

**Architecture Design**  
**Online Book Store**  
**Phase-II**

Submitted in partial fulfillment of the requirements of the degree of  
Master of Software Engineering

**Vamsi Krishna Mummaneni**

CIS 895 – MSE Project  
Kansas State University

Committee Members

Dr. Torben Amtoft (Major Professor).

Dr. Dan Andresen.

Dr. Mitchell L. Neilsen.

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## **1. Introduction**

The purpose of this document is to provide an architectural design for the Online Book Store. The design will show the presentation tier, the middle tier consisting of classes, sequence diagrams, and the data tier consisting of the database design diagram.

## **2. Architecture**

Three-tier (layer) is a client-server architecture in which the user interface, business process (business rules) and data storage and data access are developed and maintained as independent modules or most often on separate platforms.

The Architecture of Online Book Store is based on three-tier architecture. The three logical tiers are

- Presentation tier - ASP.NET Web forms, Master Pages, Images.
- Middle tier – C# classes.
- Data tier- Database

Fig.1 below shows the model of 3-tier architecture.

The main reason for considering three-tier architecture for the Online Book store is as follows:

### **Flexibility:**

- Management of data is independent from the physical storage support,
- Maintenance of the business logic is easier,
- Migration to new graphical environments is faster.
- If there is a minor change in the business logic, we don't have to install the entire system in individual user's PCs.

### **Reusability:**

- Reusability of business logic is greater for the presentation layer. As this component is developed and tested, we can use it in any other project and would be helpful for future use.

### **Team Work:**

- Team work is optimized.

## Security:

- More secured architecture since the client cannot access the database directly.

