Software Requirements Specification

for

Flipkart

Version 1.0 approved

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Chapter 2 Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

The SRS document objective is to clearly identify the product for which the software requirements are being specified, In this context, the product "Flipkart" an e-commerce platform, with a specified release version of 1. It defines the software requirements for web applications, covering all core functionalities, including user registration, product management, shopping cart, checkout, seller registration, reviews, and order history. This SRS describes the complete system and its components, ensuring a comprehensive understanding of the software requirements for the entire project.

1.2 Document Conventions

This document consists of a maximum of 2 paragraphs for detailed descriptions and bullet points for specifications that belong to the same class or section.

1.3 Intended Audience and Reading Suggestions

- Developers : Functional Requirements, Non-Functional Requirements, External Interface Requirements, User Interface Requirements.
- Testers : Functional Requirements , Non-Functional Requirements
- Project Managers: Constraints, Purpose, Scope
- Client : Functional Requirements , Non-Functional Requirements , User interface

1.4 Product Scope

Flipkart is an e-commerce platform , primarily allows customers to buy a varied range of products with no barriers of time and distance and also provides a dedicated seller portal where registered sellers can manage their product listings, inventory, order processing, and payments. Sellers can create and maintain their virtual storefronts on the platform. The software aims to drive revenue growth through user experience and data-driven decisions, providing insights into customer behavior and market trends , which boosts both the consumer and seller market.

1.5 References

- NextJS supported browsers: https://nextjs.org/docs/architecture/supported-browsers

- Cloudinary: https://cloudinary.com/

- Stripe: stripe.com

2. Overall Description

2.1 Product Perspective

Flipkart software system is a web-based e-commerce platform operating within the online retail industry. It connects customers and sellers, integrating with payment gateways, inventory systems, and logistics providers. This is a new member to the online shopping industry with diverse range of products and reasonable prices.
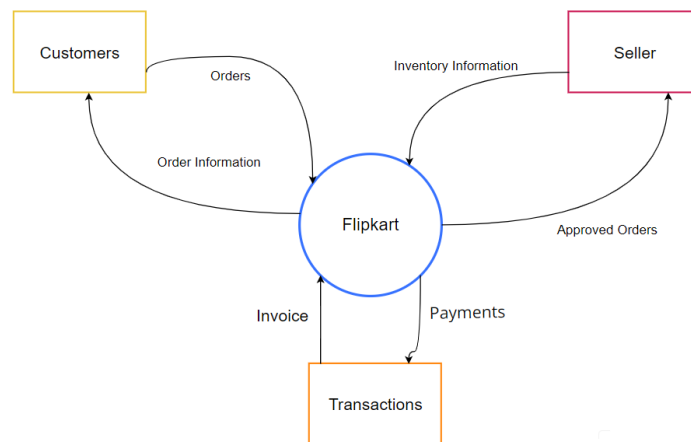
2.2 Product Functions

- User registration and login

- Product Search, Selection, Browsing and Ordering

- Inventory Management (Sellers)

- Payment Processing

2.3 User Classes and Characteristics

Types of Users:

Administrators:

These users are generally a part of the platform and help in the smooth operation of the platform.

Sellers:

Generally, these are the verified persons who are allowed to sell and monitor their sales and inventory and they are responsible for the product details, price, and quantity.

Customers:

Primarily, customers may be distinguished based on their subscription status:

- **Flipkart Plus Subscribers**:
  These are customers that display high levels of confidence in the platform and provide a reliable and sustained source of income. These customers must be treated with higher priority as compared to non-subscribers.

- **Non-Subscribers:**
  These are likely to be new customers or customers that shop infrequently. Marketing strategies should be focused on converting these customers to subscribers.

Another important classification is based on the contribution the customer provides to revenue:

- **High Value Purchases:**
  These customers tend to have higher value transactions. However, these customers may tend to visit the platform infrequently.

- **One Time shoppers***:
  These customers are infrequent visitors to the platform or those who are new to the platform. They cause a low impact on revenue and marketing teams must tend their attention towards converting these customers to loyal customers

- **Loyal Customers***:
  These are the customers who think of flipkart as their first option when a purchase need arises. They provide a sustained revenue to the platform. Keeping these customers happy will have a positive impact on the overall image of the platform.

2.4 Operating Environment

The Web Application is designed to run effortlessly on a variety of browsers that support the next.js stack:
- Chrome 64+
- Edge 79+
- Firefox 67+
- Opera 51+
- Safari 12+

Articulars	Client System	Server System
OS	Windows/Linux/Android/IOS	Linux
Processor	Intel or AMD	Intel or AMD
ROM(min)	1GB	1TB
RAM(min)	256 MB	8GB

2.5 Design and Implementation Constraints

- All scripts are written in JavaScript following NextJs Framework in React
- Database: All the user, product, seller, and payment details are to be stored in SQL database
- All HTML code shall conform to the HTML 5.0 standard.
- All variables and constants follow the camelCase naming conventions.
- Error handling and Performance Management (SSR)

2.6 User Documentation

- Textual Aid in the form of tips will be presented to the user to help them in successfully interacting with the platform.
- Customer Service representatives will be available on call 24x7 to provide assistance if needed.

