

***Capstone Project***

**Report 4**

**Software Design Description**

*Personal Finance Management*

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Record of changes

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# Design Overview

# System Architecture Design

## Choice of System Architecture

## Discussion of Alternative Designs

## Description of System Interface

# Component Diagram

# Detail Description of Components

## CRC Cards (Class-Responsibility-Collaborators)

## Class Diagram and Explanation

# Sequence Diagram

## Incomes & Expenses management function

**5.1.1. Add a record**

**5.1.2. Edit a record**

**5.1.3. View a record**

**5.1.4. View a detail record**

**5.1.5 Delete a record**

## Schedule function

**5.1.1. Add a record**

**5.1.2. Edit a record**

**5.1.3. View a record**

**5.1.4. View a detail record**

**5.1.5 Delete a record**

## Borrowing & Lending management function

**5.1.1. Add a record**

**5.1.2. Edit a record**

**5.1.3. View a record**

**5.1.4. View a detail record**

**5.1.5 Delete a record**

## Report function

**5.1.1. Add a record**

**5.1.2. Edit a record**

**5.1.3. View a record**

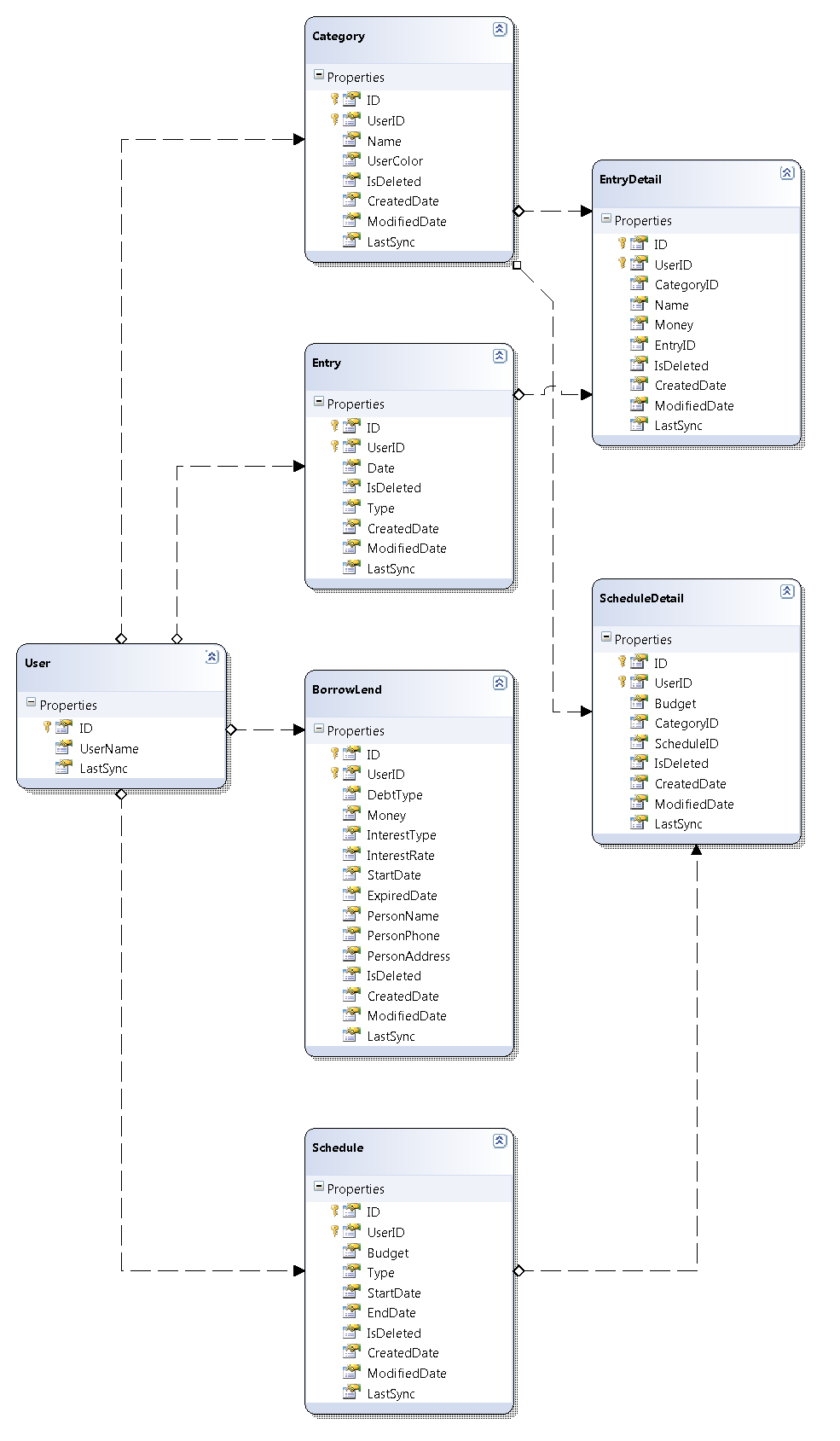
**5.1.4. View a detail record**

**5.1.5 Delete a record**

# User Interface Design

# Database Design

* 1. Database Diagram



* 1. Tables

|  |  |
| --- | --- |
| **Table Name** | **Description** |
| User | Stores information of user |
| Category | Stores all category |
| Entry | Stores all entry |
| EntryDetail | Stores detail for each entry |
| Schedule | Stores all schedule |
| ScheduleDetail | Stores detail for each schedule |
| BorrowLend | Stores all borrowing and lending |

