

Validate Software Requirements Specification Template

MOBILE POINT OF SALE USING QR

Software Requirements Specification

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Revision History

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Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

Signature	Printed Name	Title	Date
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1. Introduction

It is an android app which customers can use to scan product QR code thereby placing an order for it. The retailer can also offer products online and is managed by the admin who also authorizes retailer accounts. There is a search feature to find a particular product, a buyer cart to view products selected by the customer and an online portal that displays the items offered by retailers.

1.1 Purpose

The product is aimed at the customer base in the Indian market. This product would enhance the experience of shopping in retail stores and will also help in connecting retailers with a larger target customer base thus significantly improving their profits.

1.2 Scope

The product would reach the customers and retailers as a mobile app on google playstore. Apart from the app, the product would need a database management system, ML engine and an image processing engine and server side scripts to manage all of the above. The product would enable customers to checkout faster through QR code scanning and would provide a wide range of products to choose from online.

1.3 Definitions, Acronyms, and Abbreviations

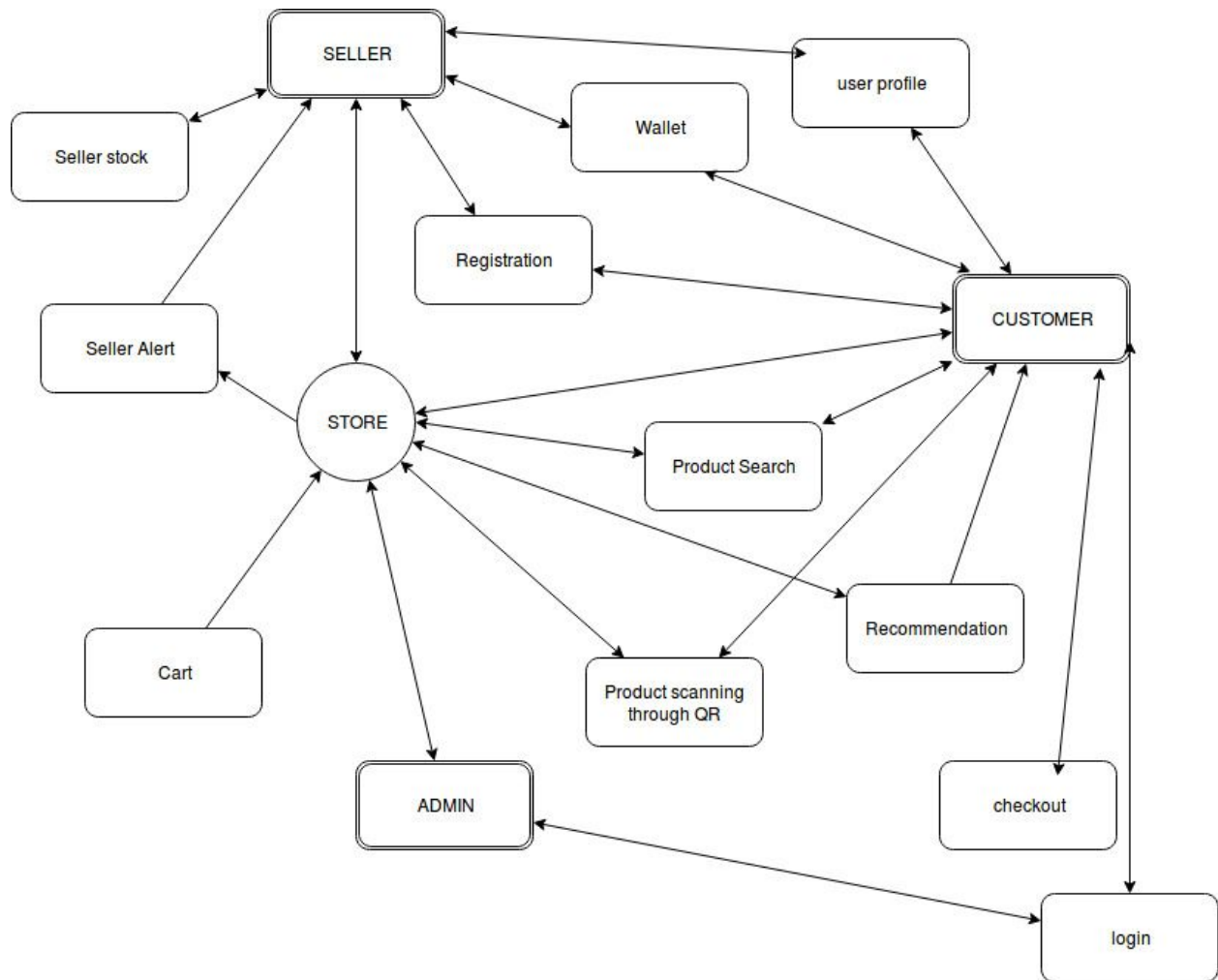
QR- Quick Response

DBMS- Database Management System

2. General Description

2.1 Product Perspective

The Product “Mobile Point Of Sale Using QR “ is a unique product , as at present products are taken to the billing section and the next step the products are scanned by their QR code. But in this case the scanning is done by the customer himself avoiding long queues. Later analysis is performed on the customer’s buying habits based on his purchase history. There is also an online store feature in the app through which customers can place orders and pay through our wallet.



2.2 Product Features

The major features of this product are :

- FE-1: A database of the registered customers and sellers with their username and password
- FE-2: Identify if the user is a seller or buyer
- FE-3: Add / Remove data to the cart (online)
- FE-4: Request for addition / deletion of stock by the seller.
- FE-5: Search for appropriate products
- FE-6: Suggest similar products / items with the items bought
- FE-7: Scanning of product using the Image processing to identify the product .

2.3 User Characteristics

Customers (Registered)	The customers are the people who purchase the products . The customer needs to register to get an access to purchase items . Customer need to Scan the QR code of the product that they require, (or) if it is online they need to select the required products and add money to their wallet for the items in the cart .
Admin	An admin can delete any user or seller registered with app and is responsible for approving retailer registration
Seller	A Seller is the one who supply / offer products to the store and on online to the customers . The seller needs to keep a track of the products that are present in the store and supply the products when the requirement occurs.

2.4 Operating Environment

OE-1:	System will have a QR code scanning feature with mobile camera.
OE-2:	System data will be stored in server/database/cloud.
OE-3:	This system is dependant on location of user to identify the nearest store .
OE-4:	Data is taken both from web/application and machine learning algorithms are used to predict/ suggest the user.
OE-5:	The application being developed is an android app..
OE-6:	This system has mobile application ,is developed for android users ,they can register using their google account .
OE-7:	This system will can be installed on android mobiles with the required camera/scanning specification .

2.5 General Constraints

