

# SOFTWARE REQUIREMENTS SPECIFICATION

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## 1.0. Introduction

### 1.1 Purpose

This SRS describes the software functional and non-functional requirements for release 1.0 of **Bookshop Automation Software**. This software is a standalone application is designed to automate a book-store to maintain and all the statistics and the data of the library. Unless otherwise stated, all requirements specified here are high priority and committed for release 1.0.

### 1.2 Document Conventions

The format of this SRS is simple. Bold face and indentation is used on general topics and or specific points of interest. The remainder of the document will be written using Calibri Light font and different font sizes are used for different part of The Document. Font size is 25 for chapters, 16 for heading 1, 14 for heading 2 and 12 for other text explanation.

### 1.3 Intended Audience and Reading Suggestions

This document is intended to be read by the users (Customer, Employee, Clerk, Manager and Owner) of **Bookshop Automation Software**. This is a technical document user should read thoroughly from first page to last page and the terms should be understood by the user. This document contains design description, all functional and non-functional requirements for **Bookshop Automation Software**.

### 1.4 Product Scope

This software is quiet useful for large book-shop (obviously no small book-shop needs a software to manage shop). No need to keep many registers and account for employees and customers, BAS will do that. This software will also help owner to check Inventory level to minimize storage cost so he will make more profit. This software consists of the following major functions:

- ❖ For Customer :
  - Search Books.
  - Requests for procurement of a new book.
  - Request to increment number of copies.
- ❖ For Employee :

- Add details (Name, ISBN etc.) for a new book.
- View all books with their rack number.
- ❖ For Clerk :
  - Update inventory (whenever customer comes with a book to buy).
  - Print receipt.
- ❖ For Manager :
  - See all requests.
  - See statistics.
- ❖ For Owner :
  - Procure books below threshold.

## 1.5 References

The document has been prepared according to IEEE STD 830-1998- Recommended Practices for Software Requirement Specification.

Some information has been taken from following books and websites -

### 1.5.1 Books

- Fundamental of Software Engineering by Professor Rajiv Mall.

### 1.5.2 Websites

- [www.google.co.in](http://www.google.co.in)
- [www.wikipedia.org](http://www.wikipedia.org)
- <https://www.bisg.org/complete-bisac-subject-headings-2013-edition>

## 1.6 Definitions, Acronyms and Abbreviations Used

- ✓ **SRS-** Software Requirements Specification.
- ✓ **BAS-** Book-shop Automation Software.
- ✓ **ISBN- International Standard Book Number** is a unique 13 digit code for each book. Contains information related to Title, Publisher and Group etc. Different Editions will have different ISBN and ISBN for different copies of same book will be same.
- ✓ **Customer-** Customer is a user of Bookshop Automation Software who can search a particular book, Request for a new book and Request to increment number of copies of a present book.

- ✓ **Employee-** Employee is a user of Bookshop Automation Software who can update inventory whenever a new book will come to Book-Shop and he can modify rack number.
- ✓ **Clerk-** Clerk is a user of Bookshop Automation Software who can update inventory whenever a customer will come to him with a book to buy using ISBN and he can generate and print a receipt using Bookshop Automation Software.
- ✓ **Manager-** Manager is a user of Bookshop Automation Software who can see all the Request and respond to them and he can see the statistics.
- ✓ **Owner-** Owner is a user of Bookshop Automation Software who can procure the books below threshold.
- ✓ **Publisher-** Publisher as is the case refers to the book's publisher. It has a unique vendor.
- ✓ **Library-** Library contains all the information or queries regarding Books like Search Book, procure book below threshold, request for a new book, get receipt and get statistic etc.

## 2.0 Overall Description

### 2.1 Product Perspective

This is a software program that maintains a book shop. It contains records of all books, employees, clerk, publishers and vendors. The occurrence of errors are minimized using drop down menu and certain algorithms including minimum distance algorithm and string matching algorithm. The user interphase is quiet simple and easy to learn for user. Book-shop Automation Systems is a technology that automat the book-shop, this technology includes more advantages over manual work. Here this system manage the all records of transaction or selling record in a day or month and can measure the profit of a day, month or yearly.