* 1. Table Description
     1. User

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Allow Nulls** | **P/F Key** | **Description** |
| ID | INT |  | PK | User ID |
| UserName | VARCHAR(100) |  |  | Gmail username |
| LastSync | DATETIME |  |  | The latest date time which user synchronize |

* + 1. Category

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Allow Nulls** | **P/F Key** | **Description** |
| ID | BIGINT |  | PK | Category ID |
| UserID | INT |  | PK, FK | User ID |
| Name | NVARCHAR(100) |  |  | Category Name |
| UserColor | NVARCHAR(100) |  |  | Category Color |
| IsDeleted | INT |  |  | Mask a record is deleted or not |
| CreatedDate | DATETIME |  |  | The creation date time of a record |
| ModifiedDate | Date |  |  | The update data’s date time of a record |
| LastSync |  |  |  | The latest date time of record which user synchronize |

* + 1. Entry

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Allow Nulls** | **P/F Key** | **Description** |
| ID | BIGINT |  | PK | Entry ID |
| UserID | INT |  | PK, FK | User ID |
| Date | DATETIME |  |  | Entry Name |
| Type | NVARCHAR(100) |  |  | Entry Type (Income/ Expense) |
| IsDeleted | INT |  |  | Mask a record is deleted or not |
| CreatedDate | DATETIME |  |  | The creation date time of a record |
| ModifiedDate | Date |  |  | The update data’s date time of a record |
| LastSync |  |  |  | The latest date time of record which user synchronize |

* + 1. EntryDetail

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Allow Nulls** | **P/F Key** | **Description** |
| ID | BIGINT |  | PK | Entry Detail ID |
| UserID | INT |  | PK, FK | User ID |
| CategoryID | BIGINT |  | FK | Category ID |
| EntryID | BIGINT |  | FK | Entry ID |
| Name | NVARCHAR(100) |  |  | Entry Detail Name |
| Money | FLOAT |  |  | The money of entry detail |
| IsDeleted | INT |  |  | Mask a record is deleted or not |
| CreatedDate | DATETIME |  |  | The creation date time of a record |
| ModifiedDate | Date |  |  | The update data’s date time of a record |
| LastSync |  |  |  | The latest date time of record which user synchronize |

* + 1. Schedule

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Allow Nulls** | **P/F Key** | **Description** |
| ID | BIGINT |  | PK | Schedule ID |
| UserID | INT |  | PK, FK | User ID |
| Budget | FLOAT |  |  | The total budget of schedule |
| Type | INT |  |  | The type of schedule (Month/Week) |
| StartDate | DATETIME |  |  | The start of schedule’s period |
| EndDate | DATETIME |  |  | The end of schedule’s period |
| IsDeleted | INT |  |  | Mask a record is deleted or not |
| CreatedDate | DATETIME |  |  | The creation date time of a record |
| ModifiedDate | Date |  |  | The update data’s date time of a record |
| LastSync |  |  |  | The latest date time of record which user synchronize |

* + 1. ScheduleDetail

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Allow Nulls** | **P/F Key** | **Description** |
| ID | BIGINT |  | PK | Schedule Detail ID |
| UserID | INT |  | PK, FK | User ID |
| CategoryID | BIGINT |  | FK | Category ID |
| ScheduleID | BIGINT |  | FK | Schedule ID |
| Budget | FLOAT |  |  | The budget for each category |
| IsDeleted | INT |  |  | Mask a record is deleted or not |
| CreatedDate | DATETIME |  |  | The creation date time of a record |
| ModifiedDate | Date |  |  | The update data’s date time of a record |
| LastSync |  |  |  | The latest date time of record which user synchronize |

* + 1. BorrowLend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Allow Nulls** | **P/F Key** | **Description** |
| ID | BIGINT |  | PK | Schedule Detail ID |
| UserID | INT |  | PK, FK | User ID |
| DebtType | NVARCHAR(100) |  |  | The type of debt (borrowing/ lending) |
| Money | FLOAT |  |  | The total money of debt |
| InterestType | NVARCHAR(100) |  |  | The type of interest (simple/ compound) |
| InterestRate | INT | X |  | The rate of interest |
| StartDate | DATETIME |  |  | Starting date time of debt period |
| ExpiredDate | DATETIME | X |  | Expired date time of debt period |
| PersonName | NVARCHAR(100) |  |  | The owner’s name of debt |
| PersonPhone | NVARCHAR(100) | X |  | The owner’s phone of debt |
| PersonAddress | NVARCHAR(100) | X |  | The owner’s address of debt |
| IsDeleted | INT |  |  | Mask a record is deleted or not |
| CreatedDate | DATETIME |  |  | The creation date time of a record |
| ModifiedDate | Date |  |  | The update data’s date time of a record |
| LastSync |  |  |  | The latest date time of record which user synchronize |