This system is compatible with a mobile running Android version 4 and above and having a camera with clear scanning feature .

The storage of the user data is a bit expensive as the number of users increase the task of handling the data gets complex, and using the data for machine learning algorithms for predictions. The online store data needs to get a periodic update of the items .

2.6 Assumptions and Dependencies

The system assumptions are :

- the store admin needs to be skilled in handling all situations and tech related issues.
- vendor delivery timings

- budget limitations
- internal process time
- Accuracy of the process
- staff availability

The system Dependencies are :

- first scanning of the item is required to order the item
- before the scanning and approval stage , ordering of item cannot be done
- after the update of the data of the store regarding an item , next request cannot be accepted
- after the payment stage is finished the delivery process should take place
- any problem / error in the process needs to be corrected and the user can place an order

2.7 Documentation

A user manual will be prepared so the it helps the uses to get an idea about how the system operates and its functionalities along with the software.

3. Specific Requirements

3.1 Functional Requirements

Code	Requirement	Description
FR1	Registration	Registration of a new user for first time. User should be able to register as a customer or seller using email id, password and phone number.Registration of sellers is however complete only when the admin approves of it.
FR2	Login	Login using registered email id and password. After being authenticated , the user should be redirected to his homepage based on the role.
FR3	Product Search	A logged in customer should be able to search for a product in the search bar.Based on the keyword entered in the search bar, details are fetched from the server and list of items displayed.If the search is in an offline store, the isle number of the product is also displayed.
FR4	Customer wallet	Customers should be able to add money into their virtual wallet. The balance should be deducted on placing any order and amount should be added on transfer of amount from bank.
FR5	Seller Wallet	On purchase of any product from the seller, amount should be credited into seller wallet. The amount in the wallet should be transferable to the seller's bank account.
FR6	Cart	When a user adds item to the cart, the appropriate item must be added to the cart and the price of the product should be added to total amount to be paid.On deleting the item, the item should be removed and amount to be paid should be updated.
FR7	Checkout	On final checkout total amount is calculated and bill is generated and also item quantity is deducted from database.Amount for

		which items were purchased is deducted from customer wallet and added to appropriate seller's wallet.
FR8	Product Scanning through QR	QR is scanned with the help of camera or QR Reader and QR code is matched with product in database. On successful matching product is detected and added to the cart and amount to be paid is updated. On unsuccessful scan three times, the user is prompted to manually type the barcode.
FR9	Seller Stock	It keeps track of all the stocks product which has been sold and which products are left. Seller can add new products in the system
FR10	Admin Control	It provides the control to the admin to view all users and sellers and to remove sellers or customers.
FR11	User Profile	All the information of the user is stored into database based on their user name. It include personal data such as name, address, contact no. and details of the past purchase.This would be the page user redirected to on login
FR12	Recommendation	User should be recommended products based on his purchase history.If there isn't enough data to make the decision, suggest most popular product.
FR13	Seller Alert	When the number of items of any product offered for sale by any seller is sold out an alert message is sent to the seller's registered email-id.