### 2.2 Product Features

The set of functionalities supported by this software are as follows:

- **Book Search-** A customer can search any book from the whole library by books title or the author name. All the matching results are displayed with copies available and the customer can view a particular book from the results. In the single book view, BAS provides the customer with rack number and the copies available for that book.
- **Request Increment** – When there are no copies available then the *customer* can request for increment in copies for that book
- **Request Procurement-** When there is no match found for the book the customer can request the book-shop owner for procurement of the book and give full details of the book.
- **Add to cart-** The customer can look for various books and add them to cart. Finally before going to search them in book-store BAS provide the list of all books that are presently in cart and displays their rack numbers.
- **Clear cart-** Customer can clear his/her previous cart using this function or cart will be automatically cleared after 5 minutes of inactivity.
- **Show requests-** BAS shows the manager of the book-store all the requests made by the customers sorted by the most number of requests made to a particular book or to a particular owner.

- **Show Statistics-** Manager can see the sales statistics and the total revenue obtained during a particular period of time from the book-store.
- **Configure inventory initially-** Manager can configure inventory according to him when he will use BAS first time.
- **Show Books below Threshold-** The owner of the book-store can request BAS for displaying all the books that have fallen below threshold showing the details of the vendor so that those books can be procured.
- **Add Book to inventory-** All employees can add books to the inventory. They must enter full details of the book and the rack number in which it is placed. Each and every book is identified by its ISBN number. So employee must give a unique ISBN number to each book before adding it to the inventory.
- **Print Receipt-** Clerks must add ISBN number before selling it to customer. And the clerk can print the receipt of the cart that the customer bought to him.

## 2.3 User Classes and Characteristics

Following user classes and their corresponding classes were identified:

- **Book:** A book has name, authors, ISBN, edition, copies bought, buying price.
- **Publisher:** It has name and the unique vendor for the specified publisher.
- **Library:** Has methods to search for books, get a specified book details, show statistics, request new book, etc.
- **Employee:** Employee is the generalization that we follow. Has name, id, log-in ID password.
- **Clerk:** It is the next specialisation of employee.
- **Manager:** It is below clerk in hierarchy
- **Owner:** Owner is at the bottom and is the utmost specialisation of Employee.

## 2.4 Operating Environment

This software is developed in Java Version 7 therefore it is compatible with all systems that have installed Java Virtual machine. But BAS also maintains a relational database to store the data of the entire book-store. JavaDB is used here and so systems running BAS should have pre-installed JavaDB.



Hence BAS runs on windows, UNIX, Linux platforms with pre-installed JVM in them.

## 2.5 Design and Implementation Constraints

The Bookshop automation software have a pretty simple and sophisticated design which is easy to learn but main constrained is time, implementation of thing is quiet difficult in such less time. It will be using a database. The software will be needing a printer to print the receipt for customers and statistics for manager or owner. The software will use internet connection if needed.

