SOFTWARE ENGINEERING PROJECT

DIGIKIRANA: ONLINE KIRANA STORE APPLICATION

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IT 1, 2nd year

PROBLEM STATEMENT

In this fast paced technological driven world Digitalization is one of the major revolution which has impacted every field and in e commerce industry from FLIPKART to AMAZON every successful companies uses this and the rate of expansion and success is very high especially in INDIAN markets

This project's main aim is to digitalize the small scale kirana shops with the help of INTERNET and thereby providing all the services and basic daily use goods to the customers.

Also it should provide a comfortable user experience to both the customers and shop keepers.

For shopkeeper: He/she can also digitalize their shop and bring and manage all items in an online inventory also the shopkeeper can do the billing of product via the application.

For customers: It will save time and would make the buying experience much easier. As the customer's no longer need to be worried about NON availability of that specific brand's product or the price is higher than he expected or remembering all the items to buy from the Kirana store.

This project solves all the problem as the customer can access all the product's details , availability , price ,brand which are there in the nearest Kirana store from his/her home and then add it to wishlist or buy list and later he can physically visit the store and get the items .

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(SRS)

1. INTRODUCTION

1.1 OVERVIEW

This document will provide a detailed overview of our software product DIGIKIRANA, its parameters and goals. After collecting and analyzing all the ideas that come up to define the system, the application was built using Android Studio. This application helps both the customer and shop keeper and the high responsiveness and user friendly UI is the most favorable selling point of this Digitalized KIRANA application.

1.2 Purpose

The purpose of this project DIGIKIRANA is to develop a Java based application for Android devices which would be used to digitalize small kirana shops. This application would enable shopkeepers to set up their kirana store online and would help them to manage their products online. Also the customers can browse through the shops and know the availability of the product without visiting the shop physically.

1.3 SCOPE

Digitalization is one of the major revolution which has impacted every field and in e commerce industry from FLIPKART to AMAZON every successful companies uses this and the rate of expansion and success is very high in INDIAN markets .So there is a lot of scope for the small scale kirana shops to join this digitalization drive by using INTERNET and thereby providing all the services and basic daily use goods to the customers. Above all we hope to provide a comfortable user experience to both the customers and shop owners.

1.4 DEFINITIONS, ACRONYMS AND ABBREVIATIONS

TERM	DEFINITION
DFD	Data Flow Diagram
DIGIKIRANA	Digital Kirana
ER	Entity Relationship
GUI	Graphical User Interface
OS	Operating System
RAM	Random Access Memory
UI	User Interface
Android	A mobile device OS developed by Google
Software Requirement Specification (SRS)	A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. For example, this document.
User	Any person who logged on the system

1.5 REFERENCES

www.draw.io for Diagrams.

www.krazytech.com

IEEE STD 830-1998, IEEE Recommended Practice for Software Requirements Specifications

2 OVERALL DESCRIPTION

2.1 Project Perspective and Description

A simple Firebase database system stores the following information.

- Descriptions

It includes the customer/ shop owner’s full name, email id and password. This information may be used for keeping records of customers for contacting

- Product Descriptions

It includes all the details about the product available in the shop.

- Wishlist Descriptions

It includes the product name, price that the customer wants to buy.

- Billing Descriptions

It has all the billing information from product price, quantity, balance amount and total amount.

2.2 Project Function

- Provide a simple interface and platform to ease the process of buying by knowing the availability of products, its price, and brand name online.
- Include smooth functionality and efficiency that makes it suitable for majority of users.
- Ads and promotion activities will motivate shopkeepers to shift his kirana store online.
- Tracking of sales and product will be available for seller and buyer.
- Calculation of total bill /tax will be easy and quick for shop keeper.

2.3 User Classes and Characteristics

2.3.1 Customer

He/she is a verified user of the application and who is intended to add items in wishlist in order to and buy the item later from nearby Kirana Shop. All the details of product and availability is regularly updated in the application.

2.3.2 Shopkeeper

He / she is also a verified person who is allowed to update and manage his product's inventory online so that other customers can remotely view the items online .He is responsible for managing price , quantity , availability of products.

