Library Inventory Manager - Project Report

1. Introduction

This project provides a command-line based library management tool developed using Python, Object-Oriented Programming principles, JSON file handling, and logging.

2. Objectives

• Implement OOP based class design
• Manage book records using JSON storage
• Create a menu-driven CLI
• Include logging and exception handling

3. Technologies Used

Python, JSON, pathlib, logging

4. CLI Menu

1. Add Book
2. Issue Book
3. Return Book
4. View All Books
5. Search Book
6. Exit

5. Data Storage

Book records are stored in data/books.json using JSON format.

6. Logging

Logging activities are stored in library.log

7. Screenshots

Below are the execution and file screenshots of the project:

```
(base) mohittanwar@Mohits-MacBook-Air library-inventory-manager-Mohit_Tanwar % python -m cli.main

==== Library Inventory Manager ====
1. Add Book
2. Issue Book
3. Return Book
4. View All Books
5. Search Book
6. Exit
Enter your choice: 
```

```
(base) mohittanwar@Mohits-MacBook-Air library-inventory-manager-Mohit_Tanwar % python -m cli.main
Enter your choice: 2
Enter ISBN of book to issue: 123
Book issued successfully.
Python 101 by Guido (ISBN: 123) - issued

==== Library Inventory Manager ====
1. Add Book
2. Issue Book
3. Return Book
4. View All Books
5. Search Book
6. Exit
Enter your choice: 3
Enter ISBN of book to return: 123
Book returned successfully.
Python 101 by Guido (ISBN: 123) - available
```

```
(base) mohittanwar@Mohits-MacBook-Air library-inventory-manager-Mohit_Tanwar % python -m cli.main

==== Library Inventory Manager ====
1. Add Book
2. Issue Book
3. Return Book
4. View All Books
5. Search Book
6. Exit
Enter your choice: 4
Python 101 by Guido (ISBN: 123) — available

==== Library Inventory Manager ====
1. Add Book
2. Issue Book
3. Return Book
4. View All Books
5. Search Book
```

```
(base) mohittanwar@Mohits-MacBook-Air library-inventory-manager-Mohit_Tanwar % python -m cli.main
6. Exit
Enter your choice: 5
Search by:
1. Title
2. ISBN
Enter choice: 2
Enter ISBN to search: 123
Python 101 by Guido (ISBN: 123) — available

==== Library Inventory Manager ====
1. Add Book
2. Issue Book
3. Return Book
4. View All Books
5. Search Book
6. Exit
Enter your choice: 6
```

```
(base) mohittanwar@Mohits-MacBook-Air library-inventory-manager-Mohit_Tanwar % python -m cli.main
Search by:
1. Title
2. ISBN
Enter choice: 2
Enter ISBN to search: 123
Python 101 by Guido (ISBN: 123) - available

==== Library Inventory Manager ====
1. Add Book
2. Issue Book
3. Return Book
4. View All Books
5. Search Book
6. Exit
Enter your choice: 6
Exiting... Goodbye!
(base) mohittanwar@Mohits-MacBook-Air library-inventory-manager-Mohit_Tanwar % %
```

data > {} books.json > ...

```json
1   [
2       {
3           "title": "Python 101",
4           "author": "Guido",
5           "isbn": "123",
6           "status": "available"
7       }
8   ]
```

EXPLORER

LIBRARY-INVENTORY...

- cli
  - __pycache__
  - main.py
- data
  - books.json
- library_manager
- .gitignore
- library.log
- README.md
- requirements.txt

OUTLINE

No symbols found in document 'library.log'

TIMELINE

library.log · books.json · requirements.txt · .gitignore · README.md

library.log

```
1   2025-12-04 11:35:13,524 – INFO – Application started.
2   2025-12-04 11:35:13,524 – INFO – Data file not found. Starting with an empty ca
3   2025-12-04 11:43:11,026 – INFO – Book added: Python 101 by Guido (ISBN: 123) – a
4   2025-12-04 11:43:11,028 – INFO – Catalog saved successfully.
5   2025-12-04 11:48:36,017 – INFO – Catalog saved successfully.
6   2025-12-04 11:49:06,114 – INFO – Catalog saved successfully.
7   2025-12-04 11:49:40,357 – INFO – Application exited by user.
8   2025-12-04 12:07:57,162 – INFO – Application started.
9   2025-12-04 12:07:57,162 – INFO – Catalog loaded successfully.
10  2025-12-04 12:09:39,880 – INFO – Catalog saved successfully.
11  2025-12-04 12:09:53,257 – INFO – Catalog saved successfully.
12  2025-12-04 12:10:10,244 – INFO – Application exited by user.
13
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   zsh

Exiting... Goodbye!
(base) mohittanwar@Mohits-MacBook-Air library-inventory-manager-Mohit_Tanwar % %

teammate-update*   ⊗ 0 ⚠ 0   Ln 13, Col 1   Spaces: 4   UTF-8   LF   {} Log

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LIBRARY-INVENTORY...

- cli
  - __pycache__
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- library_manager
- .gitignore
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- requirements.txt