## 2.6 User Documentation

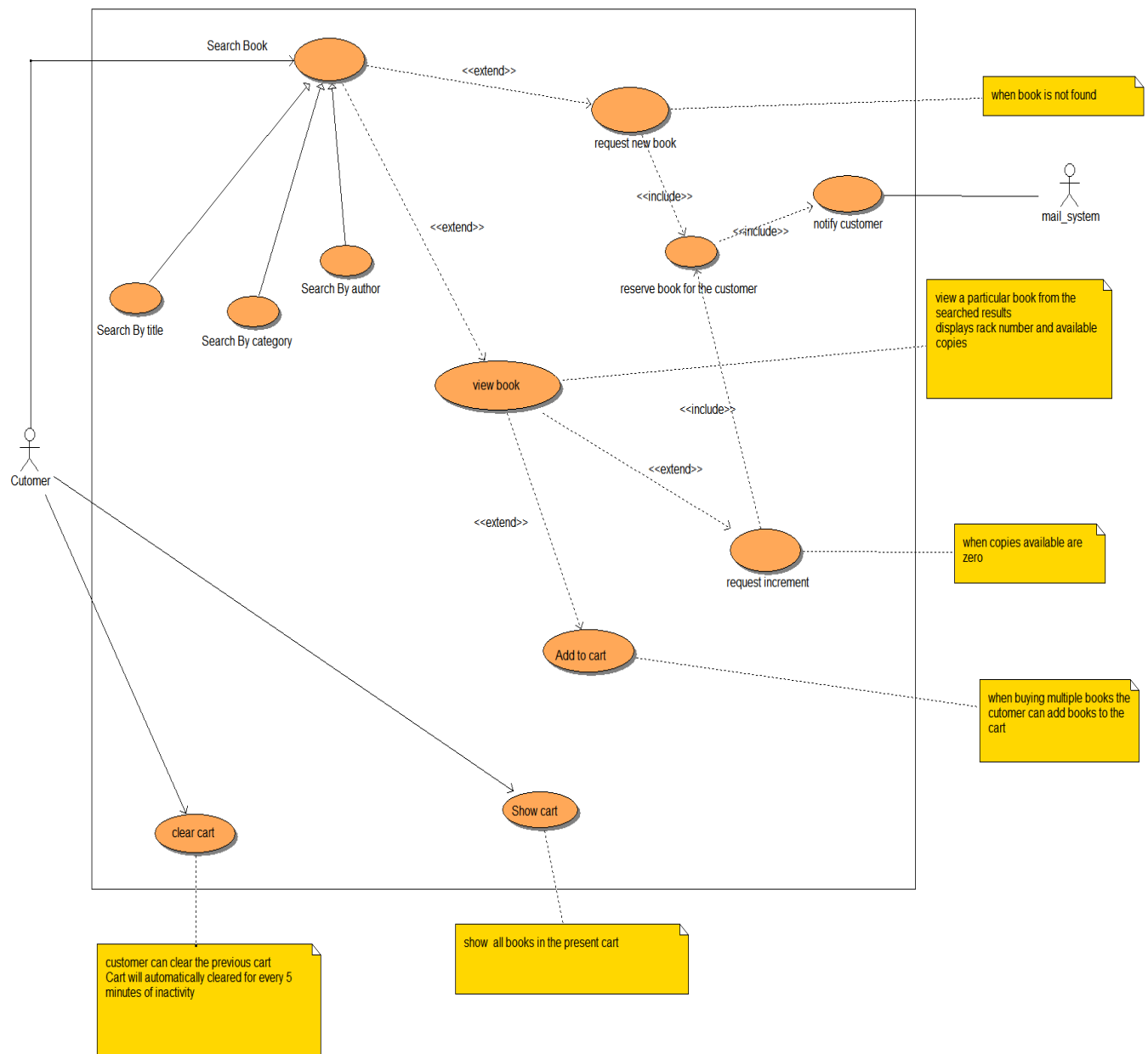
The product is under development stage and requires a complete implemented prototype to explain the user documentation. Once the prototype is designed and implemented online manuals (File type- .html), user manuals (File type- .pdf) can be provided.

## 2.7 Assumption and Dependencies

We have assumed that the computer system in the Book-shop is in proper working condition and that the user is capable of operating these system's basic functions including but not limited to being able to power on the system and login. We have assumed that the **Bookshop Automation Software** will be running on a properly working database system that is database is accessible in real time and database will be modified to identify accounts. We have assumed that all necessary softwares and hardwares are available in book-shop.

## 3.0. Functional Requirements

### 3.1 Customer



### 3.1.1 Search book

This is main feature of customer class whenever he/she want to search buy a book first he search book and hand it to clerk then only he can buy the book so in such a huge store it very difficult for customer to search a book. When customer search a book BAS will provide him rack number so he can easily take the book he can search a book by different methods.