2.4 Functional and Non-Functional Requirements

2.4.1 Functional Requirements:

1. User Registration

User must be able to register for the application with the help of email id and a password. On installing the application, user must enter his full name, email id and password correctly in

order to register for the application. The user's email id will be the unique identifier of his/her account on digital shop application.

2. Adding product to wishlist

After viewing the product details (Image/price) and product availability the user can add the product he/she wants by adding it to wishlist by clicking on the star icon on top right corner.

3. Viewing the Wishlist:

User need to swipe right from top left corner of home page which will open a Navigation drawer. On which there will be the wishlist button just tap on that button and it will open the User's Wishlist.

4. Removing Product from wishlist:

If the user doesn't wants to buy that product in wishlist. He/she can just click on the delete icon in front of the respective products on the wishlist.

5. Updating Products:

The shop owner can update product's cost, availability and can add new product and remove old products.

6. BILLING: The shop owner can generate bill using the application. The owner needs to enter the product's name, price and quantity. The application will then display the TOTAL cost along with the bill. Also the application based on the amount of money paid by customer the application generates the balance amount that need to be given back to the customer.

2.4.2) Non-Functional Requirements:

1. Security

All the data gathered from users shall be stored confidentially in firebase database.

2. Robustness

In case user's device crashes, a backup of their chat history must be stored on remote database servers to enable recoverability.

3. Performance: Application is lightweight and can do all the functions easily without any lag or frame drops.

4. Compatibility: Application is compatible to all screen size android phones.

5. Maintainability: Firebase cloud's real time database is used for maintaining the database and in case of any failure, a re-initialization of program will be done.

The software design is being done with modularity in mind so that maintainability can be done efficiently.

2.5 Constraints and Limitations

The system must be connected with internet. User only can use or install this app on android device.

The app doesn't have online ordering system. Thus user have to add item in wishlist and manually go and buy the products.

The application uses English as its default language but in future updates the Hindi language will be added to this application for mass reach.

2.6 Assumption and dependencies

1. There should be an internet connection and a touch

2. Each user must have a valid and unique email ID for SIGNIN/SIGNUP.

3. The seller and customer should have basic knowledge of smartphone and English language.

3 EXTERNAL INTERFACE REQUIREMENTS

3.1 USER INTERFACES

DigiKirana U.I. has been specifically designed with their customers in mind it allows user to search for the specific brands product and add it to wishlist for further buying.

HOME SCREEN:

The home screen offers a horizontal layout where the customer can easily view the product‘s image along with other details. The user can click on that item and go to Product screen where the user can see different image of the product, its availability and according to that he / she can add item to buy list.

CATEGORY TAB:

There are further category tabs given at top which can help customer to search item according to category.

3.2 Project Interface

1. This application interacts with the User G.U.I. The interface is simple, easy to handle.

2. This application has very user friendly UI and user can easily understand the functioning of the app.

3.3 Hardware Interfaces

Minimum requirements will be as follows:

1. A touch phone with Android 5.0+.
2. 256MB RAM required
3. Processor with speed of 512 MHz
4. Internet connection

3.4 Software Interfaces

Operating System – Android 5.0 (LOLLIPOP) or above

Database: FIREBASE Cloud.

4 PROJECT RISK MANAGEMENT

4.1 Risk Identification

After development there are several factors which can cause risk to the application such as:

1. Competition from big established ecommerce sites like AMAZON and FLIPKART.

2. Passwords and credentials: Like every online based application faces this risk of password‘s security and data’s integrity.

3. Pricing: The pricing of products results in overall sales of product.

4.2 Risk Mitigation:

The big e commerce company like FLIPKART, AMAZON have large customer base and big scale network but still DIGIKIRANA stand a good chance in this industry as it has:

1. **RELIABILITY & TRUST**

A local kirana shop is the place where people go very frequently and thus have a great bonding, relationship and trust. Whereas the big ecommerce site lacks Customer trust as most of the customer don't know from where the product has come before placed in warehouse.

2. **HASSLE FREE & PAY AFTER GETTING THE PRODUCT CHECKED**

Since after making wishlist/to buy list from the application the user can physically go to the respective kirana shop and get the item. This method helps in instantly getting the product and also gives the customer to physically check the product before doing the payment.

This saves the hassle of returning the good online and waiting for your cash to return to your account which is very common in e commerce sites.

