Database Schema for Personal Finance Application

1. Users Table

Stores user information.

Column	Data Type	Description
id	BIGINT (PK)	Primary key, auto-increment
email	VARCHAR(255)	Unique user email
password_hash	VARCHAR(255)	Hashed password
name	VARCHAR(100)	User's full name
created_at	TIMESTAMP	Record creation timestamp
updated_at	TIMESTAMP	Record update timestamp

2. Roles Table

Defines roles for access control.

Column	Data Type	Description
id	INT (PK)	Primary key
name	VARCHAR(50)	Role name (e.g., owner, editor, viewer)

3. User_Roles Table

Many-to-many relationship between users and roles.

Column	Data Type	Description
user_id	BIGINT (FK)	References Users(id)
role_id	INT (FK)	References Roles(id)

Composite primary key: (user_id, role_id)

4. Accounts Table

Represents financial accounts owned by users.

Column	Data Type	Description
id	BIGINT (PK)	Primary key
user_id	BIGINT (FK)	Owner user, references Users(id)
name	VARCHAR(100)	Account name
currency	CHAR(3)	ISO currency code (e.g., USD)
created_at	TIMESTAMP	Creation timestamp
updated_at	TIMESTAMP	Update timestamp

5. Categories Table

Transaction categories for classification.

Column	Data Type	Description
id	INT (PK)	Primary key
name	VARCHAR(100)	Category name
parent_id	INT (FK, nullable)	Self-reference for subcategories

6. Transactions Table

Stores financial transactions.

Column	Data Type	Description
id	BIGINT (PK)	Primary key
user_id	BIGINT (FK)	Owner user, references Users(id)
account_id	BIGINT (FK)	References Accounts(id)
category_id	INT (FK)	References Categories(id)
amount	DECIMAL(15, 2)	Transaction amount
currency	CHAR(3)	ISO currency code
transaction_date	DATE	Date of transaction
notes	TEXT	Optional notes
created_at	TIMESTAMP	Creation timestamp
updated_at	TIMESTAMP	Update timestamp

7. Licenses Table

Stores license keys and status.

Column	Data Type	Description
id	BIGINT (PK)	Primary key
user_id	BIGINT (FK)	License owner, references Users(id)
license_key	VARCHAR(255)	Unique license key
expiration_date	DATE	License expiration date
status	VARCHAR(50)	Status (active, expired, revoked)
created_at	TIMESTAMP	Creation timestamp
updated_at	TIMESTAMP	Update timestamp

8. Subscriptions Table

Tracks subscription periods and statuses.

Column	Data Type	Description
id	BIGINT (PK)	Primary key
user_id	BIGINT (FK)	References Users(id)
start_date	DATE	Subscription start date
end_date	DATE	Subscription end date
status	VARCHAR(50)	Status (active, canceled, expired)
created_at	TIMESTAMP	Creation timestamp
updated_at	TIMESTAMP	Update timestamp

9. Payment_Records Table

Logs payment transactions (for future use).

Column	Data Type	Description
id	BIGINT (PK)	Primary key
transaction_id	VARCHAR(255)	Payment gateway transaction ID
user_id	BIGINT (FK)	References Users(id)
amount	DECIMAL(15, 2)	Payment amount
currency	CHAR(3)	ISO currency code
payment_method	VARCHAR(50)	e.g., credit_card, PayPal
status	VARCHAR(50)	Payment status (success, failed)
created_at	TIMESTAMP	Payment timestamp
updated_at	TIMESTAMP	Update timestamp

10. Participants Table

Manages user collaboration and roles per shared resource.

Column	Data Type	Description
id	BIGINT (PK)	Primary key
user_id	BIGINT (FK)	User invited
invited_by_id	BIGINT (FK)	User who sent invitation
role_id	INT (FK)	Role assigned
status	VARCHAR(50)	Invitation status (pending, accepted, declined)
created_at	TIMESTAMP	Invitation timestamp
updated_at	TIMESTAMP	Update timestamp

Relationships Summary

- **Users** have many **Accounts**, **Transactions**, **Licenses**, **Subscriptions**, **Payment_Records**, and **Participants**.
- **Users** have many **Roles** through **User_Roles**.
- **Accounts** belong to one **User**.
- **Transactions** belong to one **User**, one **Account**, and one **Category**.
- **Categories** can have hierarchical parent-child relationships.
- **Licenses** and **Subscriptions** belong to one **User**.
- **Participants** link users in collaborative roles, with invitation metadata.
- **Payment_Records** log payments related to users (future use).

This schema supports multi-user financial tracking with role-based access, multi-currency accounts, transaction categorization, collaborative management, and future payment/license handling.