Software Requirements Specification

for

POS System

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version
First Version	15-09-2023	The first draft of the SRS Document	1.0

1. Introduction

1.1 Purpose

This software requirement specification document describes all the features and requirements of the Point of Sale system for the version 1.0 release. This document serves as a guide to the members of the project team. The complete requirement set is to be fulfilled and committed for the 1.0 release.

1.2 Document Conventions

No specific conventions are followed in this documentation.

1.3 Intended Audience and Reading Suggestions

This document serves as a reference to the project team, which is not restricted to the development team, so that the product can be delivered in coherence with the requirements of the customer. The development team is required to go through the description of the features for consistency in implementation. This document can also be reviewed by the customer to confirm and keep track of requirements specified by them towards the team.

1.4 Product Scope

The Point of Sale system will allow employees to login with their IDs and then process the billings. Additionally, this system also allows the data collected to be reviewed by the managers under different filters for analytical purposes.

1.5 References

No references mentioned.

2. Overall Description

2.1 Product Perspective

This product is to be used in the context of the billing counter in a retail store, that is, the point of sale. This is a replacement of a preexisting software that is being used by retail stores throughout. This system also provides support for analytics by managers and

improves the customer's and the employee's experience. This software can be integrated with various other applications in the retail business. This software uses a payment interface for all payments through the POS.

2.2 Product Functions

- This system must store all the inventory or products that are currently available for sale in the retail store.
- This system must have details of all the transactions that have taken place.
- This system must allow employees to take input in the form of scanning or manual input of existing inventory.
- This system can generate a bill based on the given input.
- The payment of the customer is also validated.
- The products' availability should be updated to accurate values after the bill is generated.
- This system allows the managers to view transaction history and sales of individual employees.
- The login credential specifies the access and permissions for employees and managers.
- The login page flags incorrect credentials.
- The inventory management page allows inventory managers to update the stock of inventory.
- The inventory management page allows inventory managers to view the products which have low stock.

2.3 User Classes and Characteristics

Check-Out Operators:
Check-Out Operators are retail workers who are expected to assist customers with billing and payment. They login in to the software at the start of their shift and log out at the end.
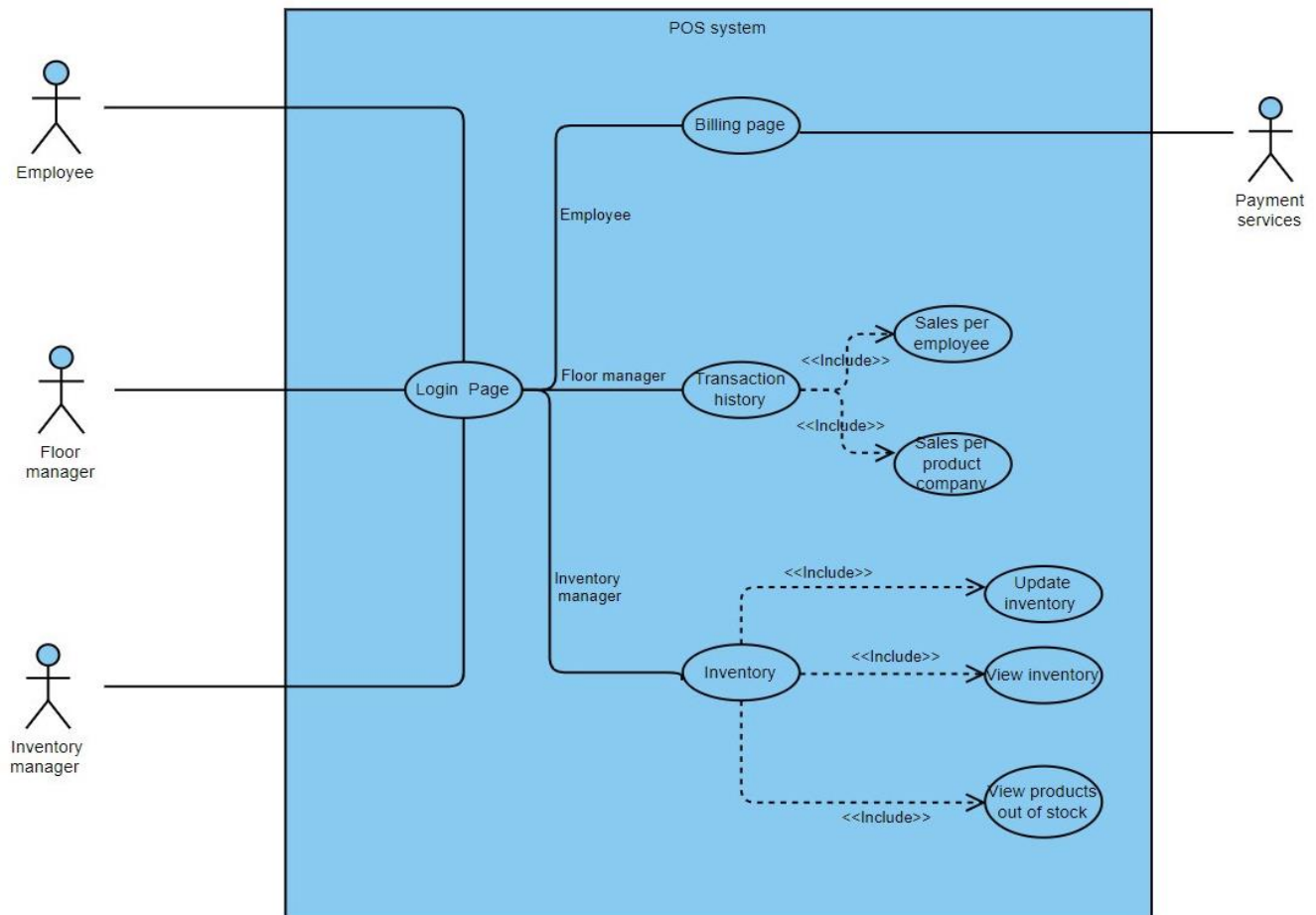They feed input to the software either through scanning or through manual input. The operator then receives the bill and activates the payment gateway. The operator takes payment from the customer either via cash, card or online payment and verifies the transaction.

