# Chapter 3: Design

## 3.1 Structural Modeling

## 3.1.1 Final Class Diagram

## 3.1.2 Flowchart Diagram

## 3.2 Behavior Modeling

## 3.2.1 Activity Diagram

## 3.2.2 Sequence Diagram

## 3.3 Database Modelin

## 3.3.1 Data Dictionary

Table: User

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Length** | **Null** | **Key** | **Constraints** |
| Pin | varchar | 25 | No | Primary Key | Pk\_Pin |
| RecoveryCode | varchar | 25 | No | - | - |

Table: LiquorCategory

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Length** | **Null** | **Key** | **Constraints** |
| CategoryId | int | - | No | Primary Key | Pk\_CategoryId |
| CategoryName | varchar | 255 | No | - | - |

Table: Liquor

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Length** | **Null** | **Key** | **Constraints** |
| LiquorId | int | - | No | Primary Key | Pk\_LiquorId |
| LiquorName | varchar | 255 | No | - | - |
| LiquorPrice | decimal | - | No | - | - |
| CategoryId | int | - | No | Foreign Key | Fk\_CategoryId |

Table: LiquorQuantity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Length** | **Null** | **Key** | **Constraints** |
| LiquorId | int | - | No | Foreign Key | Fk\_LiquorId |
| Quantity | int | - | No | - | - |
| Threshold | int | - | No | - | - |

Table: Bill

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Length** | **Null** | **Key** | **Constraints** |
| BillId | int | - | No | Primary Key | Pk\_BillId |
| TotalAmount | decimal | - | No | - | - |
| CustomerId | int | - | Yes | - | - |

Table: LoyalCustomer

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Length** | **Null** | **Key** | **Constraints** |
| LoyalCustomerId | int | - | No | Primary Key | Pk\_LoyalCustomerId |
| Email | varchar | 255 | No | - | - |
| Points | int | - | No | - | - |

Table: LiquorBill

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column Name** | **Type** | **Length** | **Null** | **Key** | **Constraints** |
| BillId | int | - | No | Foreign Key | Fk\_BillId |
| LiquorId | int | - | No | Foreign Key | Fk\_LiquorId2 |
| LiquorAmount | decimal | - | No | - |  |

## 3.3.2 ER diagram

## 3.4: Prototype Design