3.2 Non-Functional Requirements

Code	Requirement	Description
NFR1	Aesthetic front-end (usability)	The front end should be clutter free and attention needs to be paid on usability - no more than 10 elements should be visible at any time on a page .Elements include text boxes, buttons, drop down menus and images.
NFR2	Quality assurance	Any errors/bugs that arise during operation should be sent to the support staff in the form of an auto-generated error log to check and correct in the next installment of the application. The error log should include what the error was, at what time it occurred (dd/mm/yy H:M:S format) and what caused the error
NFR3	Privacy	User login should be protected by t hashing the password in transit. Also any wallet transaction should be hashed.
NFR4	Security and encryption	User login information -password and username should be hashed when traversing through the network.Also wallet transactions should be at least hashed if not encrypted.
NFR5	Platform compatibility	The application must be compatible with all currently supported versions of Android (Jellybean and onward)

3.3 External Interface Requirements

3.3.1 User Interfaces

- UI-1: Application shall permit complete navigation and item selection using the keyboard alone, in addition to using mouse and keyboard combinations.
- UI-2: The user interface for the software shall be compatible to any browser such as Internet Explorer, Mozilla or Netscape Navigator by which user can access to the system.
- UI-3: The system shall provide a uniform look and feel between all the pages.
- UI-4: The system shall provide a digital image for each product in the product catalog.
- UI-5: The system shall provide use of icons and toolbars
- UI-6: The product shall take initial load time depending on internet connection strength which also depends on the media from which the product is run.
- UI-7: The performance shall depend upon hardware components of the client/customer.
- UI-8: The system shall automatically logout all customers after a period of inactivity.
- UI-9: The customer's app shall never display a customer's password. It shall always be echoed with special characters representing typed characters.

3.3.2 Hardware and Software in terms of how they would interact or how they would be executed

Since the application must run over the internet, all the hardware shall require to connect to the internet. The most important piece of hardware would be the customer's phone on which the app is installed. The Online Shopping Platforms are usually implemented on a Cloud Server in a format that is suitable to either scale-up or scale-out the platform. These Platforms must also have an elegant UI/UX portal to draw users to their platform and also to enable them in purchasing goods. The product shall be based and has to be run from a web server.

3.3.3 Software Interfaces

SI-1: User Interaction

- SI-1.1: To allow the users to select the items through the front end.
- SI-1.2: The front-end is implemented through an android app interface
- SI-1.3: The front-end connects to the server to complete user transactions and to get the product specifications, offerings and promotions.
- SI-1.4: Scan the QR code through an interface in the app using the phone camera.

SI-2: Time Management System

- SI-2.1: The system is responsible for tracking orders, estimating time of arrival of the product and shipments.

- SI-2.2: Generate notifications and alerts.
- SI-2.3: Maintaining Dates and time of transactions.
- SI-3: Database - The system shall communicate with a database through a programmatic interface for the following operations:
 - SI-3.1: To manage customer/retailer registration and maintain profiles.
 - SI-3.2: To allow the customer to store items in the cart.
 - SI-3.3: To maintain stock of items and updation of stock.
 - SI-3.4: To store brand and theme preferences.
 - SI-3.5: To store and maintain administrative data and information.
- SI-4: Billing and Finance
 - SI-4.1: The system shall validate the payments and process payment.
 - SI-4.2: The system shall communicate record and maintain credit,debit transactions and also handle financing options.
 - SI-4.3: The system shall be verisign like software which shall allow the users to complete secured transaction. This usually shall be the third party software system which is widely used for internet transaction.
- SI-5: Security
 - SI-5.1: Provide utmost secure environment for transactions and safeguard the privacy of customers and retailers.
 - SI-5.2: Maintain and protect the user credentials, card information and other sensitive data.
 - SI-5.3: Protect the application against external threats.
- SI-6: Communication Interface
 - SI-6.1: The e-store system shall use the HTTP protocol for communication over the internet and for the intranet communication will be through TCP/IP protocol suite.

4 Appendix A: Glossary

No glossary terms available at this time.