

Enhanced Library Management System
Analysis and Design Document

Student: Boros Hanniel

Group: 30432

Library Management System	Version: 1.0
	Date: <04/04/2018>
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Revision History

Date	Version	Description	Author
04/04/2018	1.1	Writing Elaboration	Boros Hanniel

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I. Project Specification

II. Elaboration – Iteration 1.1

Below I present the Data Model IR diagram. This was used to represent and model the data of the application. There are eleven (11) tables: nine (9) of them for direct data storage (users, admins, members, books, authors, publishers, sectors, genres, ebooks) and the other two (2) for relationships (they model a one-to-many \Leftrightarrow many-to-one relationship: member_book and book_genre).

The Domain Model showing the main classes and the relationships between them.

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2. Architectural Design

2.1 Conceptual Architecture

The architectural pattern used for this project is the Layers architecture pattern, otherwise known as the n-tier architecture pattern. This architectural pattern helps us to structure applications that can be decomposed into groups of subtasks in which each group of subtasks is at a particular level of abstraction.

For this project I consider that this is the most convenient architectural pattern.

Presentation layer

This layer contains the user oriented functionality responsible for managing user interaction with the system, and generally consists of components that provide a common bridge into the core business logic encapsulated in the business layer.

Business layer

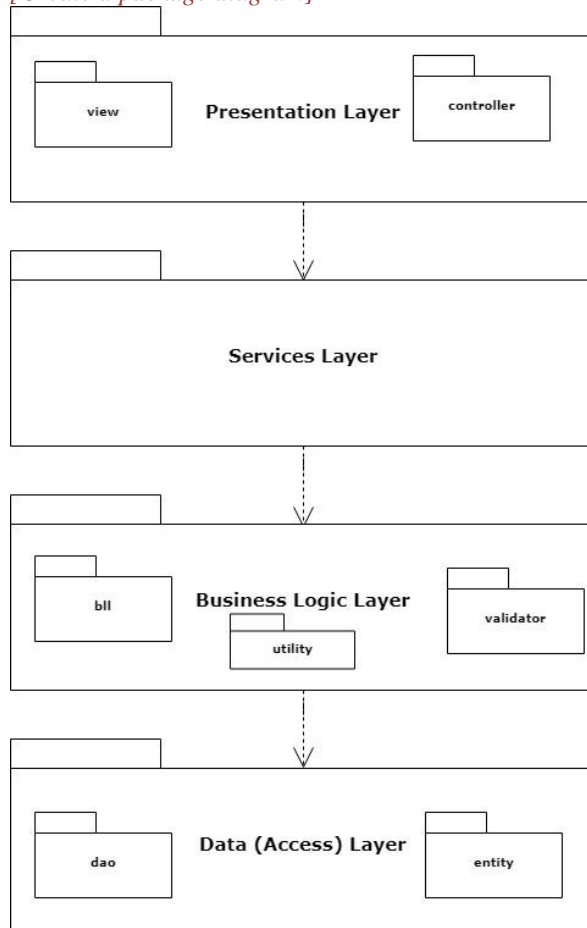
This layer implements the core functionality of the system, and encapsulates the relevant business logic. It generally consists of components, some of which may expose service interfaces that other callers can use.

Data layer

This layer provides access to data hosted within the boundaries of the system, and data exposed by other networked systems. The data layer exposes generic interfaces that the components in the business layer can consume.