2.7 Assumptions and Dependencies

- All users are required to have browsers that confirm to the version requirements mentioned above.
- All users must have a userID and password.

  (New users are required to create an account before proceeding to sell/buy products.)

- A good internet connection is required to provide the user with a pleasant experience on the platform.
- Users are expected to have basic knowledge on interactions with GUI based applications.

3. External Interface Requirements

3.1 User Interfaces

- Homepage: The homepage shall consist of a Search bar, product advertisements and product recommendations.
- Product Page: The product page shall provide information about the project such as description, offers and reviews.
- Cart: The products that the user has added to their cart will be displayed here along with the total cost.
- Checkout Page: A summary of the order that is about to be placed will be shown.

3.2 Hardware Interfaces

Web Server Deployment and Technologies	
Nginx	Nginx (pronounced as "engine X") is a lightweight open source web server developed by Igor Sysoev.
MySQL	MySQL database for storage of Data and user as well as seller
RESTful API	A RESTful API that uses HTTP requests to GET, PUT. POST and DELETE data

3.3 Software Interfaces

- The Flipkart Software interacts with SQL database which is hosted locally during development phase and hosted online during production phase (the online host for database is TBD)

- Git for version control

- React, SQL integration for React/NextJs, StripeJs for payments (Credit card system), bcryptJs for encryption, cloudinary for image management.

- The React State variables are responsible for user session state.

- Brevo (third party tool) for providing mail services.

- Furthermore, software tools are to be added during the development phase.

3.4 Communications Interfaces

- E-mail: All communication to customers and sellers will be carried out using e-mail.
- HTTP communication standards are to be followed.
- Security measures such as encryption of passwords at the client side.

4. System Features

4.1 Account Setup

    4.1.1   Description and Priority

- Allow users to create an account for themselves on the platform (High Priority)

    4.1.2   Stimulus/Response Sequences

- User provides an email-ID
- Application sends a verification code to the email-ID
- User enters the verification code
- User enters a password of their choice

    4.1.3   Functional Requirements

REQ-1: Application must provide Input Fields for the user to provide details.
REQ-2: Validation scripts will verify the details provided by the user. Script should verify the email-ID and verification code sent.

4.2 Order Placement

    4.2.1   Description and Priority

- Users will be able to 'check out' their cart, that is, to place an order for the items in the cart. (High Priority)

    4.2.2   Stimulus/Response Sequences

- User adds required products to cart.
- User clicks on checkout option.
- User selects the desired payment method.
- User completes the transaction.
- User is taken to Order Tracking screen.

    4.2.3   Functional Requirements

REQ-1: Allow users to store multiple payment methods.
REQ-2: Checkout page must show an order summary.
REQ-3: Application must provide the user with a confirmation of payment status.
REQ-4: Upon successful payment, user must be provided with an order tracking page.

4.3 Browsing Products

    4.3.1   Description and Priority

- Users can browse through the catalogue of products and make a choice on which products to buy. Products will be categorized based on similarity to provide better recommendations to specific user groups. (Medium Priority)

    4.3.2   Stimulus/Response Sequences

- User clicks on a product.
- Product page shows extensive information on product.
- User is presented with related recommendations at the bottom of the page.

    4.3.3   Functional Requirements

REQ-1: All products must be showcased in clickable tiles.
REQ-2: Product recommendation must follow the suggestions output of the recommendation algorithm.
REQ-3: Related products must be grouped together into categories for the ease of the customer

4.4 Order Tracking and Cancellation

4.4.1   Description and Priority

- Users can track the status of their order and cancel their active order (Low Priority)

4.4.2   Sequences

- User clicks on 'orders' tab.

- User is presented with all past orders

- User clicks on an order tile to view more information.

- User clicks on cancel order button to cancel order

4.4.3   Functional Requirements

REQ-1: User must be presented with a history of orders.
REQ-2: Cancellation of an order must initiate a refund of the payment.
REQ-3: Order tracking page must show estimated time of delivery.

4.5 List products for sale

4.5.1   Description and Priority
- Sellers will be able to list their products for sale on the platform (High Priority)

4.5.2   Stimulus/Response Sequences

- Seller clicks on 'ADD product' option.

- Seller enters details about product including quantity available.

- Seller clicks on 'confirm' button to list their product.

4.5.3   Functional Requirements

REQ-1: Seller must be able to add different type of information about the product including but not limited to Text, images, videos, and links.
REQ-2: User must be required to set up a payment account to receive money.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

PE-1:   The product shall be based on the web and has to be run on a web server and can take initial load time depending on the internet strength which also depends on the media from which the product is run

PE-2:   The performance shall depend on the hardware components of the clients/customer.

PE-3:   Server-side rendering to be used for fetching the pages, reducing the loading buffer time.