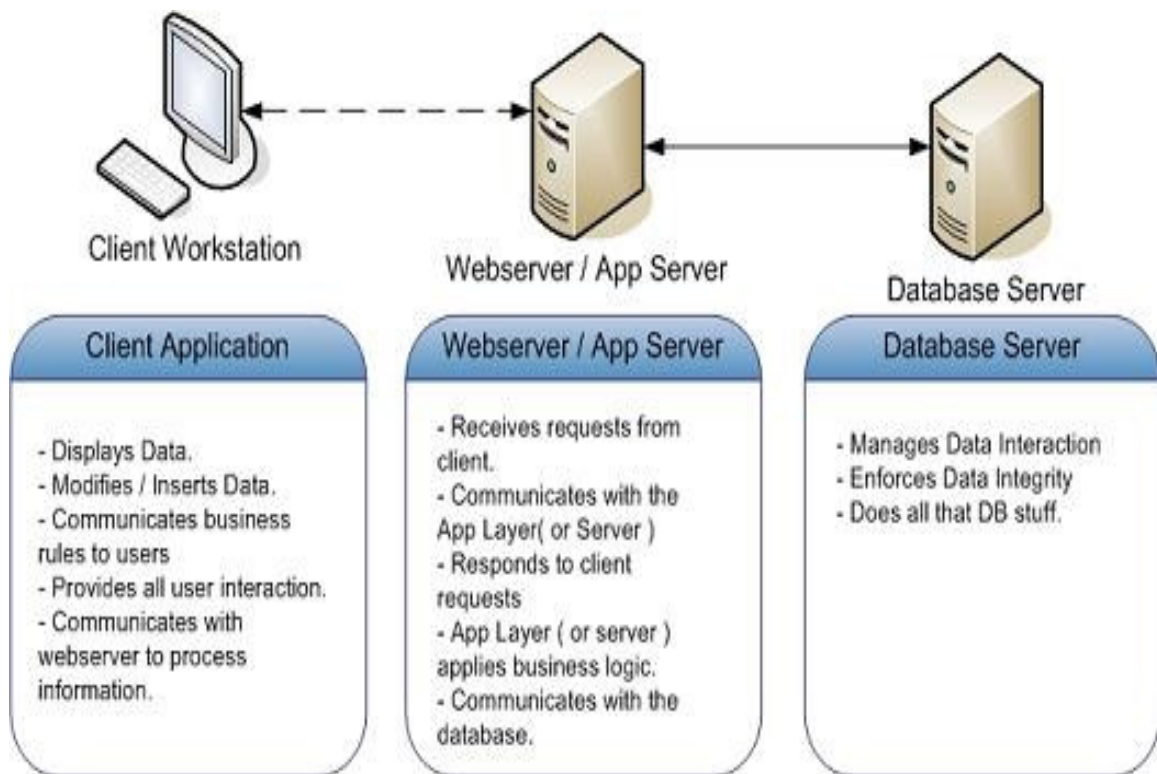


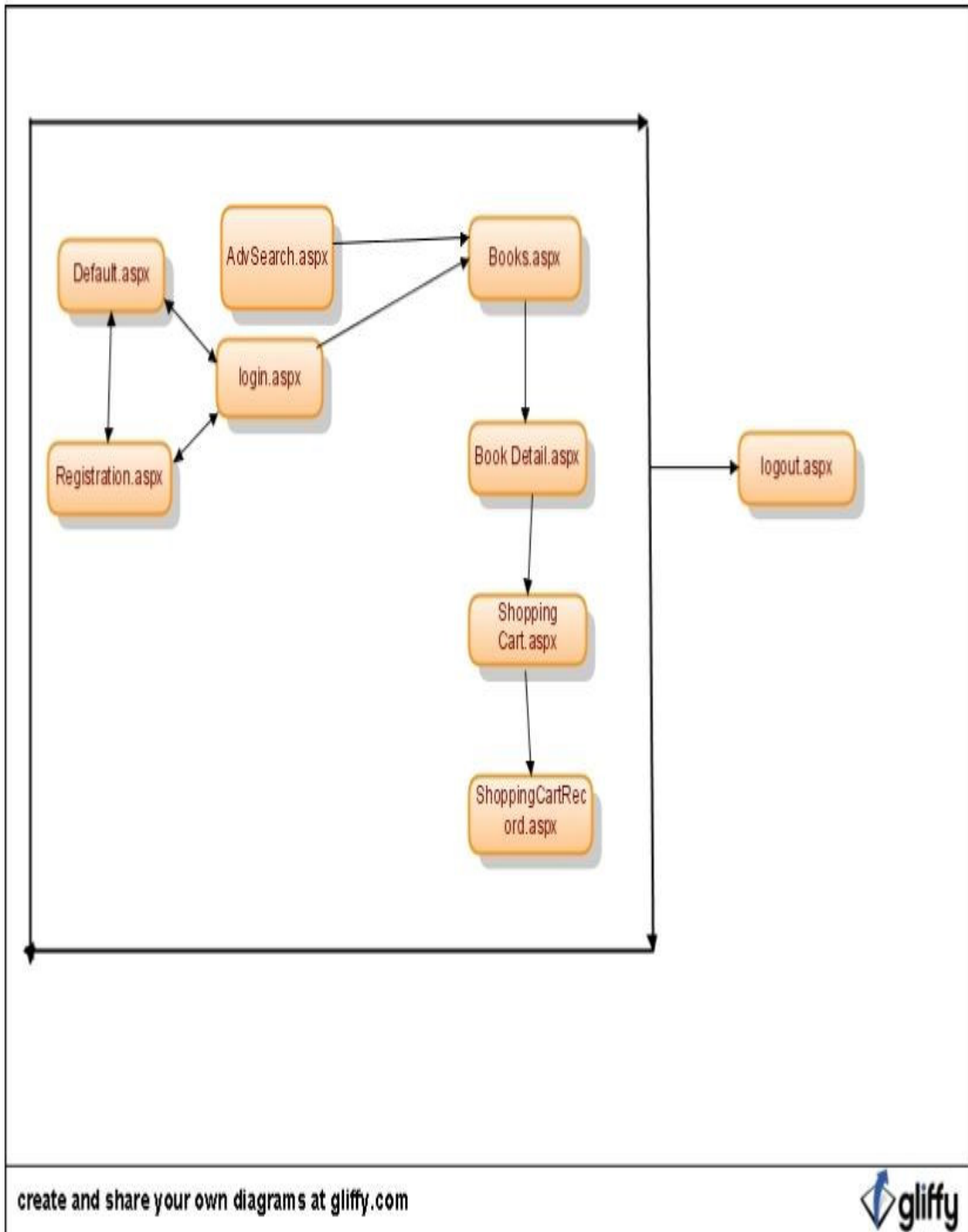
Fig.1 3-tier Architecture

### 3. Presentation tier

The presentation tier for the Online Book Store is ASP.NET Web Forms with Master Pages. The presentation tier takes care of the user interaction and the visual part of the website. The various Web forms used by clients are listed below.

