Library Management System

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Contents:

NO	TOPIC	PAGE
1.	Purpose:	3
2.	Scope of Development Project:	3
3.	Definitions, Acronyms and Abbreviations:	3-4
4.	External Interface Requirement:	5
5.	Product Perspective: Use Case Diagram of Library Management System:	5
6.	Product Function: Entity Relationship Diagram of Library Management System	6
7.	Data flow Users of Data Flow Diagram in Library Management System:	7-8
8.	Graphical User Interface (GUI):	9-11

Purpose:

The main objective of this document is to illustrate the requirements of the project Library Management system. The document gives the detailed description of the both functional and non-functional requirements .The purpose of this project is to provide a friendly environment to maintain the details of books .The main purpose of this project is to maintain an easy circulation system using computers and to provide different reports. This project describes the hardware and software interface requirements using ER diagrams and UML diagrams.

Scope of Development Project:

The project is specifically designed for the use of librarians . The product will work as a complete user interface for the library management process . Library Management System can be used by any existing or new library to manage its books , insertion and monitoring. It is especially useful for any educational institute where modifications in the content can be done easily according to requirements. The project can be easily implemented under various situations. We can add new features as and when we require, making reusability possible as there is flexibility in all the modules.

Definitions, Acronyms and Abbreviations:

User characteristics:

- The Librarian will be acting as the controller and he will have all the privileges of an administrator.
- The features that are available to the Librarian are:-
    - Can view the List of books available in each category
    - Add books and their information to the database
    - Edit the information of existing books
    - Can view the different categories of books available in the Library
    - Can search for a particular book

Operating environment:

- The product will run on a Windows operating system.The Library Management System is a .exe file that will work on all windows platforms .
- The basic input devices are a keyboard and mouse,while the output devices is a monitor

External Interface Requirement:

In this section we'll discuss about external interface requirements;

Hardware Interfaces :

- Hardware Interfaces Processor: Pentium(R) Dual-core CPUs
- Hard Disk: 40GB
- RAM: 256MB or More

GUI:

1. The software provides a good graphical interface for the user(librarian).
2. The user can operate on the system, performing the required task such as create, update, and view the details of the book.
3. The design should be simple.

Software Interfaces:

- This software package is developed using C++.
- Operating System: Windows XP, Windows 7 and higher versions.
- Language: C++

Functional Requirements:

- Only authentic users must have access to the system.
- User must be able to:
    - Provide the information regarding books.
    - Search for the required books from the database.
    - Add a new book to the database.
    - Update the number of books in the database.
    - Same Id's for 2 or more books shall not be allowed.

Non-functional Requirements :

The details of these non-functional requirements follows:

- **Performance Requirements:**
    1. The proposed system that we are going to develop will be used as the Chief performance system within the different campuses of the university.
    2. The performance of the system should be fast and accurate.
    3. Library Management System shall handle expected and unexpected errors in ways that prevent loss in information and long downtime period.
    4. The system should be able to handle large amounts of data. Thus it should accommodate high number of books and users without any fault
- **Safety Requirements:**

The database(datafile) may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database(datafile) backup so that the database is not lost. Proper UPS/inverter facility should be there in case of power supply failure.