3. **LOW REQUIREMENTS**

Compared to big ecommerce site's application my application requires very less space and very minimal system requirements and thus people with basic android phones can also seamlessly use this application

4. **BASIC UI FOR EVERYONE**

The UI of DIGIKIRANA is very User friendly and any one with basic knowledge of smartphones can use it and thus would gather a large audience. Moreover further updates will include HINDI language to increase number of audience using this application.

5. SCHEDULING ESTIMATES

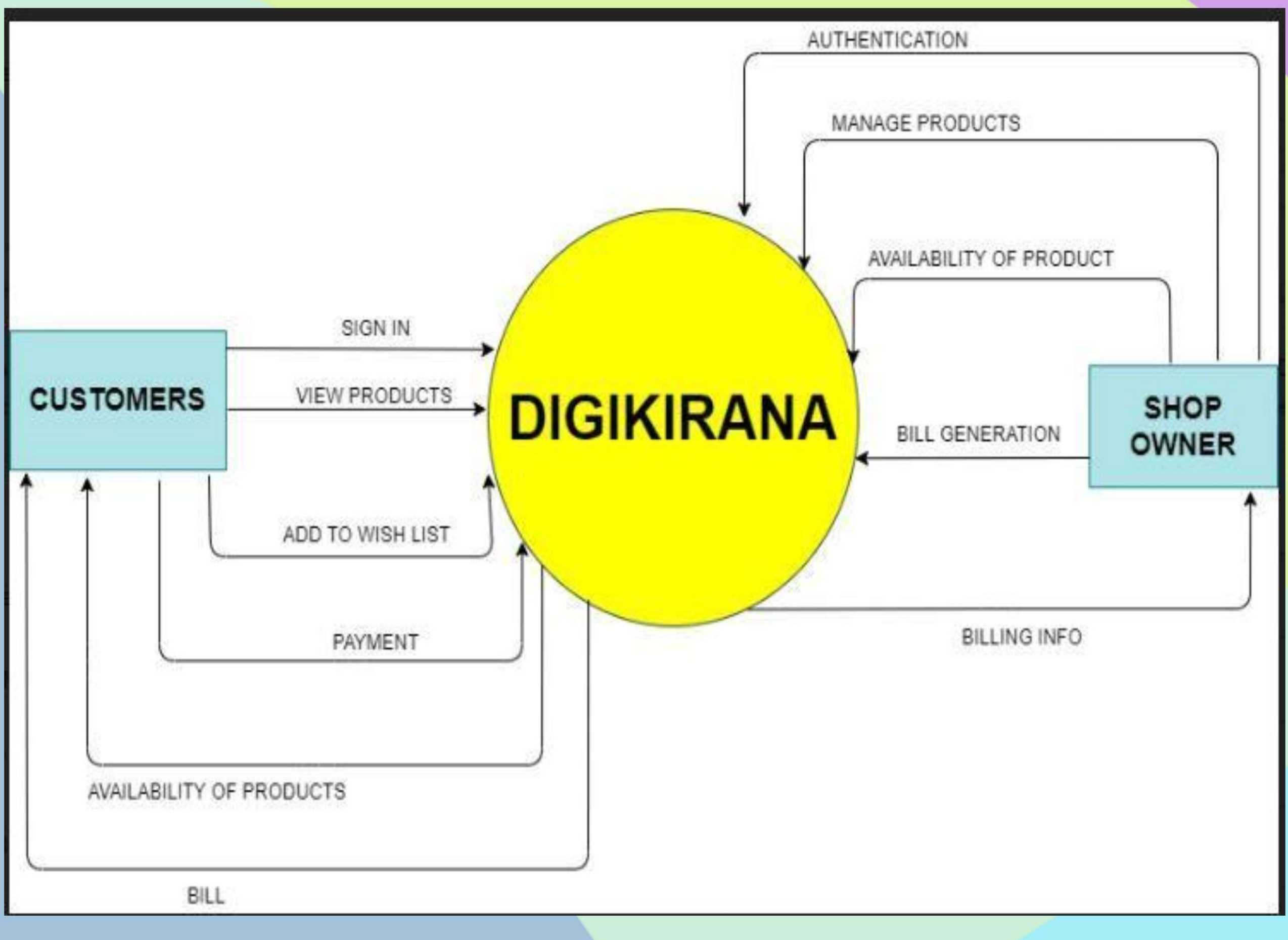
Milestone	Description	Release Date	Release Iteration
M 1	SPLASH ACTIVITY and basic designing	17 FEB	R1
M 2	SIGNIN / SIGNUP ACTIVITY	20 FEB	R1
M 3	HOME FRAGMENT, NAVIGATION VIEW	26 FEB	R1
M 4	CATEGORY ACTIVITY	10 MARCH	R2
M 5	PRODUCT view and WISHLIST model	29 MARCH	R3
M 6	Integration of all views and fragment	15 APRIL	R3
M 7	Testing & debugging	21 APRIL	R3
M 8	Final Release	30 APRIL	R3

