

Module Responsibilities

Module	Responsibility
auth	Login, registration, OTP, session handling
user	Profile management, KYC data
account	Create/manage bank accounts, view balance
transaction	Internal/external transfers, history
otp	OTP generation, expiration, and SMS handling
teller	Teller login, customer search, deposit/withdrawal

StackOverCash Bank Application - Entity Relationships

The database schema represents a comprehensive banking application with multiple interconnected entities. Let me break down the key entities and their relationships:

Core Entities and Relationships

1. Users

- **Primary entity** storing customer and staff information
- **Types:** Account holders, tellers, and administrators (via role field)
- **Relationships:**
 - One user can have multiple accounts (one-to-many)
 - One user can perform multiple transactions (one-to-many)
 - One user can have multiple OTP codes (one-to-many)
 - One user can have multiple sessions (one-to-many)
 - One user can have multiple system logs (one-to-many)
 - One user can receive multiple SMS messages (one-to-many)

2. Accounts

- Represents bank accounts owned by users
- **Types:** Checking, savings, business

- **Relationships:**
 - Many accounts belong to one user (many-to-one)
 - One account can be involved in multiple transactions (one-to-many)
 - Accounts can be source or recipient in transactions (two separate one-to-many relationships)

3. Transactions

- Records all money movements
- **Types:** Deposits, withdrawals, internal transfers, external transfers
- **Relationships:**
 - Each transaction involves one source account (many-to-one, optional for deposits)
 - Each transaction involves one recipient account (many-to-one, optional for withdrawals)
 - Each transaction can have one external transfer record (one-to-one)
 - Each transaction can be associated with OTP codes (one-to-many)
 - Each transaction is created by one user (many-to-one)
 - Each transaction can be logged in API logs (one-to-many)

4. External Transfers

- Additional details for transactions involving external banks
- **Relationships:**
 - Each external transfer belongs to exactly one transaction (one-to-one)

5. OTP Codes

- One-time passwords for secure operations
- **Relationships:**
 - Each OTP belongs to one user (many-to-one)
 - OTP can be associated with a specific transaction (many-to-one, optional)

Supporting Entities

6. Sessions

- Tracks user login sessions
- **Relationships:**
 - Each session belongs to one user (many-to-one)

7. System Logs

- Audit trail for all system activities
- **Relationships:**
 - Can be associated with a user (many-to-one, optional)
 - Can reference various entity types through entity_type and entity_id

8. SMS Messages

- Tracks all communications sent to users
- **Relationships:**
 - Each message is sent to one user (many-to-one)

9. External Banks

- Information about partner banks for external transfers
- **Relationships:**
 - Referenced by external transfers through source_bank_code and recipient_bank_code (not direct foreign keys)

10. API Logs

- Records API interactions
- **Relationships:**
 - Can be associated with a transaction (many-to-one, optional)
 - Can be associated with a user (many-to-one, optional)