# Software Requirements Specification

# for

# Book Shop Automation

Version 1.0 approved

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Table of Contents

Table of Contents [ii](#__RefHeading___Toc441230970)

Revision History [ii](#__RefHeading___Toc441230971)

1. Introduction [1](#__RefHeading___Toc441230972)

1.1 Purpose [1](#__RefHeading___Toc441230973)

1.2 Document Conventions [1](#__RefHeading___Toc441230974)

1.3 Intended Audience and Reading Suggestions [1](#__RefHeading___Toc441230975)

1.4 Product Scope [1](#__RefHeading___Toc441230976)

1.5 References [2](#__RefHeading___Toc441230977)

2. Overall Description [2](#__RefHeading___Toc441230978)

2.1 Product Perspective [2](#__RefHeading___Toc441230979)

2.2 Product Functions [2](#__RefHeading___Toc441230980)

2.3 User Classes and Characteristics [3](#__RefHeading___Toc441230981)

2.4 Operating Environment [3](#__RefHeading___Toc441230982)

2.5 Design and Implementation Constraints [3](#__RefHeading___Toc441230983)

2.6 User Documentation [3](#__RefHeading___Toc441230984)

2.7 Assumptions and Dependencies [3](#__RefHeading___Toc441230985)

3. External Interface Requirements [4](#__RefHeading___Toc441230986)

3.1 User Interfaces [4](#__RefHeading___Toc441230987)

3.2 Hardware Interfaces [4](#__RefHeading___Toc441230988)

3.3 Software Interfaces [4](#__RefHeading___Toc441230989)

3.4 Communications Interfaces [5](#__RefHeading___Toc441230990)

4. System Features [5](#__RefHeading___Toc441230991)

4.1 Check for availability of book [5](#__RefHeading___Toc441230992)

4.2 View request [5](#__RefHeading___Toc441230993)

4.3 Purchase Book [6](#__RefHeading___Toc441230992)

4.4 Update stock [6](#__RefHeading___Toc441230993)

4.5 Generate Sales Statistics [7](#__RefHeading___Toc441230992)

4.6 Check threshold books [7](#__RefHeading___Toc441230993)

5. Other Nonfunctional Requirements [8](#__RefHeading___Toc441230994)

5.1 Performance Requirements [8](#__RefHeading___Toc441230995)

5.2 Safety & Security Requirements [8](#__RefHeading___Toc441230997)

5.3 Software Quality Attributes [8](#__RefHeading___Toc441230998)

5.4 Business Rules [8](#__RefHeading___Toc441230999)

6. Other Requirements [9](#__RefHeading___Toc441231000)

Appendix A: Glossary [9](#__RefHeading___Toc441231001)

Appendix B: Analysis Models [9](#__RefHeading___Toc441231002)

Appendix C: To Be Determined List [9](#__RefHeading___Toc441231003)

# Introduction

## Purpose

* The Bookshop Automation Software (BAS) is to automate all operations in a bookshop.
* Generally, it includes the Order Processing, Stock Management and Accounts Management.
* BAS will provide the ability to search any book using the book title or the name of the author that are available in the shop
* In case where the book is not available in the stock, it will ask the customer to enter full details of the book for procurement of the book in future and increment a request field for the book.
* BAS will help the manager to periodically view the request field of the books so as to arrive at a rough estimate regarding the current demand for different books. Also, it maintains the price of various books.

## Document Conventions

The Software Requirement Specification (SRS) is a lower level of detailed document for the Book-shop Automation System. In the writing of this SRS Arial font and font size of 11 is used.

## Intended Audience and Reading Suggestions

SRS is mainly intended for the project managers, developers and team members who want to get the overview of the project, its scope and higher details of modules in the system. Anyone who would like to make the next version of this system can prefer this SRS. This SRS document includes the overall design description. The reader should read thoroughly from first page to the last page. It includes the purpose, scope, product feature and references along with the hardware & software requirements for this software.

## Product Scope

The scope of this project Book-Shop Automation Software is to develop a software to automate the entire book purchasing process and the management and maintenance of records like transaction records, calculating the demand of various books, generating sales statistics and other basic tasks that are required by the manager. This software will be very useful to the large book-shops as well as the customers. The system will save lots of time as it will perform all the necessary tasks for purchasing books and maintaining the records in much lesser time. As a result, both the customer and the shop owner will be benefited. Therefore, this software will be very economical in every respect.

## References

[1] Fundamental of Software Engineering by Rajiv Mall

[2] IEEE. IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.