3.1.1.1 Search by Title- customer can simply use the name or title of a book to search a book where it is placed.

3.1.1.2 Search by Author- In this search user has to provide a proper valid Author name to search a book.

3.1.1.3 Search by Category- In this search you will get all the books which is belong to mentioned category.

#### Inputs :

- Name of the book.
- Name of Author.
- Category of book.
- ❖ Customer can use either one, two or three parameter for their search but If Customer will not provide any parameter BAS will show Trending Books.

#### Process :

- When he will search a book according to a particular parameter we will use string matching algorithm for suggestions and minimum distance algorithm if no book found and show him books as I mentioned above if user will not provide any parameter then BAS will show Trending books.

#### Output :

- Out will be all possible books containing the name, author name or category customer have provided if book is not in store we will show him all nearest possible books using minimum distance algorithm and he can send a request to manager for new book in store.

### 3.1.2 Request book

In this case customer has to provide all the details related to book and information about himself so whenever book will come to store we will send him mail or you can say we have reserved book for this customer. Customer can request book in two different cases.

3.1.2.1 Request for increment- Customer can request for increment a book if on his search he finds the book in store but book is not currently available so he will request to manager to increment number of books in store.

3.1.2.2. Request for Procurement- Customer can request for procurement of a book if on his search he will not find the book in store so he will request to manager to procurement number of books in store.

**Inputs :**

- Name or Title of the book.
- Author of the book.
- Publisher of the book. {optional}
- Customer's Name.
- Customer's contact number.
- Customer's Email address.