6 TECHNICAL PROCESS

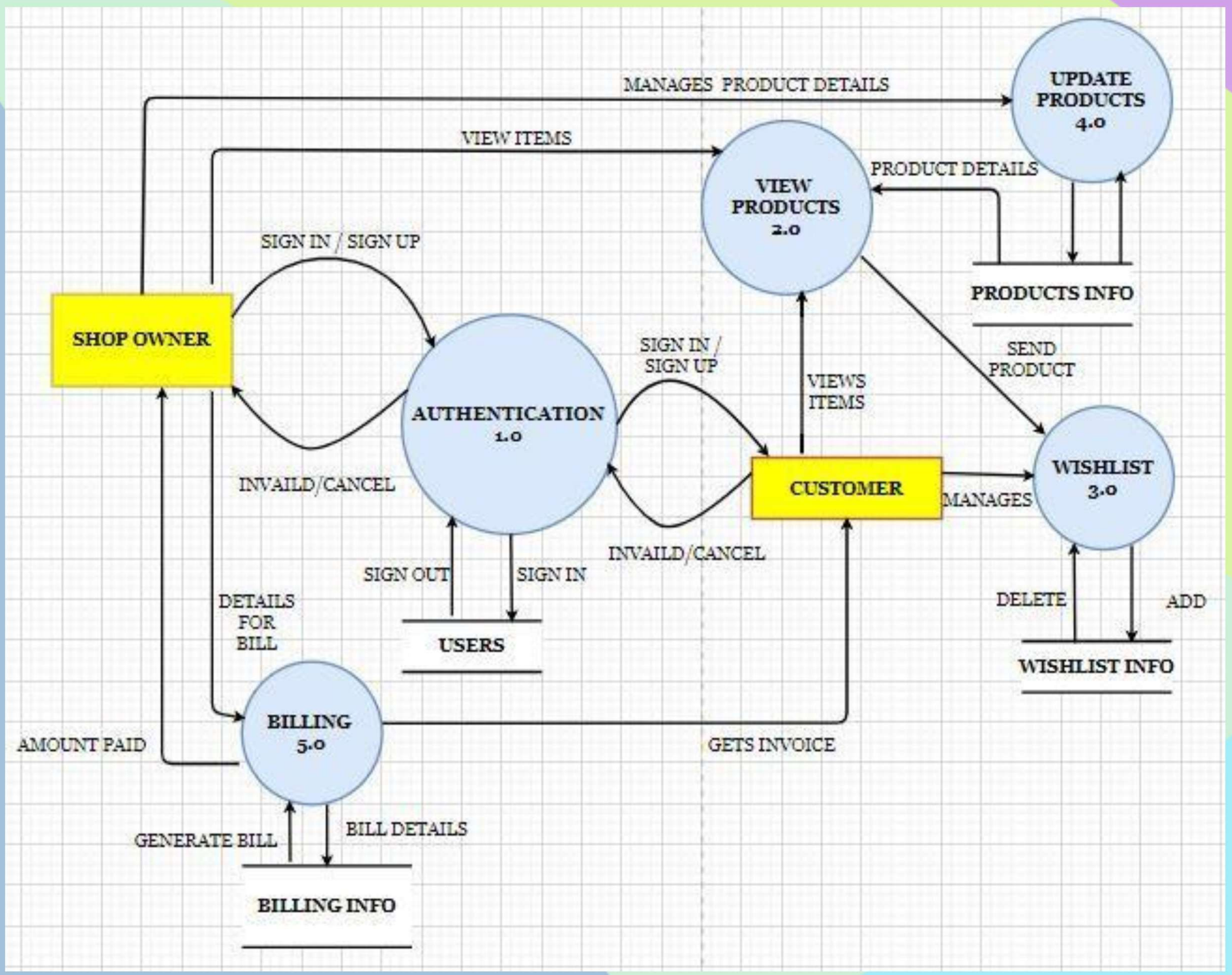
JAVA on Android SDK for the Android Application is used for the development of application.

