SOFTWARE REQUIREMENTS SPECIFICATION

QR CODE PRODUCT RECOGNIZATION

(QCPR)

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1.0 Introduction

The Software Requirement Specification is designed with the purpose for better understanding of the product to user. It clearly describes the statement of the user requirements.

1.1 Purpose

The primary objective of the QR Code Product Recognization (QCPR) is to make the customer aware about the product which the user intends to buy. This software product provides the user friendly and user convenient environment to the user which helps to buy a better product. This software ensures the user about every details, and also about the other details that are not physically mentioned on the product.

1.2 Scope

The QR Code Recognization (QCPR) is designed to run on a database server, which allows the user to fetch the data from it by scanning the QR Code or entering the Unique serial number on the product by scanning with QCPR application and the data fetched contains the entire information regarding product.

2. Product Description

This Section include about the product perspective, product functions, user characteristics and constraints.

2.1 Product Functions

A. Sign In/ Sign Up

- For the security purpose authentication is provided in the QCPR application. The user is asked to login it's existing account or create a new one. All the basic stats of the user like how many product users buys or the QCPR wallet amount will be stored using the address of this account in the database.

B. QR Code Scanner

- The QCPR application opens with the inbuilt scanner or accessing the default scanner of the device for scanning the QR code given on the product.
- The application takes the authorization from the user for accessing the default scanner application of the device.
- The optional way of recognizing the product is made possible through taking the input of the Unique serial number which is provided along with the product and inserting into the QCPR app.

C. Product Characteristics and Attributes

- The QCPR application initially provides the entire product description that user is about to buy. In beginning the application creates an interface for the user which shows the product type, and makes the user fully aware about the utilization of the product in certain conditions.
- The next interface that application provides to user is about the basic ingredients like for example, in case of food products it shows the ingredients name that is used to make it and their respective quantity in common unit.
- Another interface the application adds is for the product nutrition. In this it shows the amount of nutrition the product contains per quantity in common unit, this description is applicable for most
  grocery, food, cosmetics, pharmacy products and many others.
- And the last description provides the Company Approved Statement, the product manufacturing address and date, official price of product and product expiry statement.

D. Payment Options and methods

- The QCPR application also has the facility of online payment options. The user can pay for the buying the product just as other common online payment methods.
- The unique customer concerned feature that QCPR include is that, user can acquire the discount points by scanning the product. The amount of points will be depended on the product, and with the use of that points user can get the discount by purchasing the same product later.

E. Feedback section

- The feedback section arrives after user has done buying the product, this section includes the quick checkbox section and if the user wants to give feedback in detail for that description text area is also provided.

2.2 Product Perspective

- The utilization of QCPR application is for the domestic purpose and general customers.
- The users can access the QCPR software in the basic application format for both Android and IOS system, or the website format can also be accessed through web browser by the user.

2.3 User Characteristics

- Generally this application can be accessed by anyone having the internet connection. For user the Internet connection is mandatory for the proper use of this app.

2.4 User Constraints

- Security is the most concerned point for this application use.
- The user is asked to register a new account or login the existing one, the username and password of the user account is stored as a unique key in the database.
- As for the security and the backup purpose the application provides the forgot password option. By forgot password option the user can enter the registered mobile number and through the OTP user can re access the account. Alternate to this, Facebook synchronized account can also be taken in use in case of user forgets the password.
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- The application work efficiency depends upon the database availability. The database server is always on for 24*7. In case the server gets crashed, the user can get the notification through app when the server gets back online.
- The uniform and regular updation gets available when the more user requirements are found, and the application needs maintenance or bugs are to be removed and to add new features.

3. Specific Requirements

- **User Side**
  a) Software

  -Web Browser

  b) Hardware

  - Smart phone

  - Computer system

- **System Side**
  a) Database server
  b) Database information storage system
  c) IDE

3.1 Functional Requirements

R1: Various details of user for authentication, like username/Phone Number, password, etc.