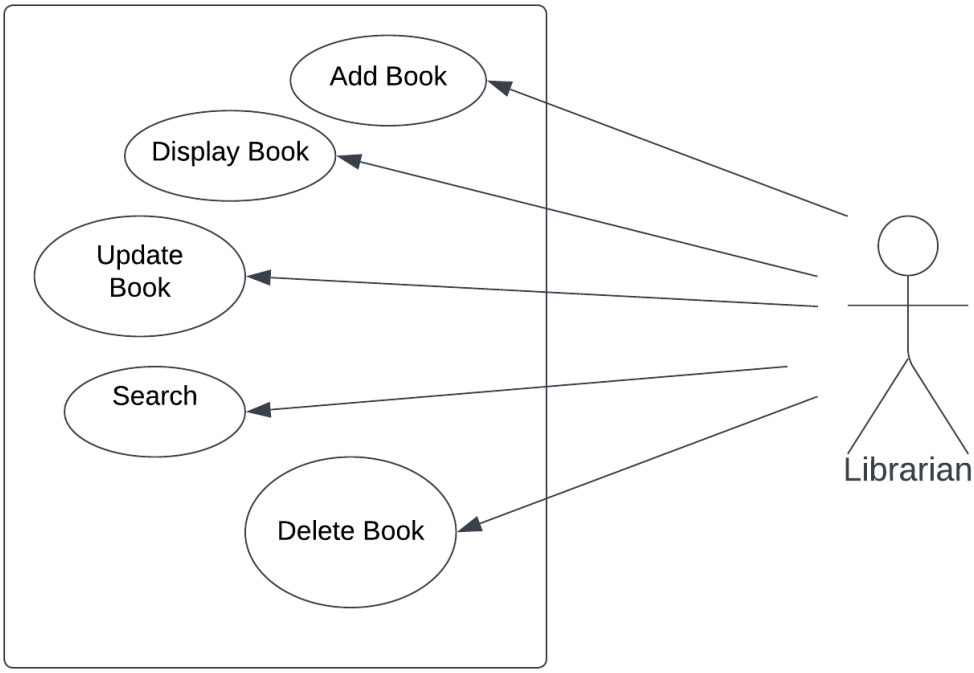
- **Other Requirements:**

Data and Category Requirement

Administrators can be able to modify the data,delete, append etc. There will be different categories of books available. According to the categories of books their relevant data should be displayed.

Product Perspective:

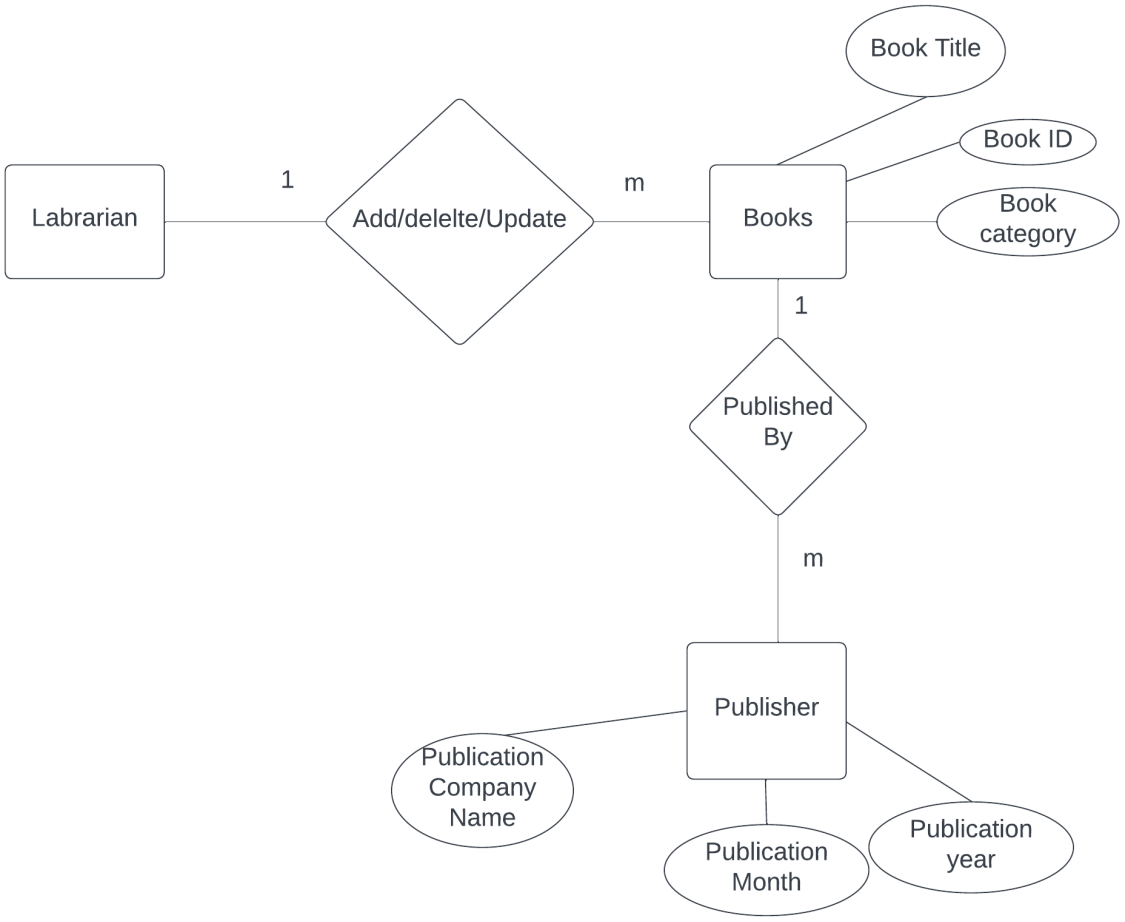
Use Case Diagram of Library Management System:



- This is a broad level diagram of the project showing a basic overview.
- The users will be only librarian.This System will provide a search functionality to facilitate the search of resources. This search will be based on book_id.
- Further the library staff personnel can add/update the resources and the resource users from the system.

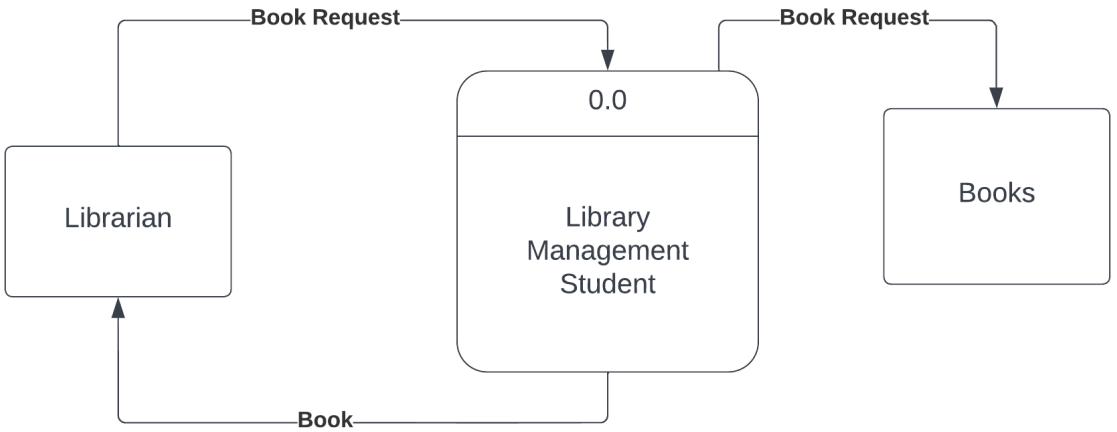
Product Function:

Entity Relationship Diagram of Library Management System



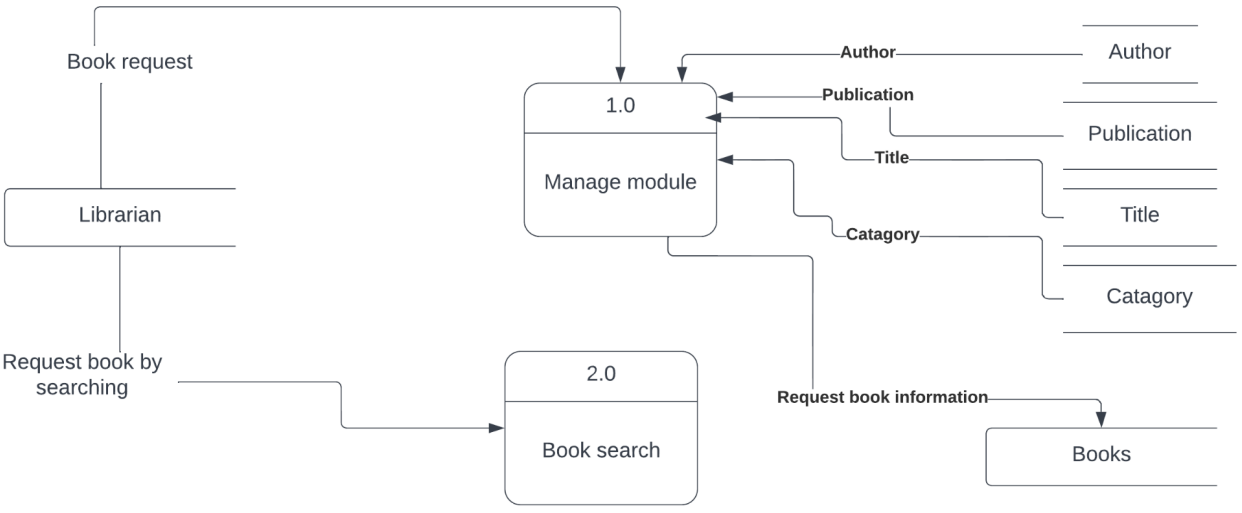
- The Library System provides real time information about the books available in the Library.
- The main purpose of this project is to reduce manual work. The Librarian will act as the administrator to manage books.

Data flow
Users of Data Flow Diagram in Library Management System:
Librarian:
Data flow diagram(0-level):



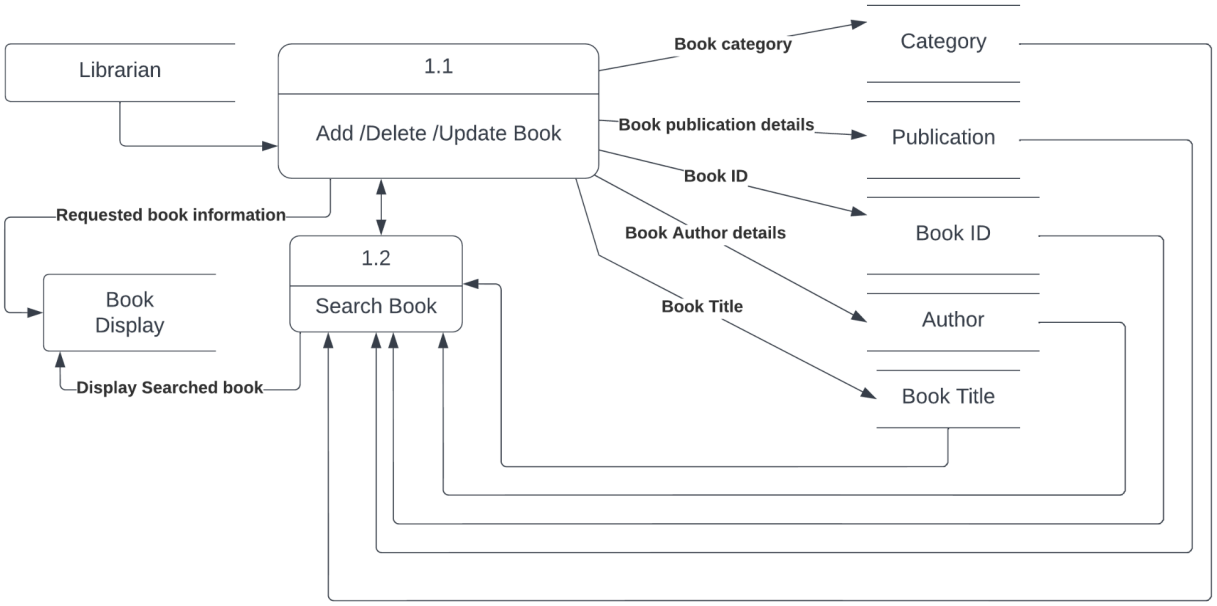
The illustration shows the main process in a single node to show where the project is going. Here, we can see how the project will work in a glance. The users put data into the system, and then they get the results from the system after they do that.