<b>ASP.NET Web Forms</b>	<b>Definition</b>
Default.aspx	This web page is used to browse the entire website and also displays different categories, offers available
Registration.aspx	This web page is used by a new user to register his personal information.
Login.aspx	This web page is used for a user to login and enter the website.
Logout.aspx	This web page is used for a user to logout from the website
Books.aspx	This web page is used to search for books and displays books which matched the search criteria..
Advsearch.aspx	This web page is used to display an advanced search to find books.
BookDetail.aspx	This web page is used for displaying all the details of a book.
ShoppingCart.aspx	This web page is used to display the shopping cart and user information details.
ShoppingCartRecord.aspx	This web page is used to edit shopping cart.

The diagram below captures the page flow for user in the Online Book Store System.



**Fig.2 User-Page Flow**

The various Web forms used by Administrator are listed below.

<b>ASP.NET Web Forms</b>	<b>Definition</b>
Login.aspx	This web page is used for an Administrator to login and enter the website.
AdminMenu.aspx	The webpage displays the menu of the Administrator
MembersGrid.aspx	The web page displays the members list
MembersInfo.aspx	The web page displays the members personal information
MembersRecord.aspx	The web page is used to edit and update members information
OrdersGrid.aspx	The web page displays the orders list.
OrdersRecord.aspx	The web page is used to edit and update orders information
AdminBooks.aspx	The web page displays the books list.
BookMaint.aspx	The web page is used to edit and update book information
CategoriesGrid.aspx	The web page displays the members list
CategoriesRecord.aspx	The web page is used to edit and update Categories information
CardtypesGrid.aspx	The web page displays the members list
CardtypesRecord.aspx	The web page is used to edit and update Credit Card information
Logout.aspx	This web page is used for an Administrator to logout from the website

The diagram below captures the page flow for Administrator in the Online Book Store System