F1: Accepts the user information

Input: User Information (username, password, etc.)

Output: Provides authentication to user by the information given.

R2: QR code on the product wrap or the optional serial number.

F2: Scans the QR code or takes the input of Serial code

Input: Scanning the QR code or entering the Serial number.

Output: By scanning the QR or entering the serial code it matches with the unique identity associated with the product information on the database server, and provides that information to the server.

R3: Uniform connection with the server

F3: storing and displaying the information about the shopping list of user.

Input: Scanning QR code or Entering Serial number.

Output: Server Stores the shopping list of user

In database and also provides it to the user.

R4: Payment method Details of the user.

F4: Authentication of the user information

Input: Inputting the user card number and pin for the online payment option.

Output: Payment gets successfully done and the user has officially purchased the products.

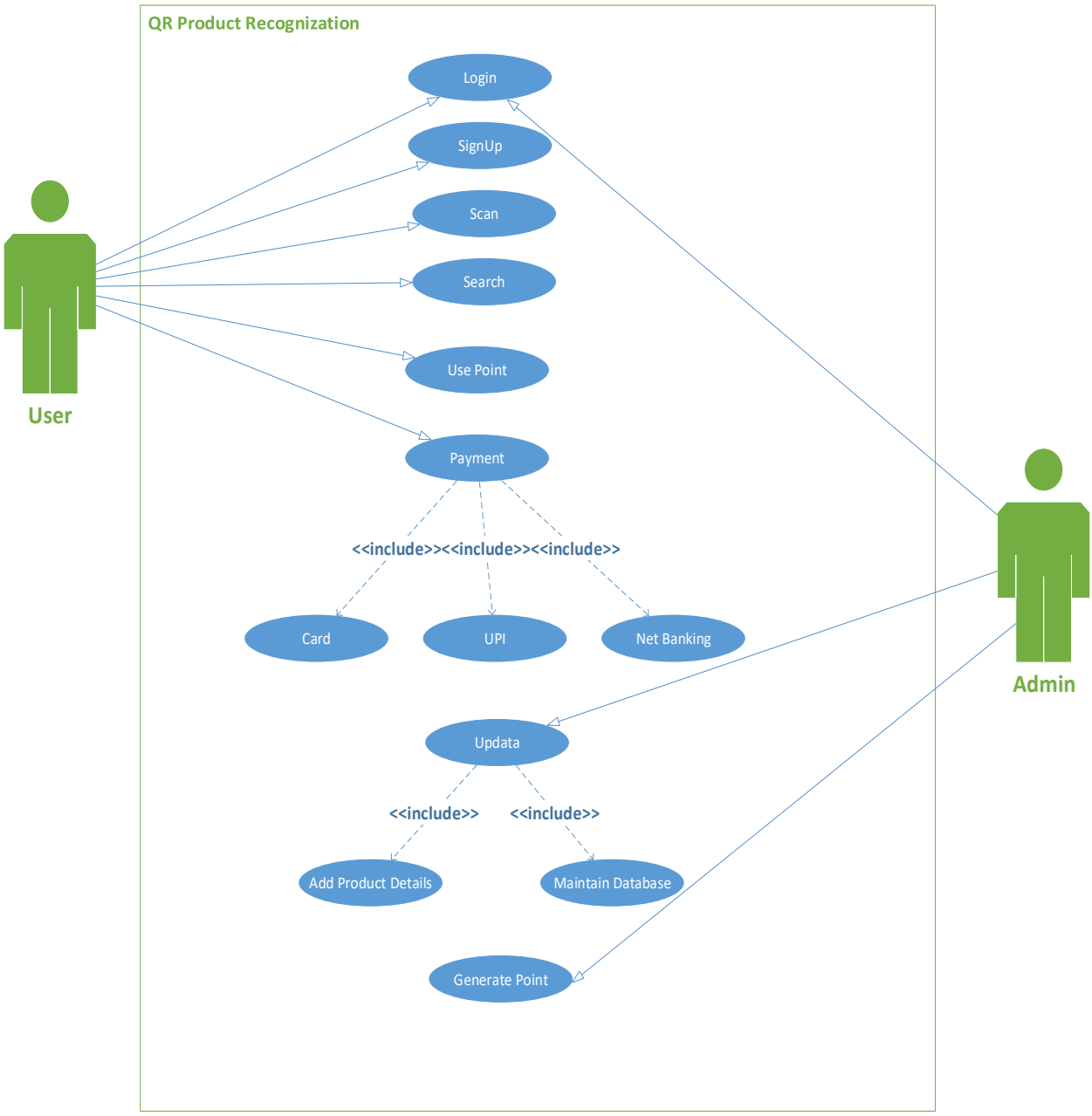
R5: Server Generates points regarding shopping of products.