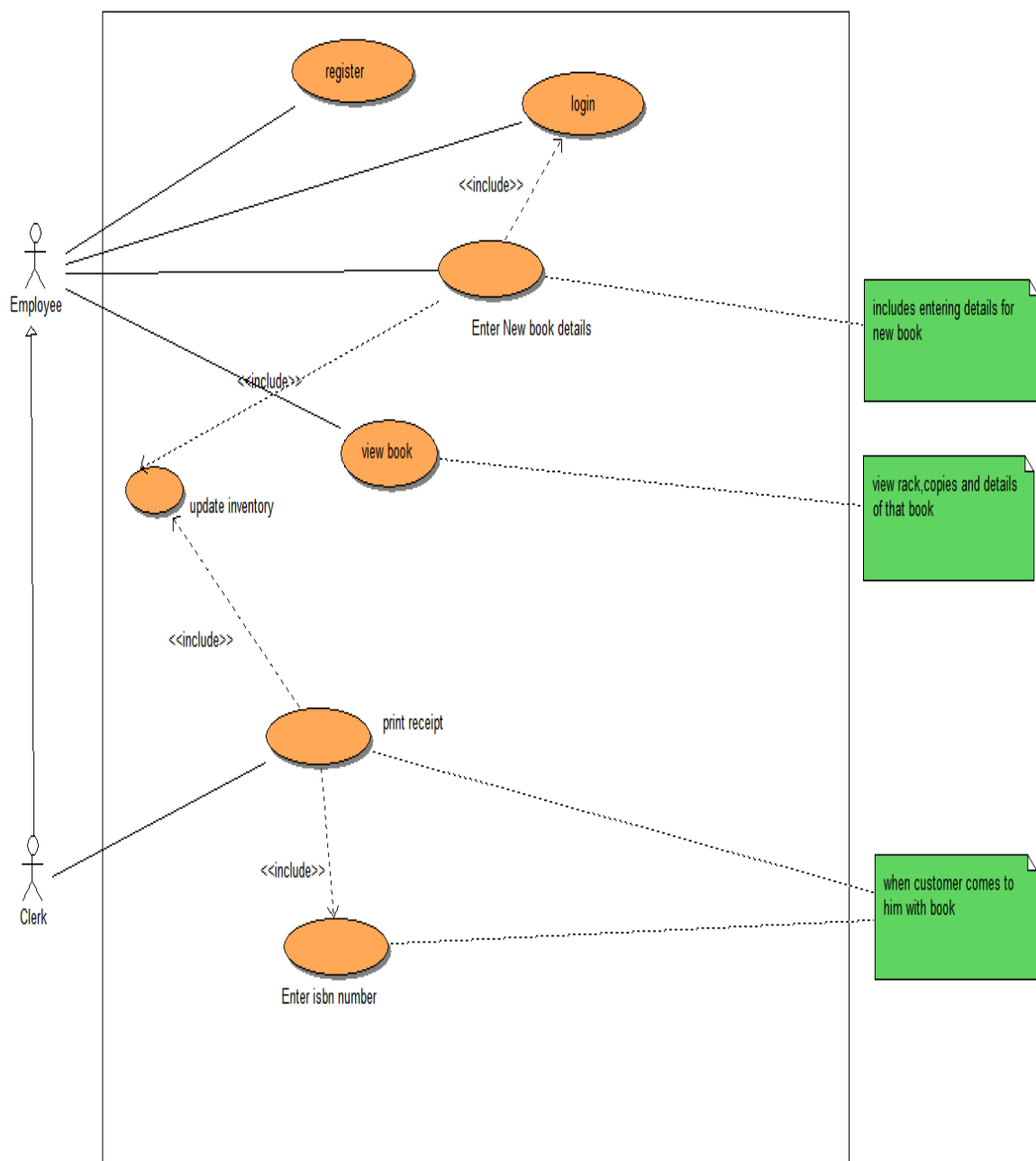
**Process :**

- BAS will take all the information of book from customer to order new book and store details of Customer so BAS can reserve this book for this customer for a particular amount of time if in that time order will arrive BAS will automatically send an Email to Customer to inform him about the availability of that book in store.

**Output :**

- This will show a confirmation message to customer for his request of increment or procurement and tell him about reservation of this book for you till a particular amount of time and we will send him mail when this book is available in our bookshop.

## 3.2 Employee



### 3.2.1 Update inventory

In this part of the software any employee of the bookshop can update the inventory whenever a new book will come to book store.

**Inputs :**

- ISBN number.
- Name of the book.
- Title of the book.
- Number of copies arrived.
- Buying price.
- Selling price.

**Process :**

- Employee in enter all the details so BAS will update the inventory with this and all other books arrived in this order.

**Output :**

- BAS will show a confirmation message to employee that he has update inventory successfully with new order.

### 3.3 Clerk

#### 3.3.1 Print receipt

This a clerks work as we all know so in part of the software clerk will enter a ISBN number whenever a customer will come to him with a book to buy and he check all the informations related to book and print a receipt for customer.

**Inputs :**

- ISBN number of the book.
- Number of copies of the book.
- Name of the book. {optional}
- Customer's Name.

**Process :**

- Clerk will enter an ISBN number of a book we will search book details from our inventory by this unique ISBN number and provide him all the details of this book and after that if clerk will click on print button we will print receipt.

**Output :**

- In output we will show all the details related to the book to clerk and clerk will print the receipt for customer.

### 3.4 Manager

#### 3.4.1 Show requests

Using this feature manager can see all the requests for procurement of new books and increment of books already present in bookshop. He can simply do that whenever he open his account using his username and password.