At Backend: FIREBASE cloud is used.

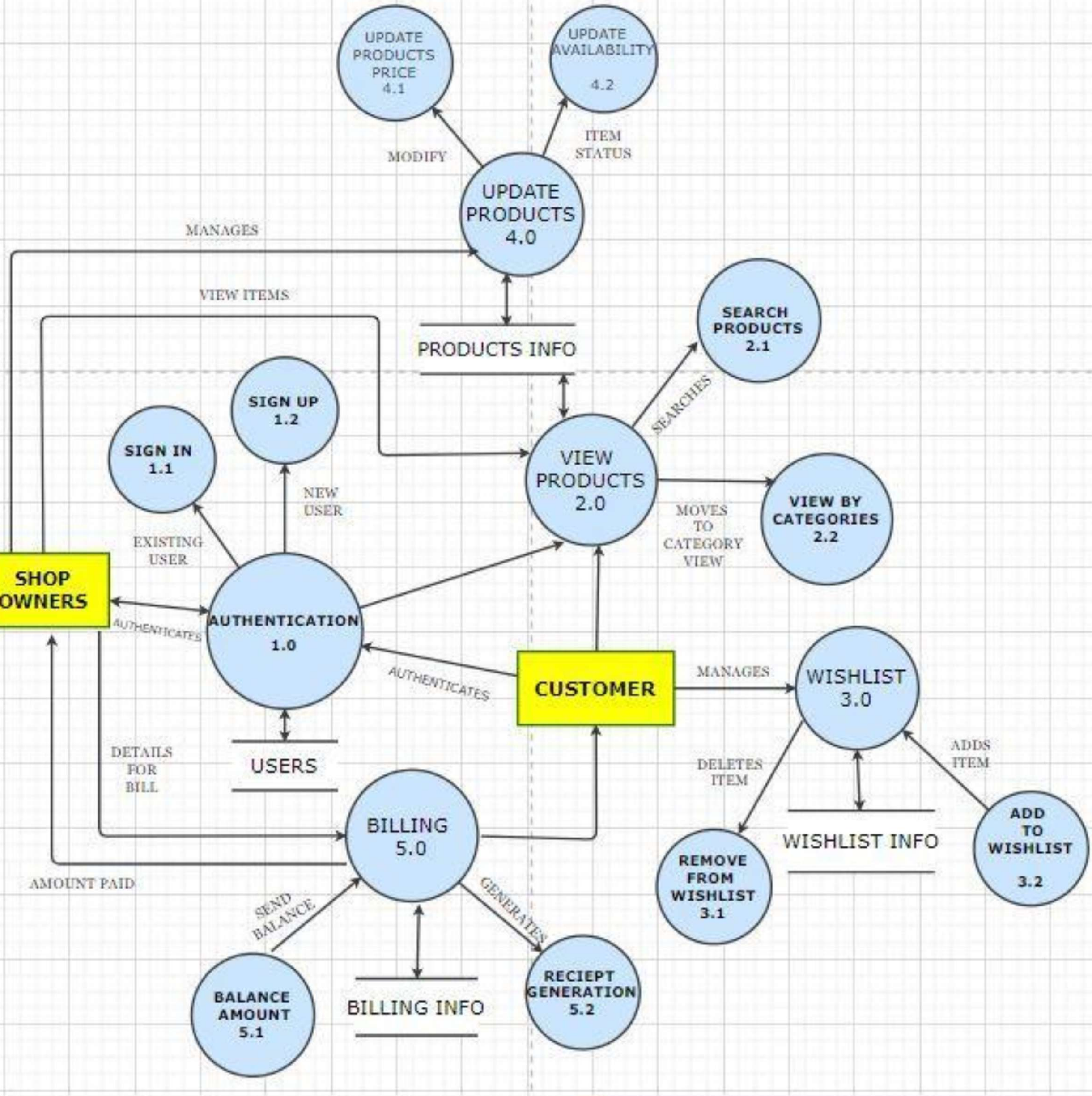
CONTEXT DIAGRAM



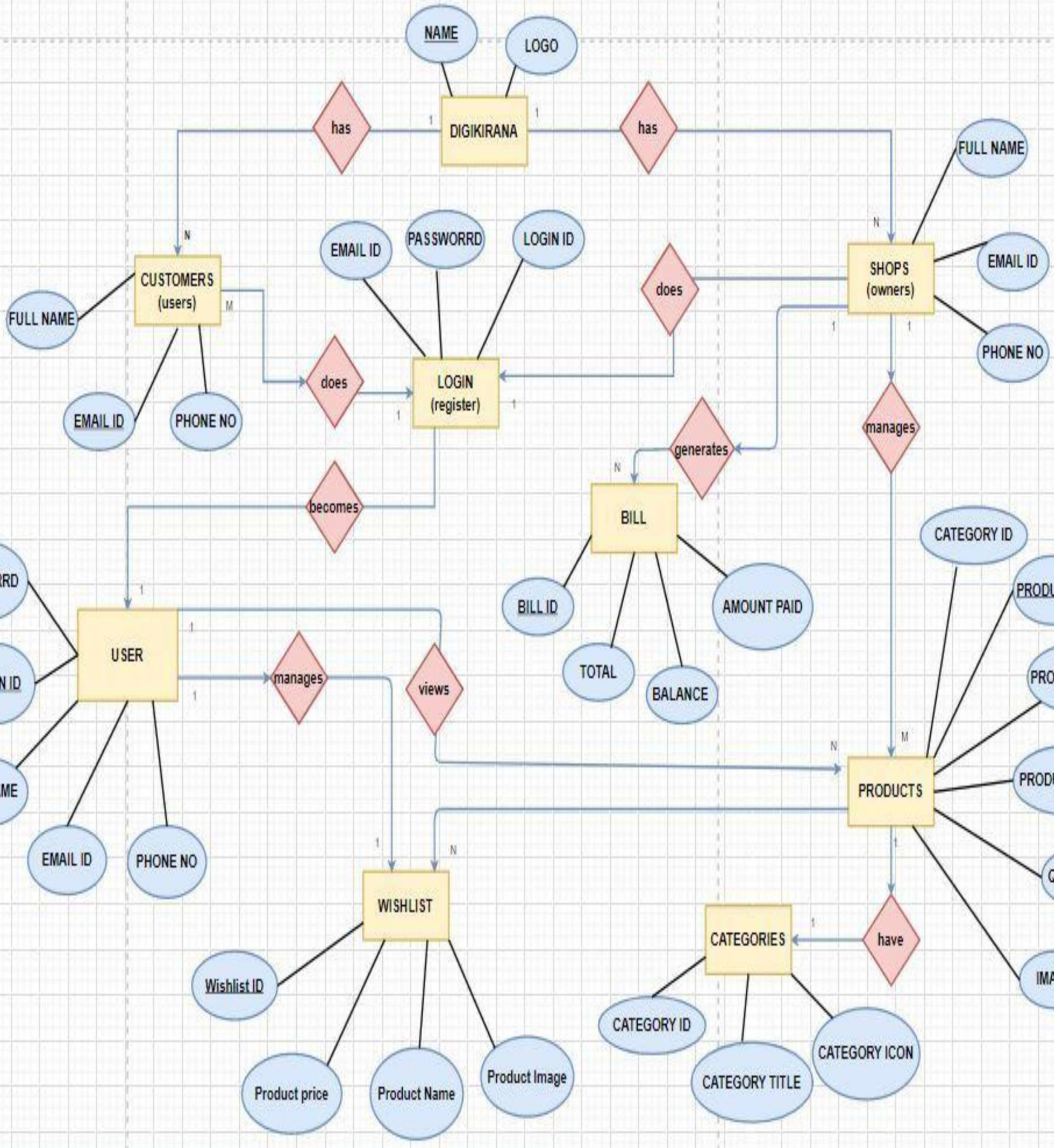
LEVEL 1 DFD


MANAGES PRODUCT DETAILS
UPDATE PRODUCTS 4.0
VIEW ITEMS
VIEW PRODUCTS 2.0
PRODUCT DETAILS
SIGN IN / SIGN UP
PRODUCTS INFO
SHOP OWNER
SIGN IN / SIGN UP
SEND PRODUCT
VIEWS ITEMS
AUTHENTICATION 1.0
INVAILD/CANCEL
CUSTOMER
MANAGES
WISHLIST 3.0
INVAILD/CANCEL
SIGN OUT
SIGN IN
DELETE
ADD
DETAILS FOR BILL
USERS