F5: Input: Payment for the Products.

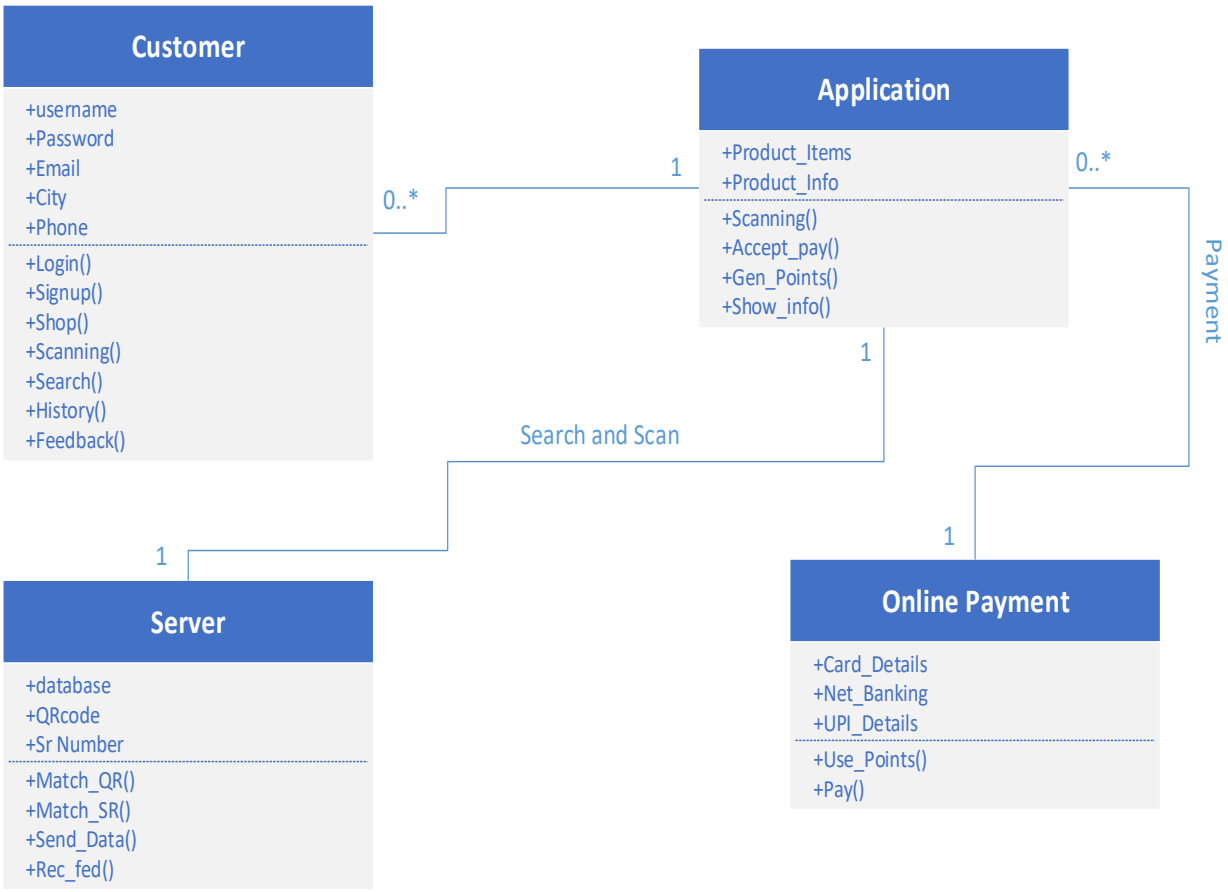
Output: Server will generate discount points for the next shopping of user, and officially will be added to e-wallet of the user that can be used later.