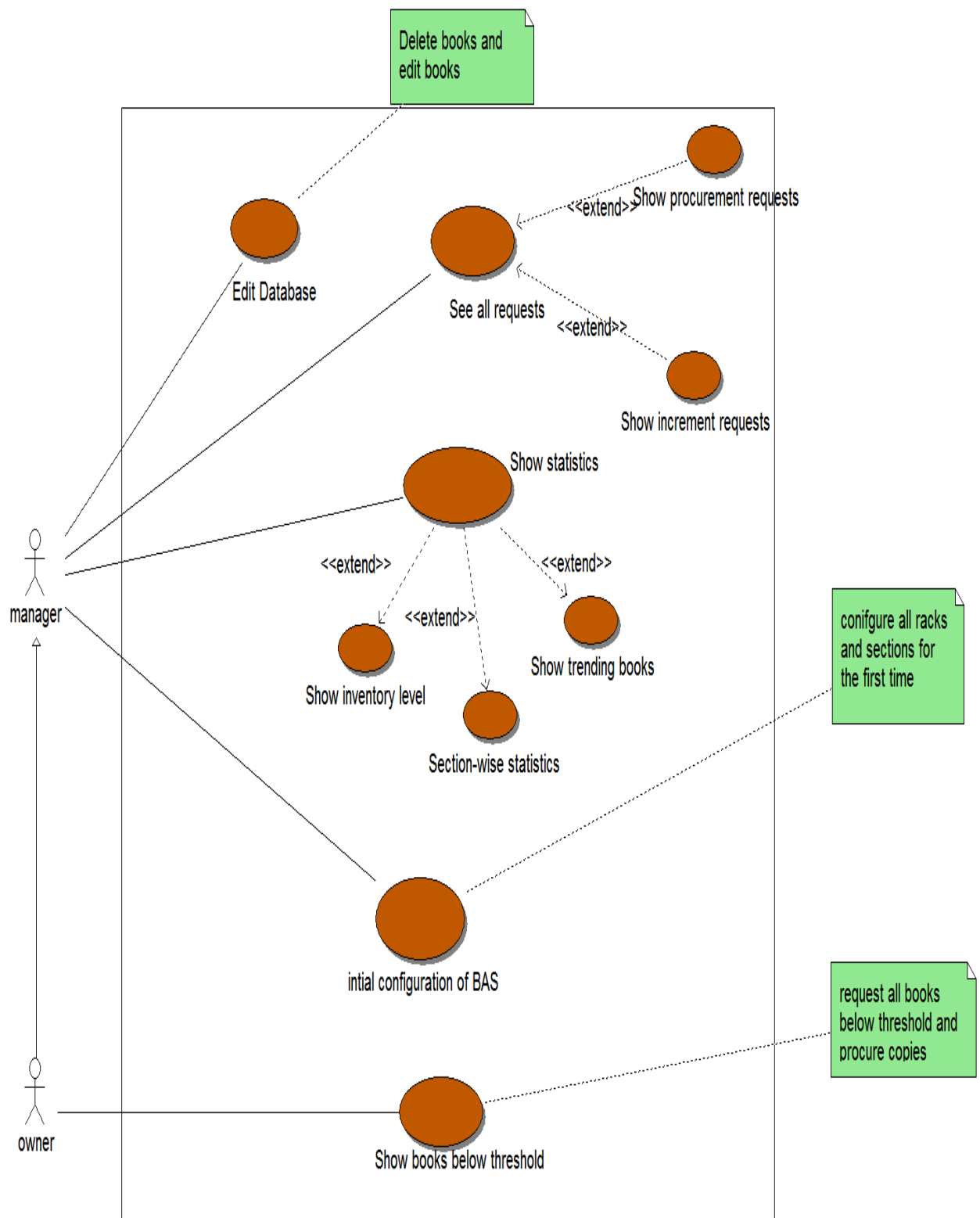
#### 3.4.2 Show statistics

This part of the software Manager will click on show statistics button and can get statistics and it will help manager and owner to get more profit and inventory level of the store. He can simply do that whenever he open his account using his username and password.

#### 3.4.3 Initial configuration of Inventory

Initially when bookshop manager will install this software he has to configure inventory.

He can simply go to Initial configuration option and add number of racks, sections, which category belong to a particular section and details of each and every book presently available in store.





### 3.5 Owner

#### 3.5.1 Show books below threshold

Using this feature manager can get all the book below threshold to procure them and get the inventory level for each book below threshold so owner will know how many book are required to pay minimum storage charge and can get more profit.

**Inputs :**

- Owner's username.
- Owner's Password.

**Process :**

- After Owner will input his username and password we can open his account and after clicking on show books below threshold button BAS will connect to database and fetch all the information related to books below threshold.