WISHLIST INFO
BILLING 5.0
AMOUNT PAID
GETS INVOICE
GENERATE BILL
BILL DETAILS
BILLING INFO

LEVEL 2 DFD


UPDATE PRODUCTS PRICE 4.1
UPDATE AVAILABILITY 4.2
MODIFY
ITEM STATUS
UPDATE PRODUCTS 4.0
MANAGES
VIEW ITEMS
PRODUCTS INFO
SEARCH PRODUCTS 2.1
SEARCHES
SIGN UP 1.2
SIGN IN 1.1
NEW USER
VIEW PRODUCTS 2.0
MOVES TO CATEGORY VIEW
VIEW BY CATEGORIES 2.2
EXISTING USER
SHOP OWNERS
AUTHENTICATES
AUTHENTICATION 1.0
AUTHENTICATES
CUSTOMER
MANAGES
WISHLIST 3.0
DETAILS FOR BILL
USERS
DELETES ITEM
ADDS ITEM
BILLING 5.0
WISHLIST INFO
REMOVE FROM WISHLIST 3.1
ADD TO WISHLIST 3.2
AMOUNT PAID
SEND BALANCE
GENERATES
BALANCE AMOUNT 5.1
BILLING INFO
RECIEPT GENERATION 5.2

E.R. DIAGRAM


NAME
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DIGIKIRANA
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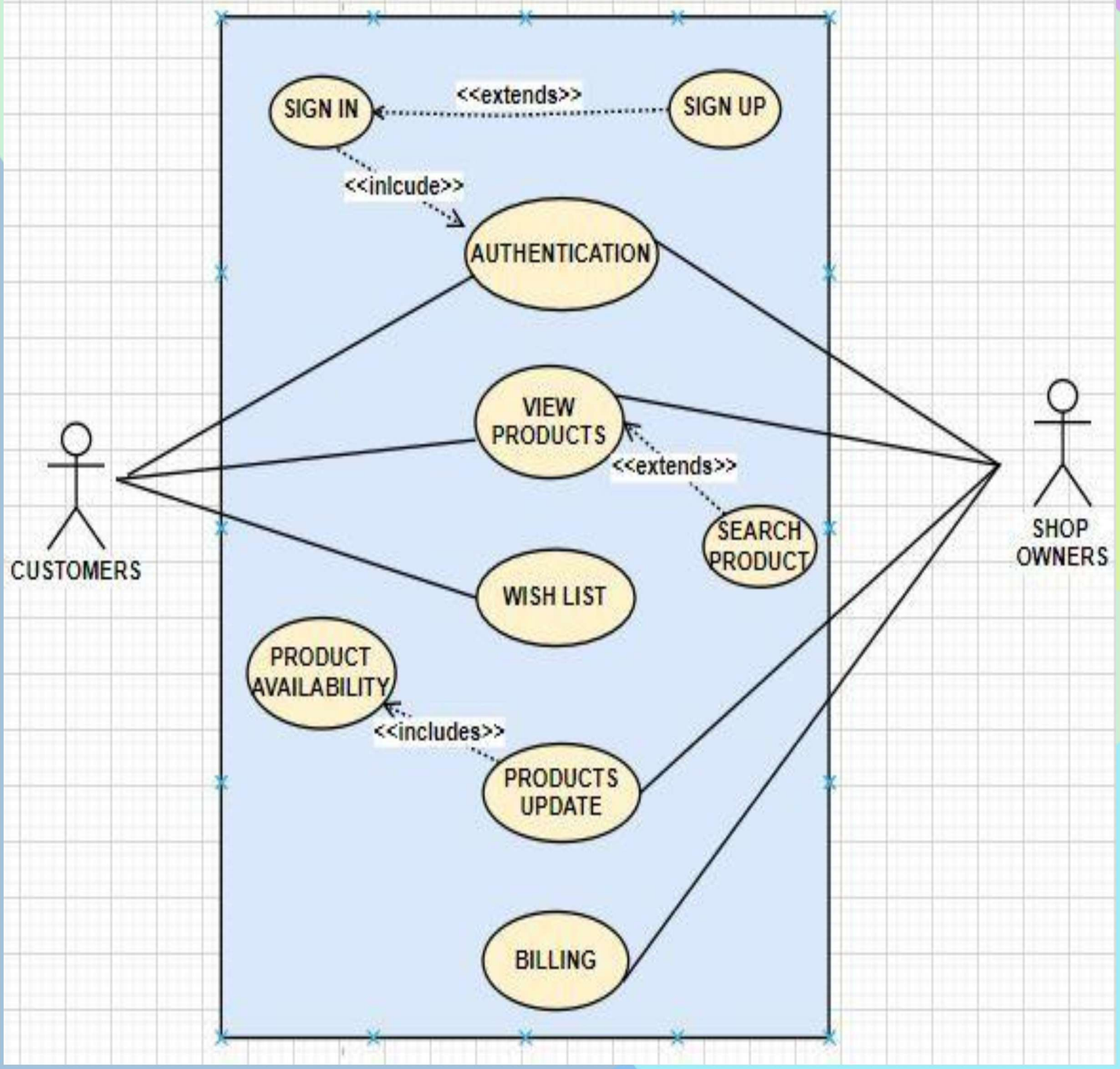
Product Name
Product Image
CATEGORY ID
CATEGORY TITLE
CATEGORY ICON

