,2), NOT NULL)** – Maximum allowed transaction limit.

### ****2.4 Ledger****

Stores financial records for compliance.

* ledger\_id **(UUID, PK)** – Unique ledger ID.
* transaction\_id **(UUID, FK -> Transactions, NOT NULL)** – Related transaction.
* ledger\_entry **(TEXT, NOT NULL)** – Description of transaction.

### ****2.5 Transaction\_Status****

Tracks transaction progress.

* status\_id **(UUID, PK)** – Unique status ID.
* status\_name **(VARCHAR(50), UNIQUE, NOT NULL)** – Status (Pending, Success, Failed).

## ****3. Beneficiaries & External Links****

### ****3.1 Beneficiaries****

Stores trusted payees for quick transfers.

* beneficiary\_id **(UUID, PK)** – Unique ID.
* account\_id **(UUID, FK -> Accounts, NOT NULL)** – Owning account.
* beneficiary\_account\_number **(VARCHAR(20), NOT NULL)** – Beneficiary's account number.

### ****3.2 Linked\_Accounts****

Stores linked external bank accounts.

* link\_id **(UUID, PK)** – Unique ID.
* account\_id **(UUID, FK -> Accounts, NOT NULL)** – Owning account.
* external\_bank\_name **(VARCHAR(100), NOT NULL)** – Name of external bank.

## ****4. Security & Compliance****

### ****4.1 Fraud\_Detection****

Logs suspicious transactions.

* fraud\_id **(UUID, PK)** – Unique fraud ID.
* transaction\_id **(UUID, FK -> Transactions, NOT NULL)** – Related transaction.
* fraud\_flag **(BOOLEAN, DEFAULT FALSE)** – Suspicious flag.

### ****4.2 Account\_Logs****

Stores account activity logs.

* log\_id **(UUID, PK)** – Unique log ID.
* account\_id **(UUID, FK -> Accounts, NOT NULL)** – Related account.
* log\_detail **(TEXT, NOT NULL)** – Log description.

## ****5. Account Services & Preferences****

### ****5.1 Account\_Notifications****

Stores notification preferences.

* notification\_id **(UUID, PK)** – Unique ID.
* account\_id **(UUID, FK -> Accounts, NOT NULL)** – Related account.
* preference **(VARCHAR(50), NOT NULL)** – Notification type (SMS, Email).

### ****5.2 Auto\_Debit****

Stores auto-debit settings.

* auto\_debit\_id **(UUID, PK)** – Unique ID.
* account\_id **(UUID, FK -> Accounts, NOT NULL)** – Related account.
* debit\_amount **(DECIMAL(15,2), NOT NULL)** – Auto-debit amount.

## ****6. Interest Management****

### ****6.1 Interest\_Rates****

Stores interest rates for different accounts.

* rate\_id **(UUID, PK)** – Unique ID.
* account\_type\_id **(UUID, FK -> Account\_Types, NOT NULL)** – Account type.
* interest\_rate **(DECIMAL(5,2), NOT NULL)** – Interest percentage.

### ****6.2 Interest\_Calculations****

Tracks interest earned.

* calculation\_id **(UUID, PK)** – Unique ID.
* account\_id **(UUID, FK -> Accounts, NOT NULL)** – Related account.
* interest\_earned **(DECIMAL(15,2), NOT NULL)** – Interest amount.

## ****7. Enterprise & Multi-Tenancy****

### ****7.1 Account\_Access****

Allows multi-user access for enterprises.

* access\_id **(UUID, PK)** – Unique ID.
* account\_id **(UUID, FK -> Accounts, NOT NULL)** – Related account.
* user\_id **(UUID, NOT NULL)** – User reference.

### ****7.2 Account\_Roles****

Stores roles for enterprise accounts.

* role\_id **(UUID, PK)** – Unique ID.
* role\_name **(VARCHAR(50), UNIQUE, NOT NULL)** – Role (Owner, Manager, Employee).

### ****7.3 Business\_Accounts****

Stores business-specific banking details.

* business\_id **(UUID, PK)** – Unique ID.
* account\_id **(UUID, FK -> Accounts, NOT NULL)** – Related account.