Software Requirements Specifications for Flipkart Search Functionality

1. Introduction

1.1 Purpose

The purpose of this document is to specify the requirements for the search functionality of the Flipkart e-commerce platform. This includes how data will be stored, the use of MongoDB for data storage, and the implementation of the MVC (Model-View-Controller) model.

1.2 Scope

This SRS covers the search functionality, including data storage, retrieval, and display. It does not cover other functionalities of the Flipkart platform.

1.3 Acronyms

JSON: JavaScript Object Notation
MVC: Model-View-Controller
DB: Database

2. General Description

2.1 Product Perspective

The search functionality is a core component of the Flipkart platform, allowing users to find products quickly and efficiently.

2.2 Product Functions

- Accept user queries.
- Retrieve relevant product data.
- Display search results.

2.3 User Characteristics

Users include customers searching for products on the Flipkart platform.

2.4 Constraints

- Must handle high traffic volumes up to 10,000 concurrent requests.
- Must return results within 200ms of making a request.
- Must return relevant searches based on Low to High Price sorted by alphabetical order for products having same price.

2.5 Assumptions and Dependencies

- Assumes a stable internet connection.
- Depends on the availability of the MongoDB database.

3. Specific Requirements

3.1 Functional requirements

3.1.1 Search Query Processing

- The system shall accept search queries from users.
- The system shall process the search queries using item attributes Name, Brand, Price, Description, Category, Sub-Category.

- The searched items should be sorted using primary attribute as price in ascending order with items having the same price sorted in an alphabetical order.

3.1.2 Data Storage and Retrieval

- The system shall store product data in JSON format in a MongoDB database.
- The system shall retrieve product data from the MongoDB database based on search queries.
- The stored items have the following attributes: Name, Brand, Price, Image URLs, Category, Sub-Category.

3.2 External Interface Requirements

3.2.1 User Interfaces

- The search bar shall be prominently displayed on the Flipkart homepage.
- The search bar includes an editable input field where minimum characters should be 1 and maximum characters should be 100.
- The search bar includes a clickable button on the extreme right side having a magnifying glass icon.
- The search functionality should be initiated on pressing “enter” or by clicking on the search button.
- The search results page shall display results in the form of a list where product image is on the extreme left, price on extreme right and in the middle description, in the form of bullet points along with average rating.
- The search results page will have 5 products per view and view will be scrollable.
- When user clicks on the product a new page will open which will display in-depth details of the product. The Image of the product can be viewed in AR.
- User can type anything and if it does not match with the data in the database then the results page should display “**No Results**”

3.2.2 Software Interfaces

- The system shall interact with the Flipkart API for product data.
- The system shall use Mongoose driver for MongoDB.
- The system shall be compatible With Windows, MacOS and Linux/Unix.
- The system is supported by Chrome, Safari, Firefox, Microsoft Edge, Opera.

3.3 Performance Requirements

- The system shall return search results within 200ms.
- The system shall handle up to 10,000 concurrent search queries.
- The system shall have a performance efficiency of 90%.

3.4 Design Constraints

The system shall use the MVC model for design.

- Model: Handles data storage and retrieval using MongoDB.
- View: Displays search results to the user.
- Controller: Processes user queries and interacts with the Model and View.

3.5 Non-Functional Requirements

3.5.1 Security

- The system shall ensure secure communication using HTTPS.
- The system shall protect user data from unauthorized access.

3.5.2 Reliability

- The system shall have an uptime of 99.9%.