## **Functional Requirement Specification**

Title: Nick's Online Bookstore

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6. Introduction

1.1 Purpose

This document provides a detailed description of the functional requirements for the Nick's Online Bookstore system. The purpose of this specification is to serve as a reference for the development, testing, and maintenance of the system.

1.2 Scope

The Nick's Online Bookstore system is an e-commerce platform that allows customers to search, browse, and purchase books from a wide range of genres and authors. The system will provide a user-friendly interface, secure payment processing, and an efficient order management system. This document focuses on the functional requirements of the system and does not cover non-functional requirements.

1.3 Definitions, Acronyms, and Abbreviations

E-commerce – Electronic Commerce

UI – User Interface

API – Application Programming Interface

DB – Database

1. System Overview

The Nick's Online Bookstore system comprises of the following main components:

* User Interface (UI)
* Server-side processing
* Database (DB)

1. Functional Requirements

3.1 User Interface (UI)

3.1.1 The UI shall provide a visually appealing and easy-to-use interface for users.

3.1.2 The UI shall allow users to search for books by title, author, or ISBN.

3.1.3 The UI shall display a list of book results based on the user's search query.

3.1.4 The UI shall allow users to sort search results by relevance, price, or publication date.

3.1.5 The UI shall display detailed book information, including title, author, ISBN, price, cover image, and a brief description.

3.1.6 The UI shall allow users to add books to a shopping cart.

3.1.7 The UI shall allow users to view their shopping cart and modify the quantity of items.

3.1.8 The UI shall enable users to create an account or log in with an existing account.

3.1.9 The UI shall allow logged-in users to view their order history.

3.2 Server-side Processing

3.2.1 The server-side processing shall handle user authentication and authorization.

3.2.2 The server-side processing shall perform search queries and return relevant results.

3.2.3 The server-side processing shall manage the shopping cart for each user session.

3.2.4 The server-side processing shall process payments and update order status.

3.3 Database (DB)

3.3.1 The DB shall store book information, including title, author, ISBN, price, cover image, and a brief description.

3.3.2 The DB shall store user account information, including username, email, password, and shipping address.

3.3.3 The DB shall store order information, including order number, items, order status, and shipping details.

1. Use Cases

4.1 Use Case: Search for Books

* Actors: User
* Description: The user searches for books by entering a search query.
* Precondition: The user is on the home page of the Nick's Online Bookstore system.
* Postcondition: The system displays a list of books matching the search query.

4.2 Use Case: Add Book to Shopping Cart

* Actors: User
* Description: The user adds a book to their shopping cart.
* Precondition: The user is viewing a book's detailed information.
* Postcondition: The system adds the selected book to the user's shopping cart.

4.3 Use Case: View Shopping Cart

* Actors: User
* Description: The user views the contents of their shopping cart.
* Precondition: The user has added at least one book to their shopping cart.
* Postcondition: The system displays the contents of the user's shopping cart, including book details and quantities.

4.4 Use Case: Modify Shopping Cart

* Actors: User
* Description: The user modifies the quantity of a book in their shopping cart or removes a book from the cart.
* Precondition: The user is viewing their shopping cart.
* Postcondition: The system updates the user's shopping cart with the modified quantity or removed book.

4.5 Use Case: Create User Account

* Actors: User
* Description: The user creates a new account on the Nick's Online Bookstore system.
* Precondition: The user is on the account registration page.
* Postcondition: The system creates a new user account and logs the user in.

4.6 Use Case: Log In

* Actors: User
* Description: The user logs in to their existing account on the Nick's Online Bookstore system.
* Precondition: The user is on the login page.
* Postcondition: The system authenticates the user and logs them in.

4.7 Use Case: Checkout

* Actors: User
* Description: The user completes the checkout process and purchases the books in their shopping cart.
* Precondition: The user is viewing their shopping cart with at least one book in it.
* Postcondition: The system processes the user's payment, updates the order status, and sends a confirmation email to the user.

4.8 Use Case: View Order History

* Actors: User
* Description: The user views their order history on the Nick's Online Bookstore system.
* Precondition: The user is logged in.
* Postcondition: The system displays a list of the user's past orders, including order details and status.

1. Data Flow Diagram

The Data Flow Diagram (DFD) for the Nick's Online Bookstore system consists of the following main elements:

* External entities: User
* Processes: Search, Add to Cart, Modify Cart, Account Management, Checkout, Order History
* Data Stores: Book Information, User Information, Order Information
* Data Flows: Search Query, Search Results, Book Details, Cart Actions, Account Details, Payment Information, Order Confirmation, Order History

The DFD illustrates how data flows between the external entities, processes, and data stores. Users interact with the system through processes such as searching for books, adding and modifying items in their shopping cart, managing their account, and checking out. These processes, in turn, interact with the data stores to retrieve or update book, user, and order information.