2.2 Package Design

[Create a package diagram]

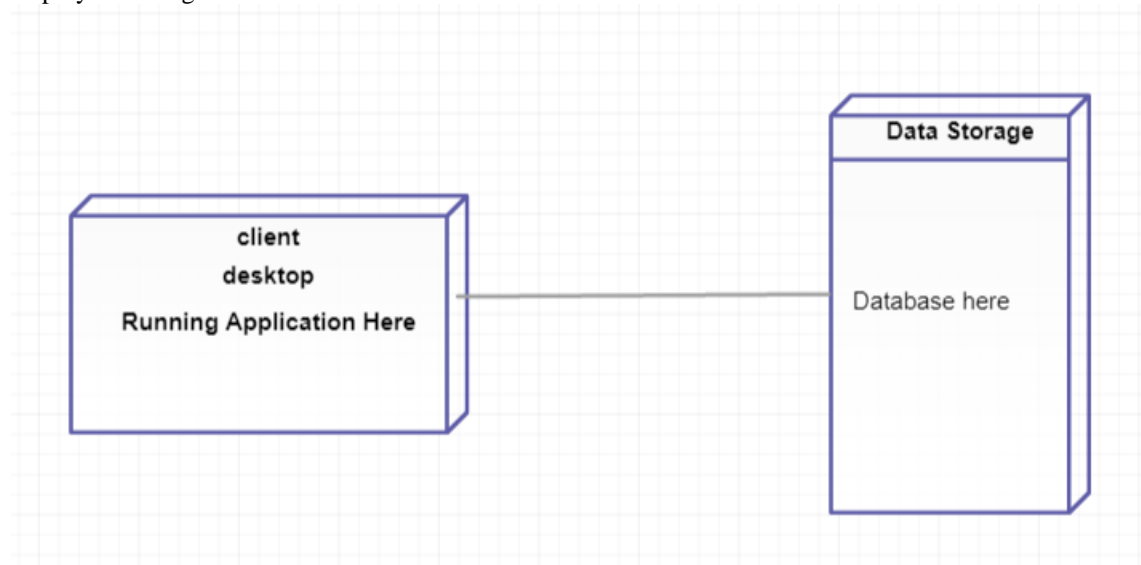


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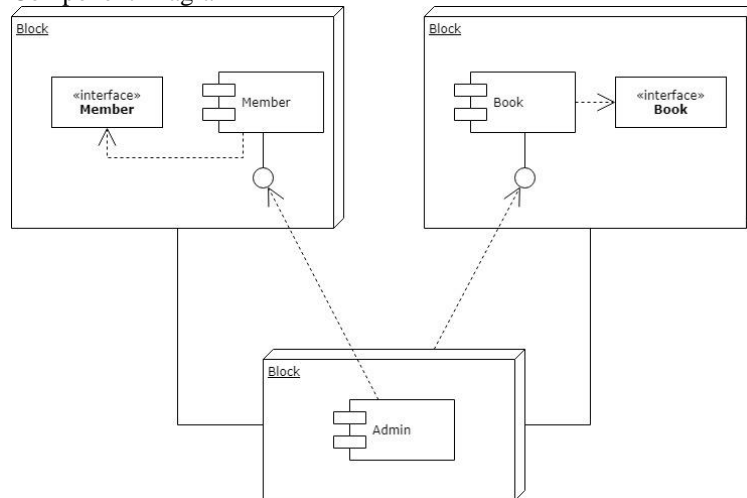
2.3 Component and Deployment Diagrams

[Create the component and deployment diagrams.]

Deployment diagram



Component Diagram



III. Elaboration – Iteration 1.2

1. Design Model

1.1 Dynamic Behavior

[Create the interaction diagrams (1 sequence, 1 communication diagrams) for 2 relevant scenarios]

1.2 Class Design

[Create the UML class diagram; apply GoF patterns and motivate your choice]

2. Data Model

[Create the data model for the system.]

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3. Unit Testing

[Present the used testing methods and the associated test case scenarios.]

IV. Elaboration – Iteration 2

1. Architectural Design Refinement

[Refine the architectural design: conceptual architecture, package design (consider package design principles), component and deployment diagrams. Motivate the changes that have been made.]

2. Design Model Refinement

[Refine the UML class diagram by applying class design principles and GRASP; motivate your choices. Deliver the updated class diagrams.]

V. Construction and Transition

1. System Testing

[Describe how you applied integration testing and present the associated test case scenarios.]

2. Future improvements

[Present future improvements for the system]

VI. Bibliography