

DATABASE DESIGN

Database Tables

*PK :- Primary Key, FK:- Foreign Key

1. Users

- Description: Stores user information.
- Fields:
 - user_id (PK): Unique identifier for each user.
 - username: Name of the user.
 - email: User's email for login and notifications.
 - password: Encrypted password for security.
 - created_at: Timestamp of account creation.

```
CREATE TABLE Users (  
  user_id CHAR(36) PRIMARY KEY,  
  username VARCHAR(50) NOT NULL,  
  email VARCHAR(100) UNIQUE NOT NULL,  
  password VARCHAR(255) NOT NULL,  
  created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP  
);
```

2. Categories

- Description: Stores categories of expenses, like Food, Travel, and Utilities.
- Fields:
 - category_id (PK): Unique identifier for each category.
 - category_name: Name of the category.
 - description: Additional information about the category.

```
CREATE TABLE Categories (  
  category_id CHAR(36) PRIMARY KEY,  
  category_name VARCHAR(50) NOT NULL,  
  description VARCHAR(255)  
);
```

3. Expenses

- Description: Contains records of each expense entry.
- Fields:
 - expense_id (PK): Unique identifier for each expense.
 - user_id (FK to Users): References the user who made the expense.
 - category_id (FK to Categories): References the category of the expense.
 - payment_method_id (FK to Payment_Methods): References the payment method used.
 - amount: The expense amount.
 - date: Date the expense was made.
 - description: Additional notes about the expense.

```
CREATE TABLE Expenses (  
    expense_id CHAR(36) PRIMARY KEY,  
    user_id CHAR(36) NOT NULL,  
    category_id CHAR(36) NOT NULL,  
    payment_method_id CHAR(36) NOT NULL,  
    amount DECIMAL(10, 2) NOT NULL,  
    date DATE NOT NULL,  
    description VARCHAR(255),  
    FOREIGN KEY (user_id) REFERENCES Users(user_id),  
    FOREIGN KEY (category_id) REFERENCES Categories(category_id),  
    FOREIGN KEY (payment_method_id) REFERENCES Payment_Methods(payment_method_id)  
);
```

4. Payment Methods

- Description: Stores available payment methods (e.g., Cash, Credit Card).
- Fields:
 - payment_method_id (PK): Unique identifier for each payment method.
 - method_name: Name of the payment method.
 - description: Details about the payment method.

```
CREATE TABLE Payment_Methods (  
    payment_method_id CHAR(36) PRIMARY KEY,  
    method_name VARCHAR(50) NOT NULL,  
    description VARCHAR(255)  
);
```

5. Budgets

- Description: Defines budget limits for each user, often per category.
- Fields:
 - budget_id (PK): Unique identifier for each budget.
 - user_id (FK to Users): References the user who set the budget.
 - category_id (FK to Categories): The category the budget applies to.
 - amount: The budgeted amount.
 - start_date: When the budget starts.
 - end_date: When the budget ends.

```
CREATE TABLE Budgets (  
    budget_id CHAR(36) PRIMARY KEY,  
    user_id CHAR(36) NOT NULL,  
    category_id CHAR(36) NOT NULL,  
    amount DECIMAL(10, 2) NOT NULL,  
    start_date DATE NOT NULL,  
    end_date DATE NOT NULL,  
    FOREIGN KEY (user_id) REFERENCES Users(user_id),  
    FOREIGN KEY (category_id) REFERENCES Categories(category_id)  
);
```

6. Reports

- Description: Stores generated reports for users.
- Fields:
 - report_id (PK): Unique identifier for each report.
 - user_id (FK to Users): References the user for whom the report is generated.
 - category_id (optional, FK to Categories): Category the report is focused on.
 - date_generated: Date the report was created.
 - total_amount: Summarized amount within the report.

```
CREATE TABLE Reports (  
    report_id CHAR(36) PRIMARY KEY,  
    user_id CHAR(36) NOT NULL,  
    category_id CHAR(36),  
    date_generated TIMESTAMP DEFAULT CURRENT_TIMESTAMP,  
    total_amount DECIMAL(10, 2) NOT NULL,  
    FOREIGN KEY (user_id) REFERENCES Users(user_id),  
    FOREIGN KEY (category_id) REFERENCES Categories(category_id)  
);
```

