

WEEK 7 - ASSIGNMENT 3

OOPS CONCEPTS

NOTE:

- No need to submit anywhere, just keep track of all the PDF you made in a specific folder.
- Compare your solution with the solution I'll provide, in case of doubts, kindly reach out to me.
- You may get assignment solution in format of PDF or VIDEO solution, depending on the difficulty level.

MINI PROJECT 1**Library Management System****Objective:**

Create a console-based library management system using object-oriented programming concepts in Python.

Task Description:

You are required to develop a Python program for a library management system. The system should allow users to perform various operations such as adding books to the library, searching for books by ISBN, checking the quantity of available books, and renting books.

Requirements:

Implement a Book class with the following attributes:

- isbn (International Standard Book Number)
- name
- price
- quantity
- is_rented (boolean)

Create a list named **library** to store instances of books.

Implement a menu-driven interface with the following options:

- add_book: Add a book to the library
- search_book: Search for a book by ISBN
- check_quantity: Check the quantity of a book
- rent_book: Rent a book
- display_books: Display all books in the library
- exit_program: Exit the program

Provide appropriate error handling for invalid inputs and edge cases.

Ensure that the program maintains the state of the library (i.e., updates book quantities and rental status accordingly).

Bonus (Optional):

Implement additional features such as returning rented books, displaying rented books, or any other functionality you deem relevant to enhance the system.

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Welcome to the Library Management System!

1. Add a book
2. Search for a book
3. Check book quantity
4. Rent a book
5. Display all books
6. Exit

Enter your choice: 1

Enter ISBN: 978-3-16-148410-0
Enter name: Python Programming
Enter price: 25.99
Enter quantity: 10
Book added successfully!

Enter your choice: 2

Enter ISBN to search: 978-3-16-148410-0

Book found:
ISBN: 978-3-16-148410-0
Name: Python Programming
Price: $25.99
Quantity: 10
Status: Available

Enter your choice: 3

Enter ISBN to check quantity: 978-3-16-148410-0

Quantity available: 10

Enter your choice: 4

Enter ISBN to rent: 978-3-16-148410-0

Book rented successfully!

Enter your choice: 5

Books in the library:
1. ISBN: 978-3-16-148410-0, Name: Python Programming, Price: $25.99, Quantity: 9, Status: Rented

Enter your choice: 6

Exiting the program...

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MINI PROJECT 2

Online Bookstore Management System

Objective:

Create a console-based online bookstore management system using a single class and advanced object-oriented programming concepts in Python.

Task Description:

You are tasked with developing a comprehensive Python program for managing an online bookstore. The system should allow users to perform various operations such as adding books to the inventory, searching for books by various criteria, handling customer orders, and managing the bookstore's sales data.

Requirements:

1. Implement a Bookstore class that will serve as the main controller for the online bookstore management system.
2. The Bookstore class should include the following attributes and methods:
 - a. **Attributes:**
 - i. **inventory:** A dictionary to store book information (ISBN as keys and book details as values).
 - ii. **sales_data:** A list to keep track of sales transactions.
 - b. **Methods:**
 - i. **add_book(isbn, name, author, price, quantity):** Add a new book to the inventory with the given ISBN, name, author, price, and quantity.
 - ii. **search_book(criteria):** Search for a book based on the given criteria (e.g., ISBN, name, author) and return matching book details.
 - iii. **update_quantity(isbn, new_quantity):** Update the quantity of a book in the inventory.
 - iv. **process_order(isbn, quantity, customer_name):** Process a customer order by updating the inventory and recording the transaction in the sales data.
 - v. **get_sales_report():** Generate a sales report showing total revenue, number of books sold, and other relevant information.
 - vi. **display_inventory():** Display the current inventory of books.

- vii. **display_sales_data():** Display the sales data including transaction details.
- c. Provide appropriate error handling for invalid inputs and edge cases.
- d. Ensure that the program maintains the integrity of the inventory and sales data.

Bonus (Optional):

Implement additional features such as:

- Removing books from the inventory.
- Tracking customer accounts and order history.
- Implementing discounts and promotions.

Welcome to the Online Bookstore Management System!

1. Add a new book to the inventory
2. Search for a book
3. Update book quantity
4. Process customer order
5. Generate sales report
6. Display current inventory
7. Display sales data
8. Exit

Enter your choice: 1

Enter ISBN: 978-3-16-148410-0

Enter book name: Python Programming

Enter author name: John Smith

Enter price: 25.99

Enter quantity: 10

Book added successfully!

Enter your choice: 2

Search by (ISBN/name/author): author

Enter author name: John Smith

Matching books:

ISBN: 978-3-16-148410-0

Name: Python Programming

Author: John Smith

Price: \$25.99

Quantity: 10

Enter your choice: 3

Enter ISBN to update quantity: 978-3-16-148410-0

Enter new quantity: 5

Quantity updated successfully!

Enter your choice: 4

Enter ISBN: 978-3-16-148410-0

Enter quantity: 2

Enter customer name: Alice

Order processed successfully!

Enter your choice: 5

Sales Report:

Total revenue: \$51.98

Total books sold: 2

Enter your choice: 6

Current Inventory:

ISBN: 978-3-16-148410-0, Name: Python Programming, Author: John Smith, Price: \$25.99, Quantity: 3

Enter your choice: 7

Sales Data:

1. Transaction ID: 1, ISBN: 978-3-16-148410-0, Quantity: 2, Customer: Alice

Enter your choice: 8

Exiting the program...