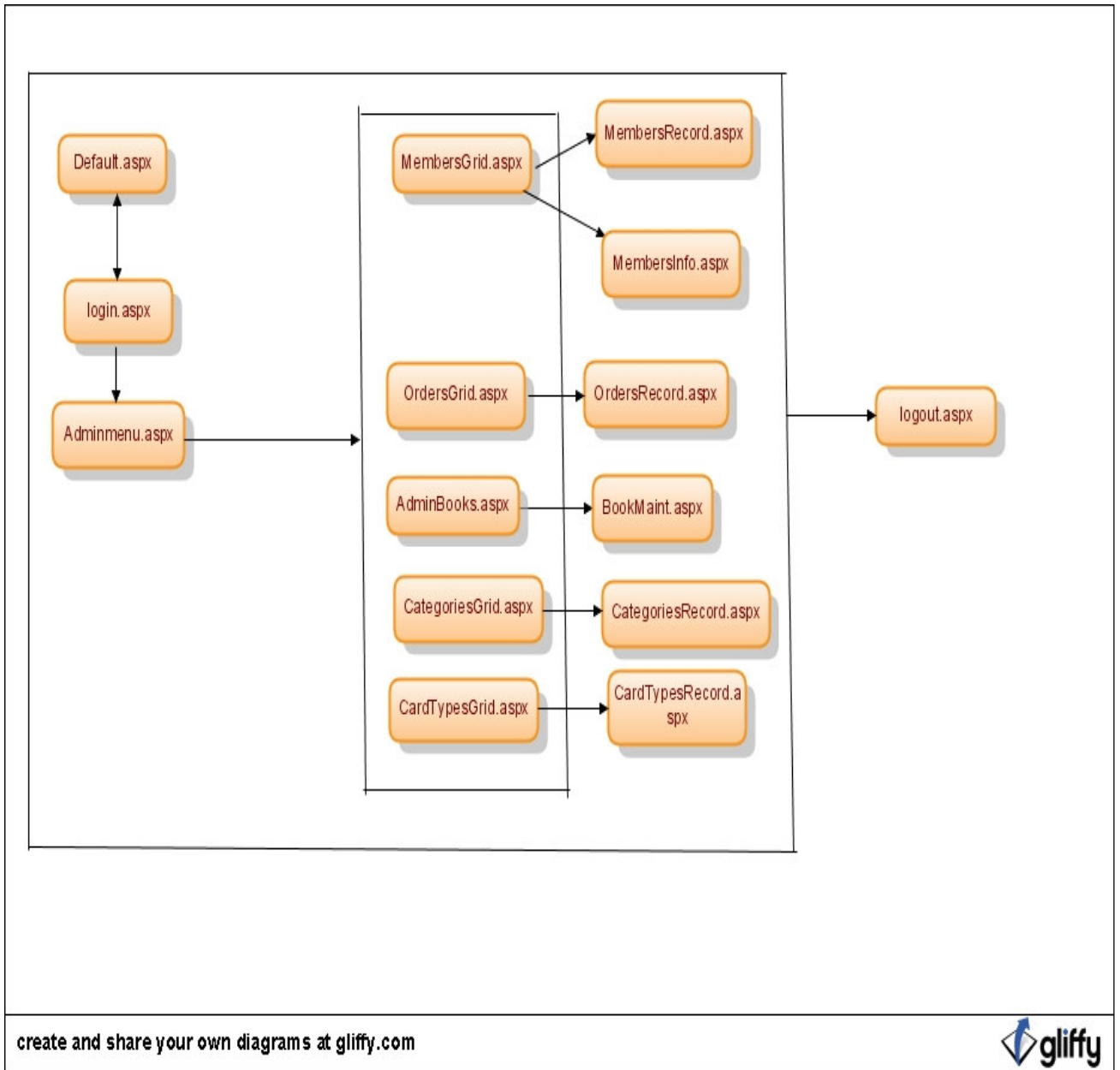


Fig.3 Administrator-Page Flow

#### 4. Middle Tier

The Middle Tier or Business Logic layer consists of eleven classes User, Customer, Adminstrator, SessionManager, Category, BookSet, Book, BooksOrder, Search, Advanced Search and Shopping Cart.