Data flow diagram(1-level)



The system tailors the data and processes the request. As a result, the process generates data flow and transformation until it achieves the desired output. Users can also see the data store or database that was used. The database used to store the data processed and provided by users, and it also serves as a source of outputs.

Data flow diagram(2-level)



This diagram has elaborated the sub-processes derived from the “topic search” process. The sub-processes were Add/Delete/Update book and search book

Graphical User Interface (GUI):

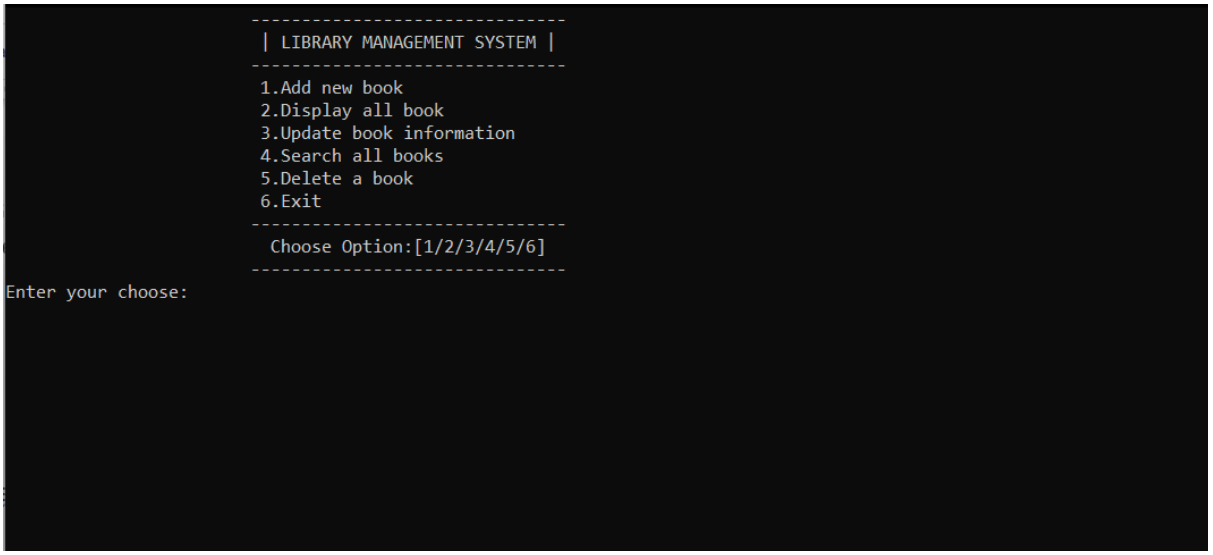
All of the graphical user interface documents included in this segment.

User Interface Id: 1.0

Interface Id. UI 1.0.

Use case Reference :This is the welcome or starting screen of the document.

Snapshot :