[3] www.wikipedia.org

# Overall Description

## Product Perspective

The Book Shop Automation System is the new, self-contained product. It is using Python/C++. All pages of the system are following a consistent theme and clear structure.

Error message should be located beside the error input which clearly highlight and tell user how to solve it. If system error, it should provide the contact methods. The page should display the project process in different colour to clearly reflect the various states. Each level of user will have its own interface and privilege to manage and modify the project information.

User interface elements are easy to understand. Part of user interface is well-organized on screen and the parts are concatenated right. When users look at the interface, they understand which pane is used for which purpose. Each task of an interface is specified clearly and users use them correctly. For example, when user’s selects any option on interface, they can know which operations are done by selecting particular option.

The user interface is easy to learn. When users use the user interface, they can know which element is used to which operations. The interface actions and elements inconsistent. When users select any option, required actions is done by the system.

Since the application must run on the PC, the main hardware interfaces for this system would be the monitor, Keyboard and mouse.

Book-shop Automation Systems is a technology that automates the book-shop. This technology has more advantages over manual work.

## Product Functions

The book-shop automation system provides the following facilities and services:

• Searching of books by title or by name of author

• See number of available books (for selected books)

• Each sold book is registered with date of sale and notification if customer has

paid

• Book-shop automation System software provides full billing and supports different password protected employee accounts

• System data is protected from unauthorized modifications

• Process payments quickly and efficiently

• Unique design with very functional user interface

• Generate sales statistics for any period

• Improve store business with various reports and statistics

• Managing records

• Estimate current demand of different books that can be used by the manager

## User Classes and Characteristics

There are five types of users that interact with the system: customer, sales clerk, employee, manager and the book shop owner. Each of these five types of users has different use of the system so each of them has their own requirements.

**Customer** will only use the system to find a book. This means that the user should get the exact number of copies available and the rack number in which the book is located.

**Sales clerk** would help the sales processes.

**Employee** would update the stock.

**Manager** would check the current demands of different books. So all the search queries by the customers and the sales records are to be maintained properly.

The **book shop owner** manages the overall system.

## Operating Environment

**Operating System:** Ubuntu, Windows 7,8,10

**Language:** Python/C++

## Design and Implementation Constraints

* The system is based on menu driven interfaces. Menu selection will be done by using the mouse and the key board keys.
* Confirmation messages on taken actions, input acceptance and error conditions will be displayed after each input
* Error messages will be displayed at the time of detection of input errors and the system errors.

## User Documentation

All documentation will be made in accordance with requirements.

## Assumptions and Dependencies

While cost estimation of the proposed system is been assumed that the cost of hardware. Hence only the cost incurred for the proposed software is included therein.

The followings are identified as some of the potential risk factors or dependencies:

* Non-availability of required resources
* Power cuts
* Slippage of schedule due to unpredictable holidays, etc.

# External Interface Requirements

## User Interfaces

User interface is used to provide communication between users and system. When users look at the interface, they should understand which pane is used for which purpose. Each task of an interface should be specified clearly and users should use them correctly. For example, when users select any option on interface, they should know which operations are done by selecting that option.

The user interface should be easy to learn. When users use the user interface, they should know which element is used to which operations. If the user interface is very hard to learn by the user then teaching the interface activity would take longer time

The interface actions and elements should be consistent. When users select any option, required actions should be done by the system.

The screen layout and color of the user interface should be appealing. When users look at the screen, it will have a nice vision. Colors will be selected clearly, thus eyes of users won’t feel tired.

It has been required that every form interface should be user friendly and simple to use.

## Hardware Interfaces

The system comprises of users which are spread in IIT Kharagpur. The minimum hardware requirements for this software are a 2.2 GHz CPU and 4 gigabytes of RAM.

## Software Interfaces

This software requires Python/C++ to be installed on the system, more specifically latest versions. Additional software interfaces used for the development of this product include:

Book Shop Automation Software will use .txt/ .json/ .jsonl files for storing and management of records. When data is needed system reads the files and stores the data so that the client program can see the data.

## Communications Interfaces

* communication can occur using I/O streams. Each has an Output-Stream and an Output-Stream. The client's Output-Stream is connected to the system’s Input-Stream, and the client's Input-Stream is connected to the system’s Output-Stream.
* Two-way communication protocol, so data can be sent across both streams at the same time.

# System Features

This subsection provides details about the identified functional requirements of the software.

## Check for availability of book:

**Description:**

When customer selects this option, he is required to enter book title or the author’s name of book. The system would search the books in the books register based on the keywords. After making the search the system should output the details of all the books based on the details given.