#### Class Diagram

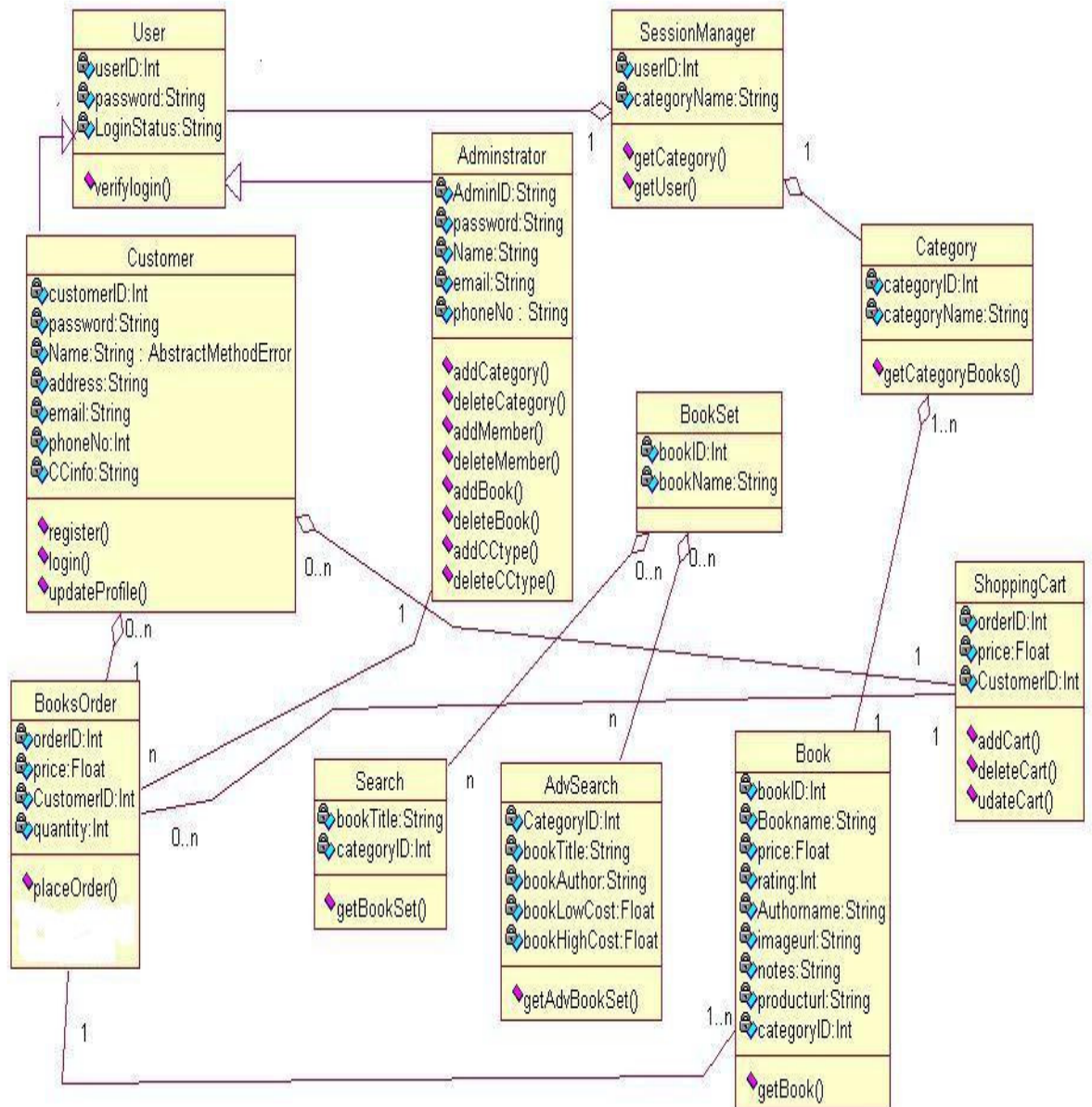


Fig.4 Class Diagram

## Sequence Diagrams

### 1) User Login

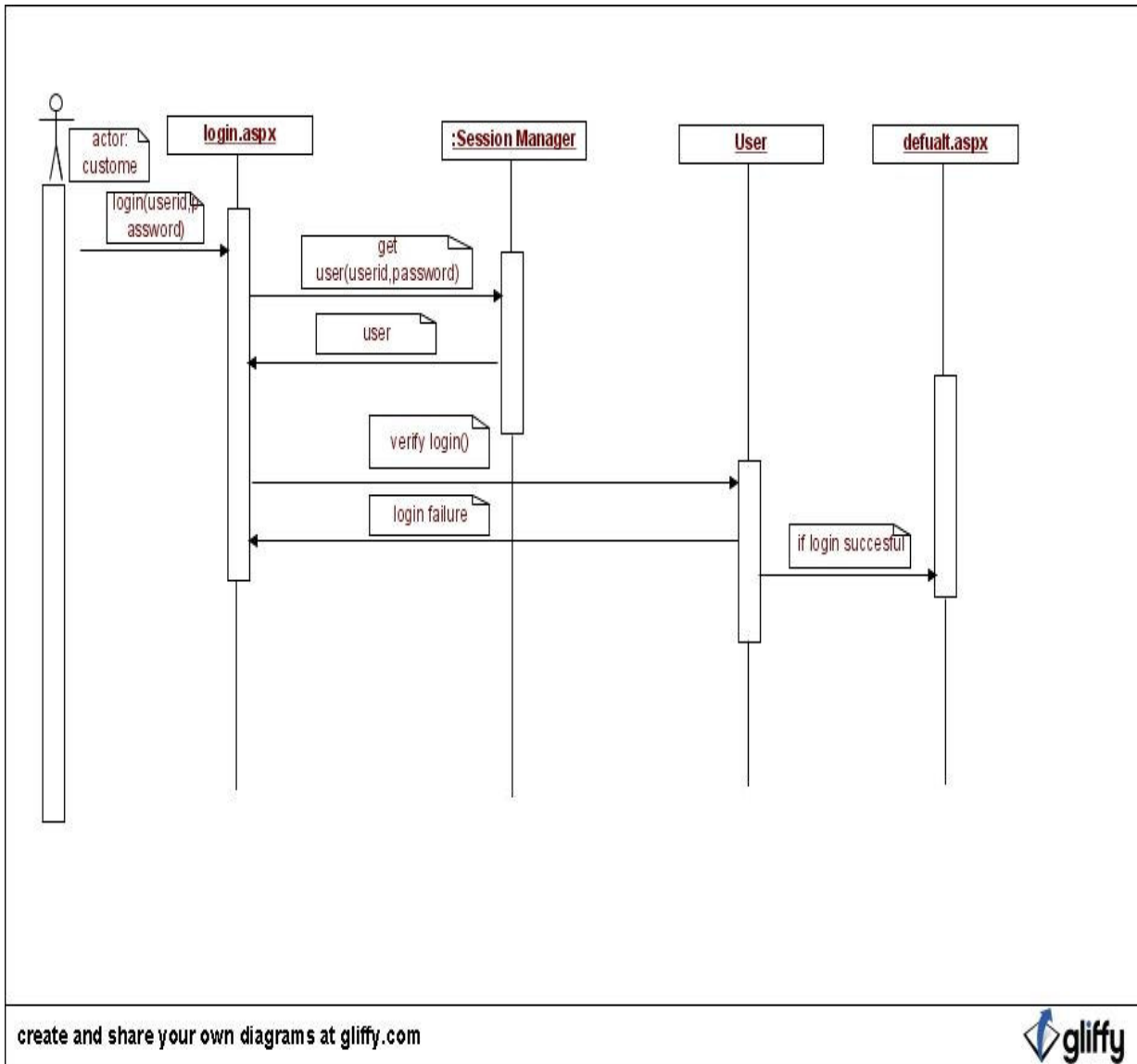