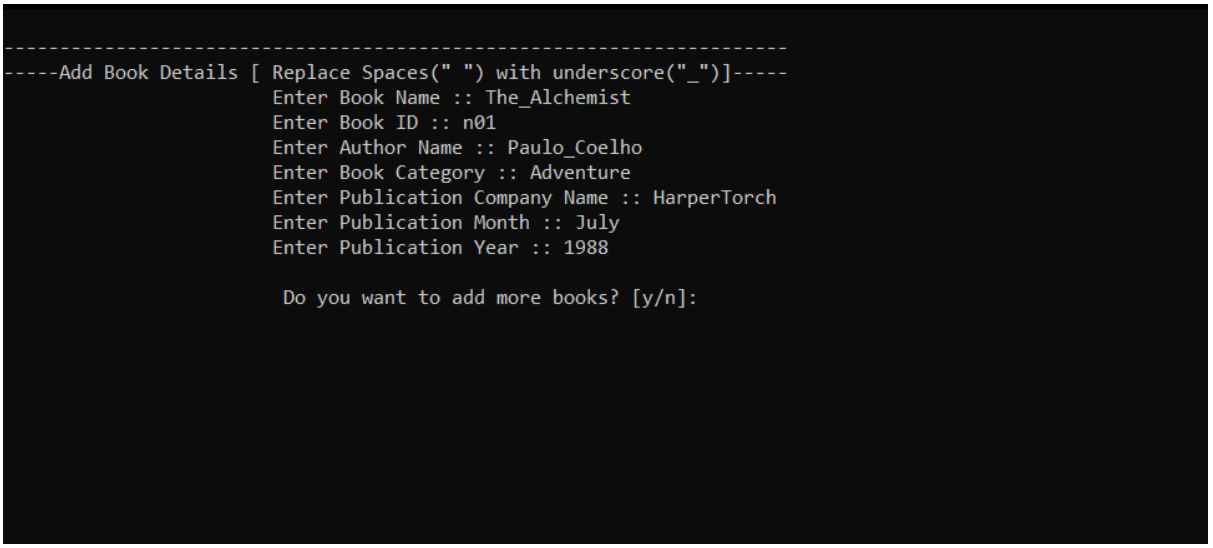


User Interface Id: 1.1

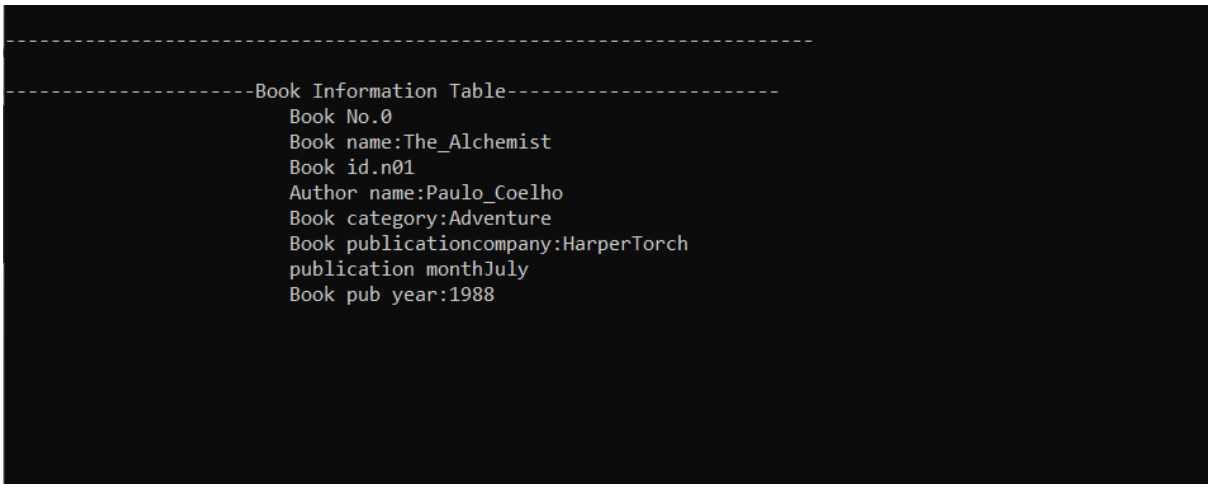
Interface Id. : UI 1.1

Use case Reference : This is Add New Book Interface

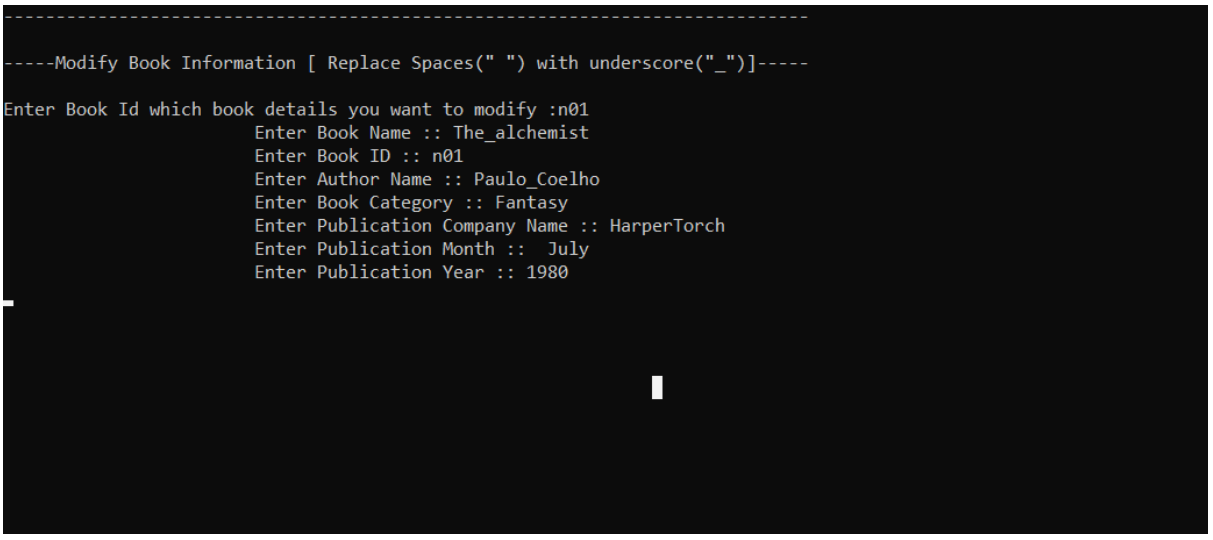
Snapshot :



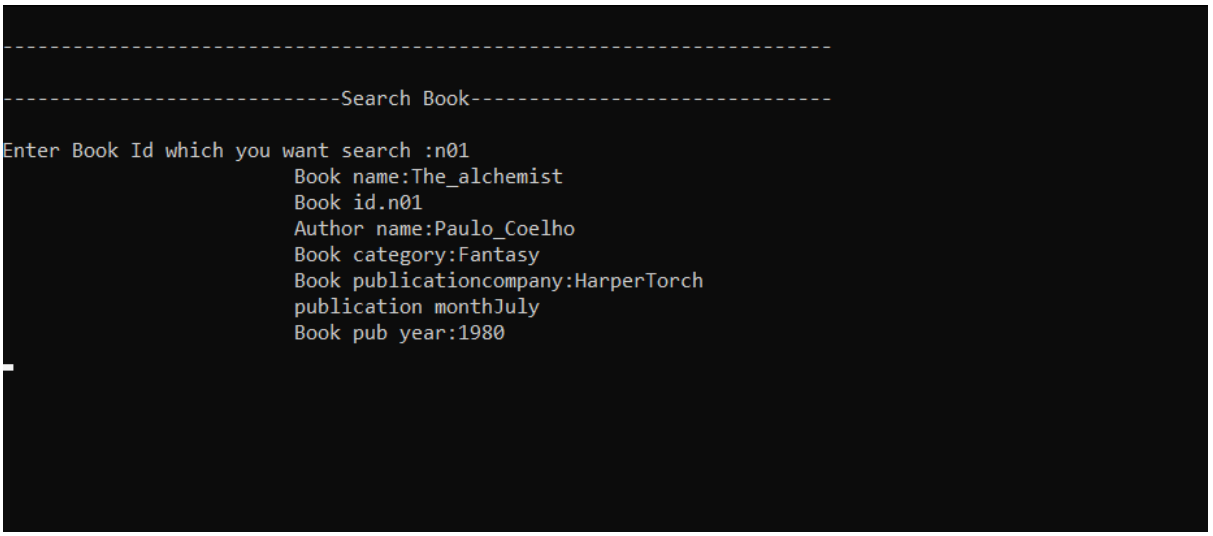
User Interface Id: 1.2
Interface Id. : UI 1.2
Use case Reference : This is display all books Interface
Snapshot:



User Interface Id: 1.3
Interface Id. : UI 1.3
Use case Reference : This is update books Interface
Snapshot :



User Interface Id: 1.4
Interface Id. : UI 1.4
Use case Reference : This is search books Interface
Snapshot :



User Interface Id: 1.5
Interface Id. : UI 1.5
Use case Reference : This is delete book Interface
Snapshot :