**Req-1**: Select query book availability option

**Input:** “Query for Book Availability” option is clicked

**Output:** User prompted to enter the key words

**Req-2**: Search for book name and display result

**Input:** Book title or the author’s name

**Output:** Display details of all the books, no. of copies available and the rack no. where the book is located.

**Processing:** Search the books in the book register based on the key words, if the

book is not currently being sold by book-shop, then the customer is asked to enter

full details of the book for procurement of the book in future. If a book is in stock,

the exact number of copies available and rack number in which the book is located

should be displayed. If a book is not in stock, the query for book is used to increment

a request field for the book.

## View request:

**Description:**

Once the manager selects this option, the system displays the current demand for

different books.

**Precondition:** Manager is logged in

**Req 1**: Select view request option

**Input:** “Find Trends” option is clicked

**Output:** Display the current demand of different books

**Processing:** Displays the books list if any requests are present otherwise it gives no pending requests.

## Purchase Book:

**Description:**

Once the customer selects this option the system will ask to enter the ISBN no. of books sold. And the system will take the prices of books from inventory and generates the bills and updates the stock and generate the sales receipt for the book.

**Req 1**: Select purchase option

**Input:** “purchase “option is clicked

**Output:** Prompt message to the salesclerk to enter the ISBN number of selected

book.

**Req 1**: Generate sales receipt

**Input:** Enter the ISBN number of a selected book.

**Output:** Gets the price from inventory and prints the sales receipt and updates the stock.

**Processing:** Generates the bill based on the ISBN number of books selected by customer

## Update stock:

**Description:**

Once the employee selects this option, he would be asked to enter the list of new book name.

**Precondition** Employee is logged in

**Req 1**: Select update inventory option

**Input:** “Update inventory” option is clicked

**Output:** Employee will be prompted to enter the details of books

**Req 1**: Updating the inventory

**Input:** Employee will enter the book details that is procured for the first time

**Output:** Generates the ISBN number for the new books

**Processing:** Updates the inventory by generating ISBN numbers of the books and updating the other details such as rack number, publisher, book name, and price.

## 4.5 Generate Sales Statistics:

**Description:**

Once the manager selects this option, he will be informed about exact business done over any period of time. It also calculates inventory level required for various books.

**Precondition** Manager is logged in

**Req 1**: Select generate sales statistic option

**Input:** Select “Generate sales statistic” option

**Output:** System will generate the sales statistics

**Processing:** System calculates the inventory level required for a book which is equals to number of copies of book sold over a period of two weeks multiplied by average number of days it takes to procure the book from its publisher. And generate statistic according to it. Display it.

## 4.6 Check threshold books:

**Description:**

The book shop owner would give a command for the BAS to print the books which have fallen below the threshold and the number of copies to be procured along with the full address of the publisher.

**Precondition:** Owner is logged in

**Req 1**: Select check shortage option

**Input:** Select “Check shortage” option

**Output:** The books which have fallen below the threshold and the number of copies to be procured along with the full address of the publisher.

**Processing:** Checks the book which have fallen below the threshold, calculates number of copies to be procured along with the full address of the publisher.

# Nonfunctional Requirements

## Performance Requirements

• The response time for menu changes will be not more than 3 seconds.

• The time for search for a book will not more than 3 seconds.

• The time to print the stock valuation will not be more than 3 seconds.

• The time taken to update the database or get information from the database will not be more than 2 seconds.

• The time taken to prompt message boxes will not more than 2 seconds.

## Safety and Security Requirements

• All the high-level users should keep their system access credentials secure else an unauthorized personal may exploit the system. If at any point of time someone has compromised his/her login credentials then he/she should report to the system administrator so that he could issue new credentials.

• Only the administrators have the authority to edit details in Users and Items tables. No one can enter the system without a username and a password. Normal system users cannot access the Administrators login. All deleting actions are notified by a message box asking to confirm deletion.

## Software Quality Attributes

The prioritization of the software quality attributes are assumed as under:

• Accurate and hence reliable

• Secured

• High performance

• Compatibility.

## Business Rules

**Customer**: The one who purchases books from the bookshop. He must have the very limited access to the system.

**Employee**: The one who updates the inventory. He must the have next higher level of access to the system after the customer.

**Sales Clerk**: The one who enters purchase details in the bookshop. He must have the next higher level of access to the system after the employee.

**Manager**: The person who views the current demand of different books. He must have the next higher level of access to the system after the clerk.

**Book Shop Owner**: The owner of the shop. He must have access to the entire system.

# Other Requirements

* Licensing requirements: Applicable
* Legal, Copyright and Other notices: All rights reserved by our organization.
* Applicable Standards: It should be as per the industry standards