Fig.5 User-Login Sequence Diagram

## 2) Book Search

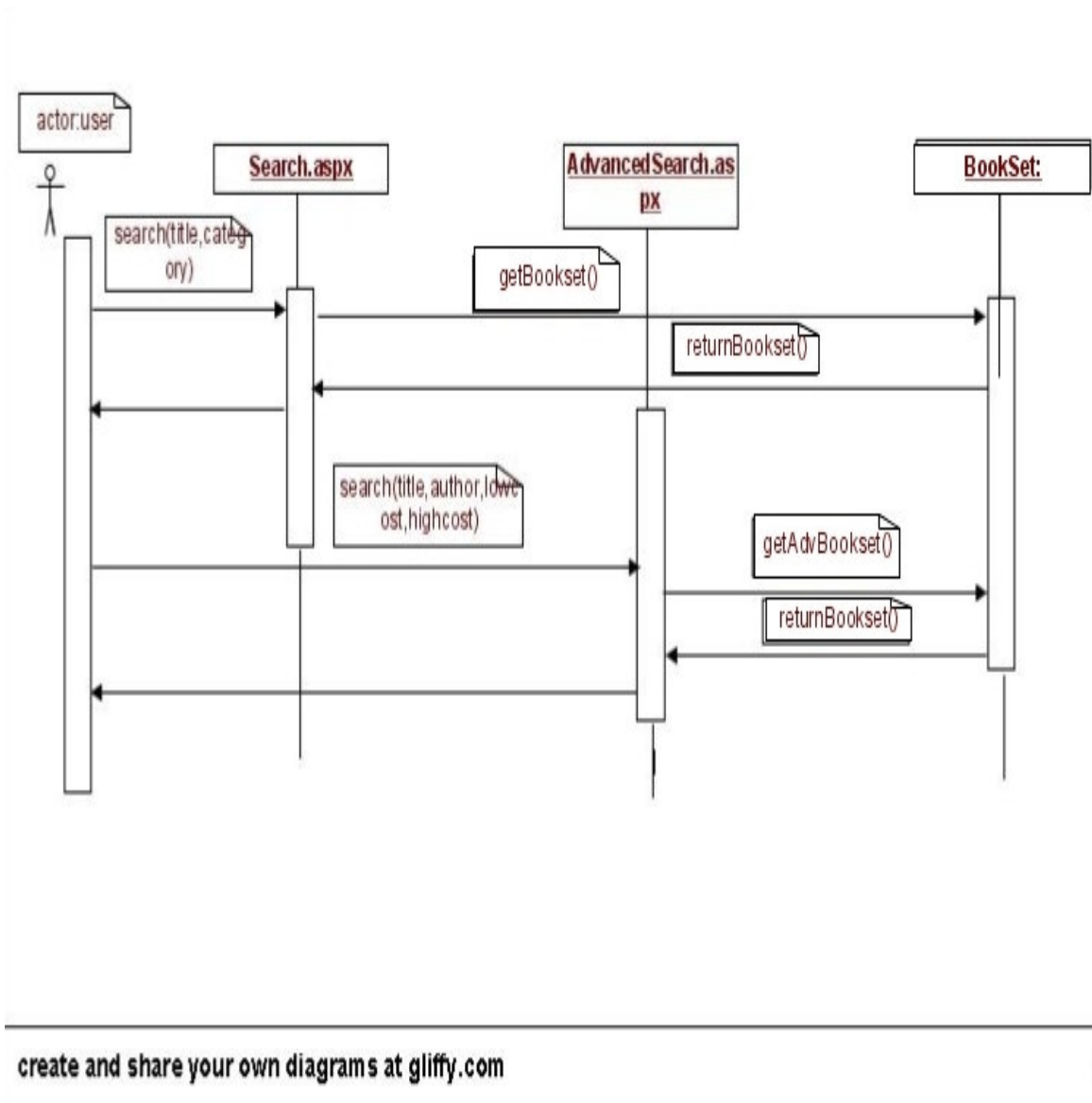


Fig.6 User-Book Search Sequence Diagram