USE CASE DIAGRAM



DATA DICTIONARY

DIGIKIRANA: DATA DICTIONARY

1. CATEGORY TABLE

Field Name	Data Type	Data Format	Field Size for Display	Description	Example
Category_id	String	CNNNN	5	Unique identifier For categories	C0001
Category_title	String		15	Title of the category	HOME ,FOOD

2. PRODUCT TABLE

Field Name	Data Type	Data Format	Field Size for Display	Description	Example
P_id	String	XNNNN	5	Unique identifier For Products	P0002
Category_id	String	CNNNN	5	Unique identifier For categories	C0003
P_name	String		25	Name of the product	Maggie Masala
Price	double	Rs.XX.XX	6	Price of the product	Rs 250.00
Available	Boolean		1	Availability of the product True(T) or False(F)	T
Qty	int		5	Quantity of product	30

3. LOG IN TABLE

Field Name	Data Type	Data Format	Field Size for Display	Description	Example
Login_id	String	XNNNN	25	Unique Login ID for every User.	L0001
Password	String		25	Password for login	Digikirana123
email_id	String	XXXXX@XXXmail.com	30	Email id of user	admin@digikirana.com

4. USER TABLE

Field Name	Data Type	Data Format	Field Size for Display	Description	Example
Login_id	String	XNNNN	5	Unique Login ID for every User	L0001
Password	String		25	Password for login	Digikirana123
User_fullname	String		25	Full name of the User	Brijesh
email_id	String	XXX@XXXmail.com	30	Email id of user	admin@digikirana.com
Phone_no	int	NNNNNNNNNN	10	Phone number of user	9876543210

5. WISHLIST TABLE

Field Name	Data Type	Data Format	Field Size for Display	Description	Example
Wishlist_id	String	XNNNN	5	Unique Wishlist ID for every User	W0004
P_name	String		25	Name of the product	Ashirvad Atta
Price	double	Rs.XX.XX	6	Price of the product	Rs 250.00

6. BILLING TABLE

Field Name	Data Type	Data Format	Field Size for Display	Description	Example
Bill_id	String	XNNNN	5	Unique Bill ID for every User	B0004
Total	double	Rs.XX.XX	10	Total cost of the products bought	Rs.585.50
Bal	double	Rs.XX.XX	10	Balance amount to be given back to customer	Rs 14.50
Amt_Pd	int	Rs.XXX	10	Amount paid by the customer.	Rs 600