Floor Managers:
Floor Managers are officials who supervise Checkout employees and review their sales. They can login to the software and are allowed to access different features. They can check past transactions and sales history. They can filter and sort the sales based on employees' ID. They can use these analytics for administrative purposes.

Inventory Managers:

Inventory Managers are the officials who are in charge of updating inventory. They can see the products that are below a certain threshold. They are also in charge of updating any new stock that comes into the store. They can use the software to know when a particular product is low in stock and request for it.

POS system

Employee

Login Page

Floor manager

Inventory manager

Billing page

Payment services

Employee

Transaction history

<<Include>> Sales per employee

<<Include>> Sales per product company

Inventory manager

<<Include>> Update inventory

Inventory

<<Include>> View inventory

<<Include>> View products out of stock

2.4 Operating Environment

OE-1: The POS Software shall work on all Chromium browsers and Firefox browser.
OE-2: The POS Software server can run on machines running on Linux OS or Window 7 and above.
OE-3: The Software can work with Barcode Scanners having USB 2.0 or USB 3.0 connections.

2.5 Design and Implementation Constraints

CO-1: The website shall use SSL to ensure safety across message transmission.
CO-2: All HTML code shall use HTML 5
CO-3: This system shall use an SQL relational database for its purposes.

2.6 User Documentation

UD-1: The system shall provide a markdown file to specify the exact working and usage of the software. This can be used as a tutorial for users to understand the specifics of the software.

2.7 Assumptions and Dependencies

AS-1: There is a single database that is used for the Point of Sale software.
AS-2: The bank servers are assumed to be operational at all times for the payment to go through.
AS-3: The system used by the employees must be connected to a working network with access to the internet.

3. External Interface Requirements

3.1 User Interfaces

UI-1: The login screen will allow users to enter the appropriate details and provide clear messages in case of any mismatches in the entered details.
UI-2: The software shall have seamless transitions from one page to another in the dashboard.
UI-3: The user interface across the software shall follow the same theme and design to maintain uniformity.
UI-4: The inventory management screen will allow users to enter product details and increase the quantity of existing products or add new ones.
UI-5: The billing page shall generate a bill and lead to the payment gateway.
UI-6: The transaction history page shall allow managers to view all the previous transactions with the ability to apply appropriate filters.

3.2 Hardware Interfaces

HI-1: The barcode scanner can be connected to the system taking the input for billing purposes to aid the employees towards more efficiency.

HI-2: Any appropriate system can serve as the hardware interface to run the software in the retail environment.

3.3 Software Interfaces

SI-1: The software connects to the database using REST application program interfaces for updating the inventory during billing and inventory management.

