

Library Management System – FinalExam2

Create a Java program that manages library items from files and produces reports.

1. Create FileLoader class that accepts a filename in the constructor and has a readLines() method. (5 marks)
2. Create abstract class LibraryItem with attributes title, author, and year. Provide getters/setters. (5 marks)
3. Create Book extending LibraryItem with attribute pages. (5 marks)
4. Create Magazine extending LibraryItem with attribute issueNumber. (5 marks)
5. Create DVD extending LibraryItem with attribute durationMinutes. (5 marks)
6. Create interface IBorrowable with method borrowScore() returning int. Implement in subclasses:
 - Book: pages / 100
 - Magazine: issueNumber
 - DVD: durationMinutes / 10 (5 marks)

Main Program:

- Read from books.txt, magazines.txt, dvds.txt. Save in Map<String, ArrayList<LibraryItem>>. (5 marks)
1. Calculate average borrowScore per item type, output to files. (15 marks)
 2. Find top 10 items with highest borrowScore, output to file. (10 marks)
 3. Find items published in 2024 with borrowScore > 20. Save to file. (10 marks)
 4. Apply **Builder pattern** to construct new Book objects. (10 marks)
 5. Find the item with the max borrowScore:
 - (i) Sequential solution (10 marks)
 - (ii) Parallel solution with threads (20 marks)