**Output :**

- He can easily get the books below threshold and all related information to the book like inventory level and number of copies to procure.

## 4.0. External Interface Requirements

### 4.1 User Interfaces

The user interface should be simplistic. It should consist of a search bar to type in the name of the book to be searched for, a log-in screen for different users for security purpose, a table like structure to display the details of book (Name and rack number etc.) and statistics of the book including inventory level and book below threshold, a pane for cart of the customer, a drop down menu for search suggestions each time custom will search. It should consist of options for New user register, Log-in, add to cart, show cart, clear cart, add new book in inventory, see all the books, see statistics and see book below threshold etc. viewing statistics of books an options for sorting the results according to various parameters like according to section etc.

### 4.2 Hardware Interfaces

The **Bookshop Automation Software** will be needing a properly working printer to print the the receipt generated by clerk other than this no special hardware is needed for the functioning of this software. A computer with a monitor, a keyboard and a mouse suffices.

### 4.3 Software Interfaces

The software consists of a single user multi-tasking user interphase which can access the Database. Whenever an access from UI to database is required system will create a connection from database to the software. Once connection is made system will communicate with database so for this connection and communication corresponding software for database is required. The software will hardly use internet but when it does required software for connection must be there.

### 4.4 Communications Interfaces

Since the software makes request to database to obtain and change the required information so a properly working database system is necessary for **Bookshop Automation Software**. BAS will hardly use online resources but when it does internet connection must be there and the connection must permit free TCP communications on port 80 (HTTP).

## 5.0. Other Non-functional Requirements

### 5.1 Performance Requirements

The important aspects of **Bookshop Automation Software** is time constrain. BAS software system is real time and hence should be performed in minimum requirements. The accountability is a vital feature and this could only be assured if the system is working in full capability. Upon querying any book the software shall take minimum time required to process data and the latency in responses from the database.

## 5.4 Safety Requirements

The data handled in the **Bookshop Automation Software** system is very vital because it contains business and money related information of a particular book-shop so the **Bookshop Automation Software** must ensure about the safety of data and must avoid any probable cause for data loss. The server should always be confirmed to run properly and the data are saved to the database at consecutive intervals. Power is a significant feature and the power supply should be always taken care of. An Uninterrupted Power Supply is always recommended.

## 5.3 Security Requirements

The software requires submission of sensitive information, information about a user and some other details so security is required. All users of software should not access Manager's or clerk's or Employee's account accept them because it will all the information related to shop like statistics, business details and money transection related things so we have to keep security so no customer can access an account of employee. It has been taken care of using different log-in for different users.

I think main security requirement is the software should not allow unauthorized access to any module of the system. Besides, it should maintain the privileges granted to users at various user levels what I explained in above paragraph.

## 5.4 Software Quality Attributes

- **Reliable-** we will hardly use any information from internet that can be wrong or incomplete, we are using database where we will keep all the information so BAS is accurate and reliable.
- **Compatibility-** BAS is compatible with all other different type of software and hardware.
- **User Friendly Environment-** Graphical user interphase is used for easy handling of the system. A user can handle the system efficiently without meeting any difficulty.

- **Fast-** BAS will provide output really quick because it will hardly use and online resources which can take time due to server delay of different websites. It is just using database so it will be fast including delay from database.
- **Secure-** Software contains different log-in for different users so it is quiet safe and secure.

## 6.0. Other Requirements

### 6.1 Legal Requirements

**Bookshop Automation Software** has a license agreement according to which use or distribution without prior permission of the developer is punishable by law.

### 6.2 Logical Database Requirements

This section specifies the logical requirements for any information that is to be placed into a database. This may include:

- Types of information used by various functions
- Frequency of use
- Accessing capabilities
- Data entities and their relationships
- Integrity constraints
- Data retention requirements

### 6.3 Reuse objectives

After a prior permission of the developers anyone can reuse this software and try to implement some new features.