3.4 Communications Interfaces

CI-1: The communication between database and the backend of the system is done through HTTP protocol.
CI-2: The communication between frontend and the backend of the system is done through HTTP protocol.

4. System Features

4.1 The Login Page

4.1.1 Description and Priority

The login page has a fairly high priority of 7 on a scale of 1 to 9. It has a high benefit as it allows separation of user privileges and medium to low cost to implement it.

4.1.2 Stimulus/Response Sequences

The user is treated to the login page as soon as he starts the software. He then enters the appropriate credentials. If incorrect the system shall raise a message to deal with it. If appropriate credentials are given, the user will be transferred to a different page depending on his role.

4.1.3 Functional Requirements

REQ-1: The login page should have a user interface allowing users to enter their credentials.
REQ-2: The login page should verify the credentials given.
REQ-3: If the credentials are incorrect, appropriate error messages must be displayed.
REQ-4: If the credentials are correct, the user is transferred to the required page based on their role or job in the company.

4.2 Billing

4.1.1 Description and Priority

The billing system has a very high priority for the software and is an 8 on a scale of 1 to 9. The billing system is the most important part of the POS system and allows employees to quickly and efficiently scan the required products and generate the bill.

4.1.2 Stimulus/Response Sequences

The employee has a list of products which he has to enter into the system. He scans the items either through a barcode scanner or enters it manually. The system then generates a bill and transfers control to the payment menu. The transaction is then stored in the transaction history.

4.1.3 Functional Requirements

REQ-1: The system must provide an interface to take input about the products either through barcode or manual input.
REQ-2: The system must update the inventory with new quantity of items.
REQ-3: A bill must be generated, and the total price must be displayed.
REQ-4: The transaction must be stored with the employee details.

4.3 Transaction History

4.1.1 Description and Priority

The transaction history has a medium to high priority of 6 on the scale of 1 to 9. The transaction history has very high benefits but also has a high cost of effort and time for implementation and working.

4.1.2 Stimulus/Response Sequences

The manager can view the transaction history page as soon as he logs in. The manager can enter inputs to filter the transaction history based on the employee details or product details. The page should show the different history and sales details based on the applied filters.

4.1.3 Functional Requirements

REQ-1: The transaction history page must allow users to enter appropriate filters.
REQ-2: Based on the filters applied, the sales details must be displayed.
REQ-3: In the absence of filters, the entire transaction history must be shown.

REQ-4: The history must be ordered based on date of transaction from most recent to oldest.

4.4 Update Inventory

4.1.1 Description and Priority

The update inventory feature has a high priority of 8 on a scale of 1 to 9. It has very high benefits as this allows restocking of inventory and has a medium to low cost of implementation.

4.1.2 Stimulus/Response Sequences

The inventory manager must be directed to the inventory page after logging in to the system. The inventory manager should be able to see which are the products which are in low stock. The inventory manager should also be able to update the new stock which has come into the store. The system should update the values at the database.

4.1.3 Functional Requirements

REQ-1: The page must show all products in low stock, that is, a quantity of less than or equal to 10.
REQ-2: The page must allow the inventory manager to enter details of new products.
REQ-3: The page must also allow the inventory manager to update the quantity of existing products.
REQ-4: There should not be any discrepancies or inconsistencies in the quantity of products present.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

PE-1: The webpage must react to user input with a maximum of delay of 15 seconds.
PE-2: The webpage must be able to scale to at least 50 consecutive users.

5.2 Safety Requirements

No safety requirements mentioned for this system.

5.3 Security Requirements

SE-1: The login page should ensure that users access only the specific pages for which they have permission.
SE-2: The inventory manager should be the only one able to update the inventory values in the database.

5.4 Software Quality Attributes

QA-1: The UI must be broken into components to ensure better reuse and easier debugging.
QA-2: The software must be tested for various incorrect inputs that can be entered by the users.
QA-3: The code must be properly documented and well explained.

5.5 Business Rules

BR-1: The floor manager should be the only person with access to transaction history of various employees.
BR-2: The inventory manager should be the only person to update the inventory of products on the database.

6. Other Requirements

No other requirements are to be mentioned at this stage.

Appendix A: Glossary

Abbreviations:

POS: Point of Sale
SSL: Secure Socket Layer

Appendix B: Analysis Models

No analysis models have been made at this point of time.

Appendix C: To Be Determined List

There is no TBD at this point of time.