4. Modelling Requirements:

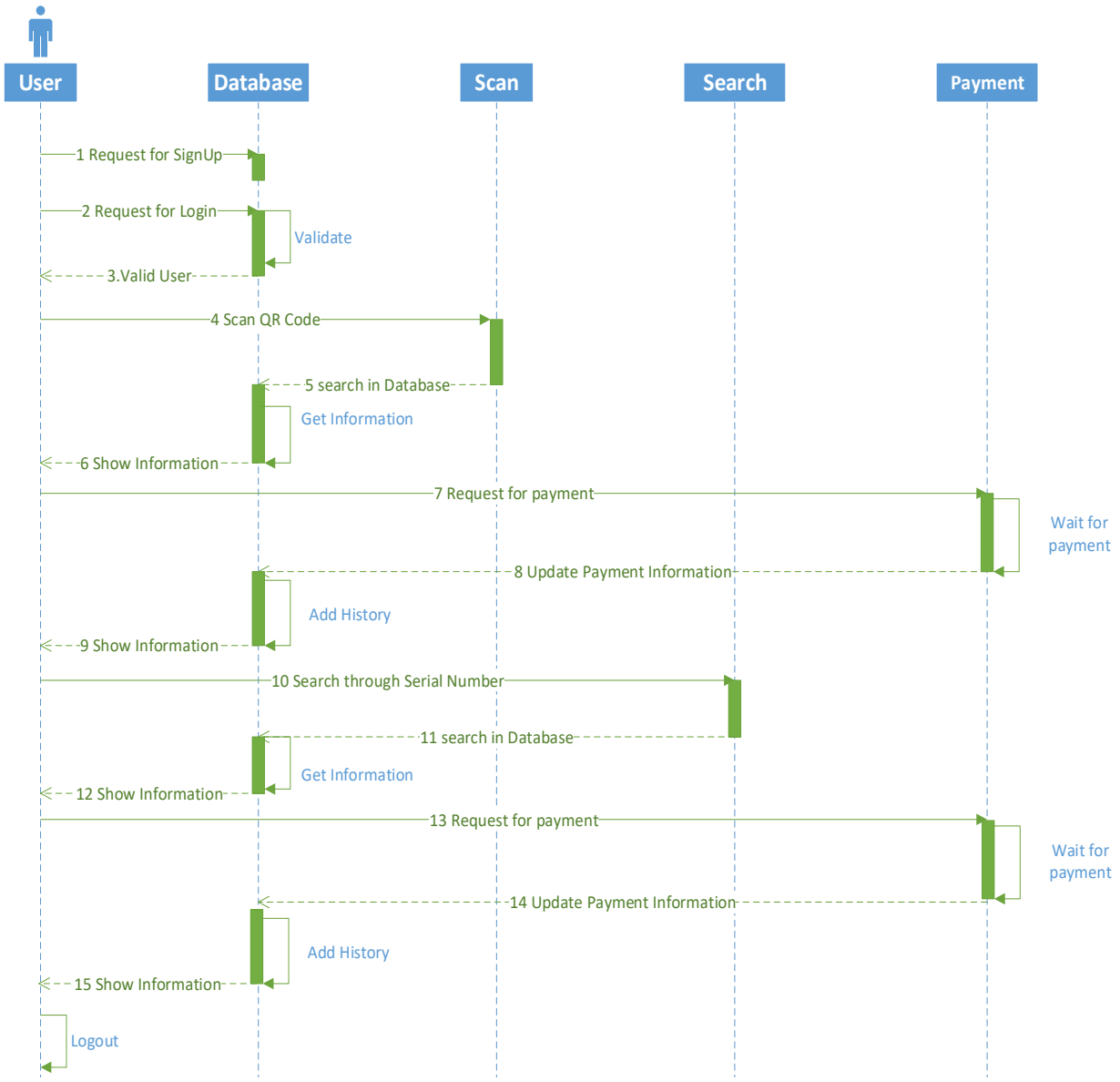
4.1 Use Case Diagram:



4.2 Class Diagram:

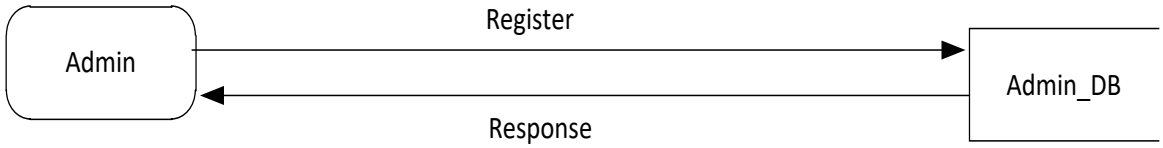


4.3 Sequence Diagram:

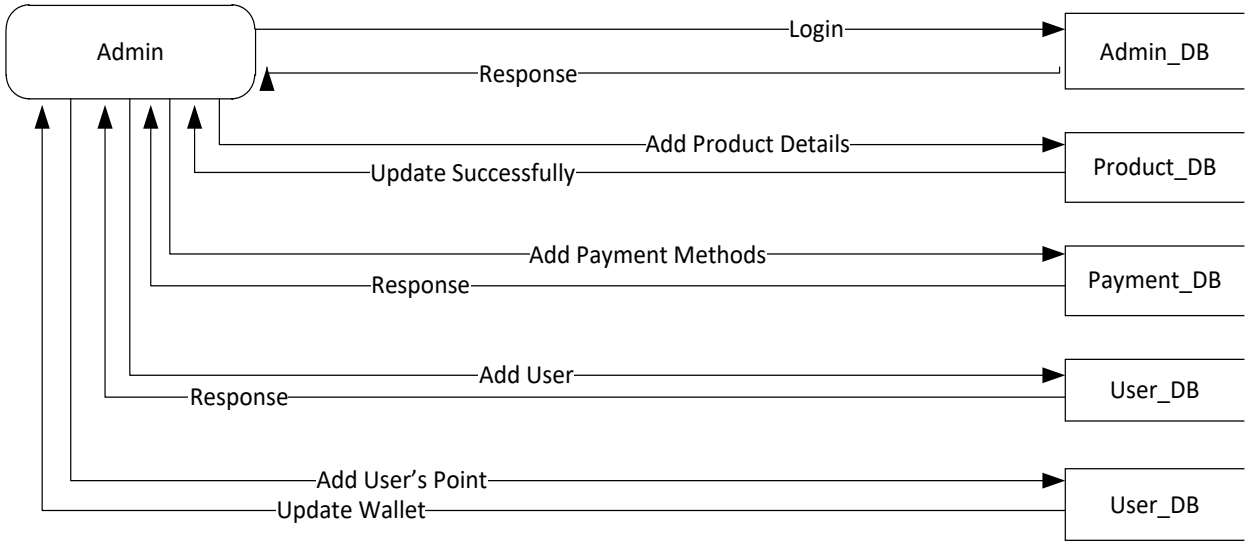


4.4 Data Flow Diagram(DFD):

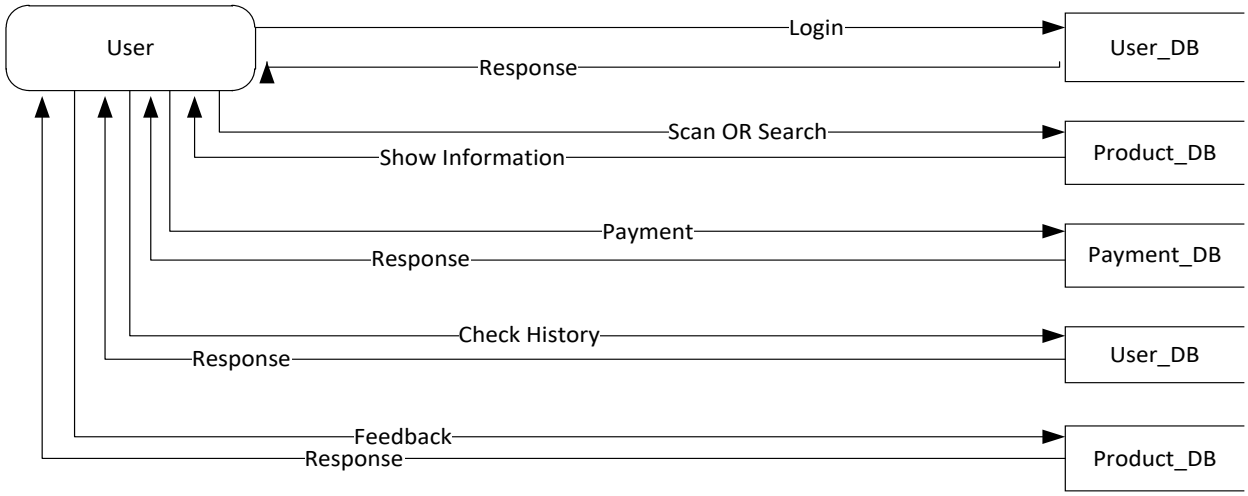
Level 0



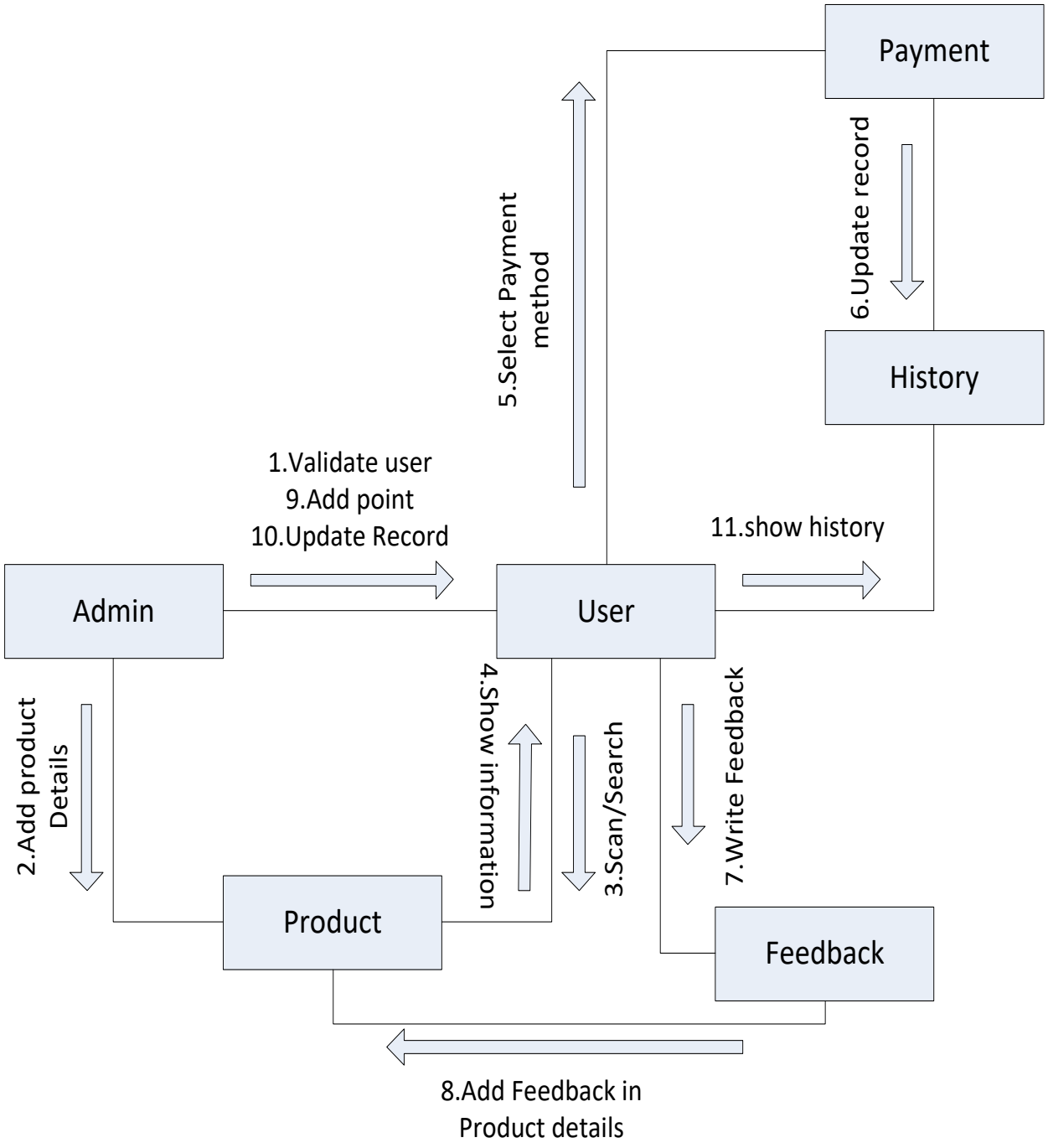
Level 1: (Admin Side)



Level 2: (User Side)



4.5 Collaboration Diagram:



5.Database:

The section involves database anatomy and it's relevant tables in database.

Mainly four tables are included in the database.

5.1 Database Tables:

i. Admin_Table

AttributeName	AttributeType	AttributeSize
Admin_ID	Integer	
FirstName#	String	30
LastName#	String	30
Email#	String	30
Password#	String	30
Phone#	Numeric	10
Address#	String	50
City#	String	30
State#	String	30
Year#	Date	4

ii. User_Table

AttributeName	AttributeType	AttributeSize
User_ID	Integer	
FirstName#	String	30
LastName#	String	30
Email#	String	30
Password#	String	30
Phone#	Numeric	10
Address#	String	50
City#	String	30
State#	String	30
DateOfBirth#	Date	
Points#	Numeric	10