5.2 Safety Requirements

    5.2.1   Regulatory Compliance

- The platform shall comply with relevant privacy and consumer protection regulations, such as the General Data Protection Regulation (GDPR) or California Consumer Privacy Act (CCPA)

    5.2.2   External Certifications

- The platform shall obtain and maintain relevant security certifications, such as ISO 27001 or SOC 2, to demonstrate commitment to security and privacy.

    5.2.3   User Education

- The platform shall provide users with security and privacy education, including password best practices and phishing awareness.

    5.2.4   Payment Security

- Payment processing shall adhere to Payment Card Industry Data Security Standard (PCI DSS) requirements to protect against credit card fraud.

5.3 Security Requirements

- The system shall use methods for secure transaction of money from the client to the application
- The system shall automatically logout the customers being inactive for long time.
- The system shall not leave any cookies on the customer's computer containing the user's password or confidential information
- The customer's web-browser shall never display a customer's password. It shall always be echoed with special characters.
- The customer's web browser shall never display the customer's credit card number after retrieving from the database. It shall always be shown with the last 4 digits of the credit card number.
- The system's back-end servers shall never display a customer's password. The customer's password may be reset but never shown.
- Only Authenticated administrators shall have access to the system's backend servers.

5.4 Software Quality Attributes

- Availability: The platform shall have an uptime of at least 99.9% on an annual basis, with planned maintenance communicated to users in advance.
- Maintainability: Code shall be well-documented, with at least 80% code coverage by unit tests. Code review processes shall be established, and technical debt shall be reduced by 20% annually.
- Interoperability: The platform shall provide APIs that adhere to RESTful standards to enable third-party integrations.
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- Robustness: The system shall handle unexpected errors gracefully, providing informative error messages. It shall recover from errors without data loss.
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- Portability: The platform shall be accessible and performant on major web browsers (Chrome, Firefox, Safari, Edge) and mobile platforms (iOS, Android).

5.5 Business Rules

- *Sellers can list their products as per their convenience. Once a product is listed, it is the obligation of seller to ensure the product is available to be picked up.*

- *It is the responsibility of the seller to ensure that all information provided regarding the product is accurate and sufficient.*

- *Customers are advised to review their carts before order placement as certain orders might be classified as are non-returnable or non-cancellable.*

6. Other Requirements

TBD

Chapter 3 Appendix A: Glossary

- ***NextJS*** *: Next.js is an open-source web development framework created by the private company Vercel providing React-based web applications with server-side rendering and static website generation.*
  https://nextjs.org/

- ***React*** *: React is a free and open-source front-end JavaScript library for building user interfaces based on components. It is maintained by Meta and a community of individual developers and companies.*
  https://react.dev/

- ***SQL Database*** *: Structured Query Language is a domain-specific language used in programming and designed for managing data held in a relational database management system, or for stream processing in a relational data stream management system.*

- ***StripeJS*** *: Stripe Elements is a set of prebuilt UI components for building your web checkout flow. It's available as a feature of Stripe.js, our foundational JavaScript library for building payment flows.*
  stripe.com

- ***Cloudinary:*** *provides cloud-based image and video management services. It enables users to upload, store, manage, manipulate, and deliver images and video for websites and apps.*
  https://cloudinary.com/

- ***bcryptJs:*** *Bcrypt turns a simple password into fixed-length characters called a hash. Before hashing a password, bcrypt applies a salt — a unique random string that makes the hash unpredictable*.
  https://www.npmjs.com/package/bcrypt

- ***Brevo:*** *Platform that helps you build customer relationships across email.*
  https://landing.brevo.com/

- ***General Data Protection Regulation (GDPR):*** *The General Data Protection Regulation is a European Union regulation on Information privacy in the European Union and the European Economic Area. The GDPR is an important component of EU privacy law and human rights law*
  https://gdpr-info.eu/

- ***California Consumer Privacy Act (CCPA):*** *The California Consumer Privacy Act is a state statute intended to enhance privacy rights and consumer protection for residents of the state of California in the United States.*
  https://oag.ca.gov/privacy/ccpa

- ***ISO 27001:*** *ISO/IEC 27001 is an international standard to manage information security. The standard was originally published jointly by the International Organization for Standardization and the International Electrotechnical Commission in 2005, revised in 2013, and again most recently in 2022.*
  https://www.iso.org/standard/27001

- ***SOC 2:*** *System and Organization Controls, as defined by the American Institute of Certified Public Accountants, is the name of a suite of reports produced during an audit.*
  https://us.aicpa.org/interestareas/frc/assuranceadvisoryservices/aicpasoc2report

- ***PCI DSS****: PCI DSS is* **to safeguard and optimize the security of sensitive cardholder data, such as credit card numbers, expiration dates and security codes**. *The standard's security controls help businesses minimize the risk of data breaches, fraud and identity theft.*
  https://www.pcisecuritystandards.org/

Chapter 4 Appendix B: Analysis Models

TBD

Chapter 5 Appendix C: To Be Determined List

- *Analysis Models*
- *Other Requirements*