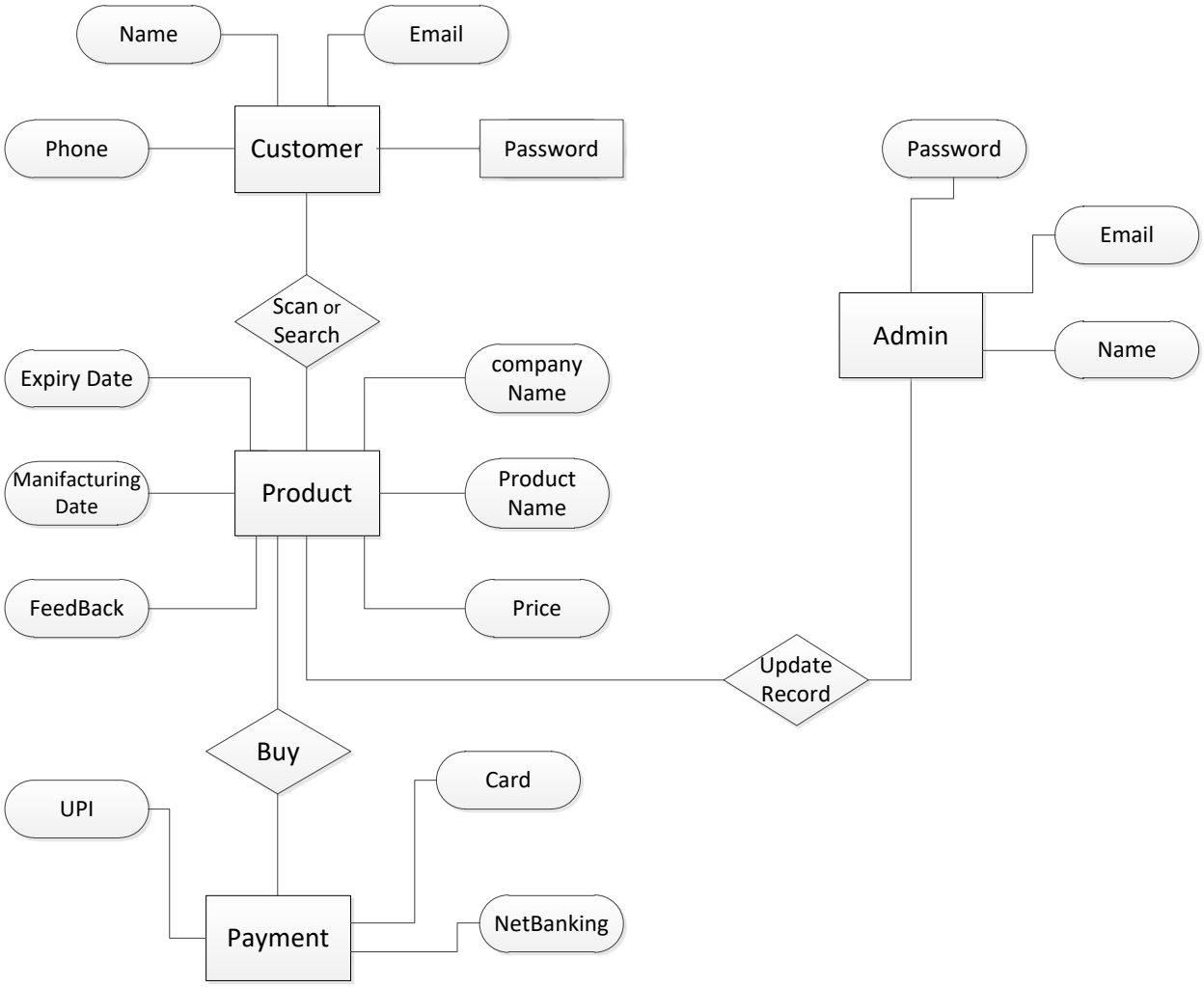
iii. Payment_Table

AttributeName	AttributeType	AttributeSize
Payment_ID#	Integer	
Transaction_ID#	Numeric	20
Card_Details#	Data	30
NetBanking#	Data	30
Others#	Data	30

iv. Product_Table

AttributeName	AttributeType	AttributeSize
Product_ID	Integer	
ProductName#	String	30
ProductPrice#	Numeric	8
QR_Code#	Binary	
SerialNumber#	String	30
CompanyName#	String	30
ContactDetails#	Numeric	10
Description#	String	100
ExpiryDate#	Date	
ManufacturedDate#	Date	
ManufacturedAddress#	String	30
Ingredients#	String	30
Nutritions#	String	30
FeedBack#	String	50

5.2 ER Diagrams:



6. Software & Hardware Requirements:

- Software
  - Operating System(Android & IOS)
  - RAM Requirement(Min. 1 GB)
  - Camera Compatibility
  - Internet Connection
- Hardware
  - Departmental Server