### 3) Add to shopping cart

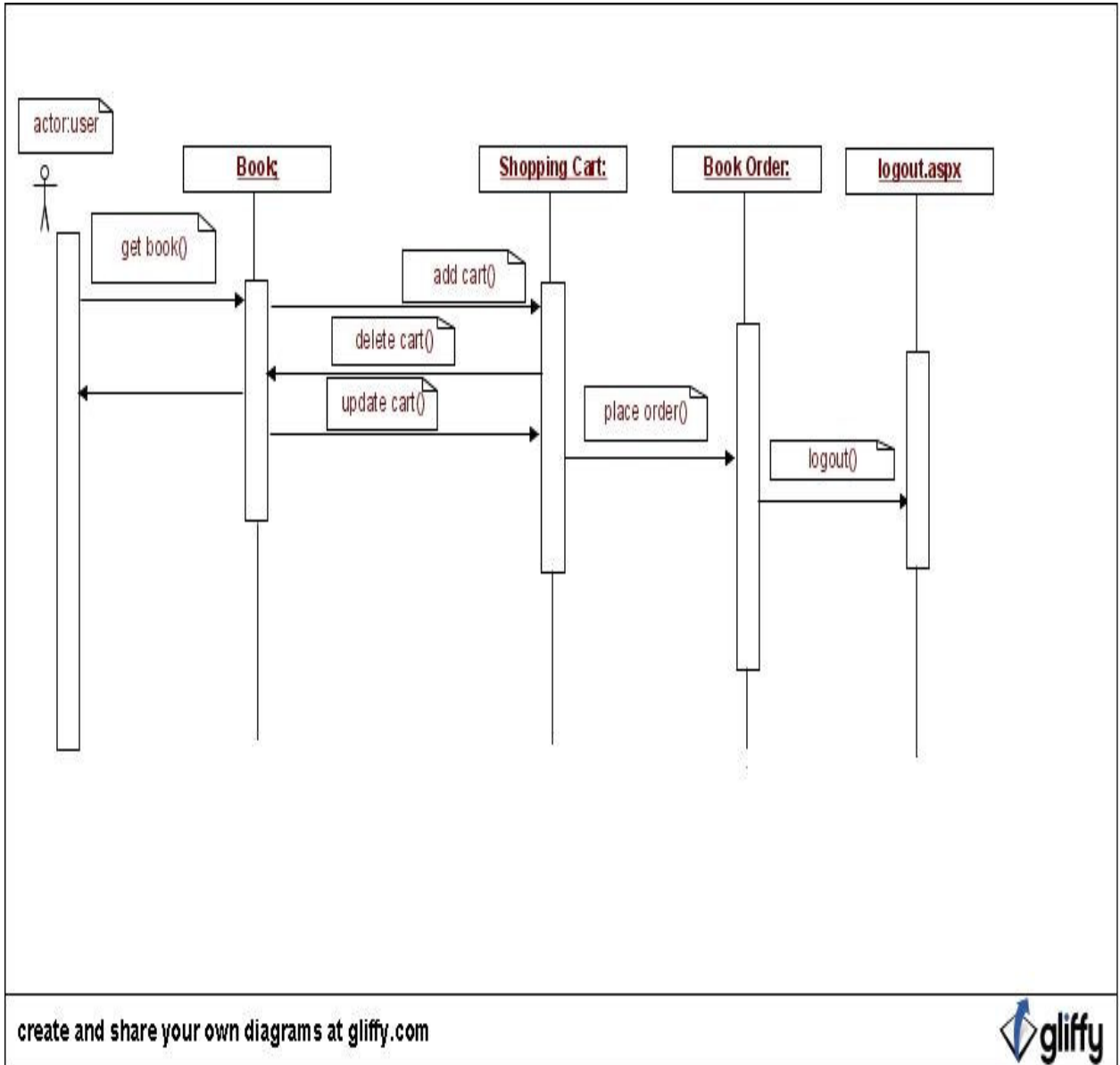


Fig.8 User-Add to Cart Sequence Diagram

#### 4) Administrator

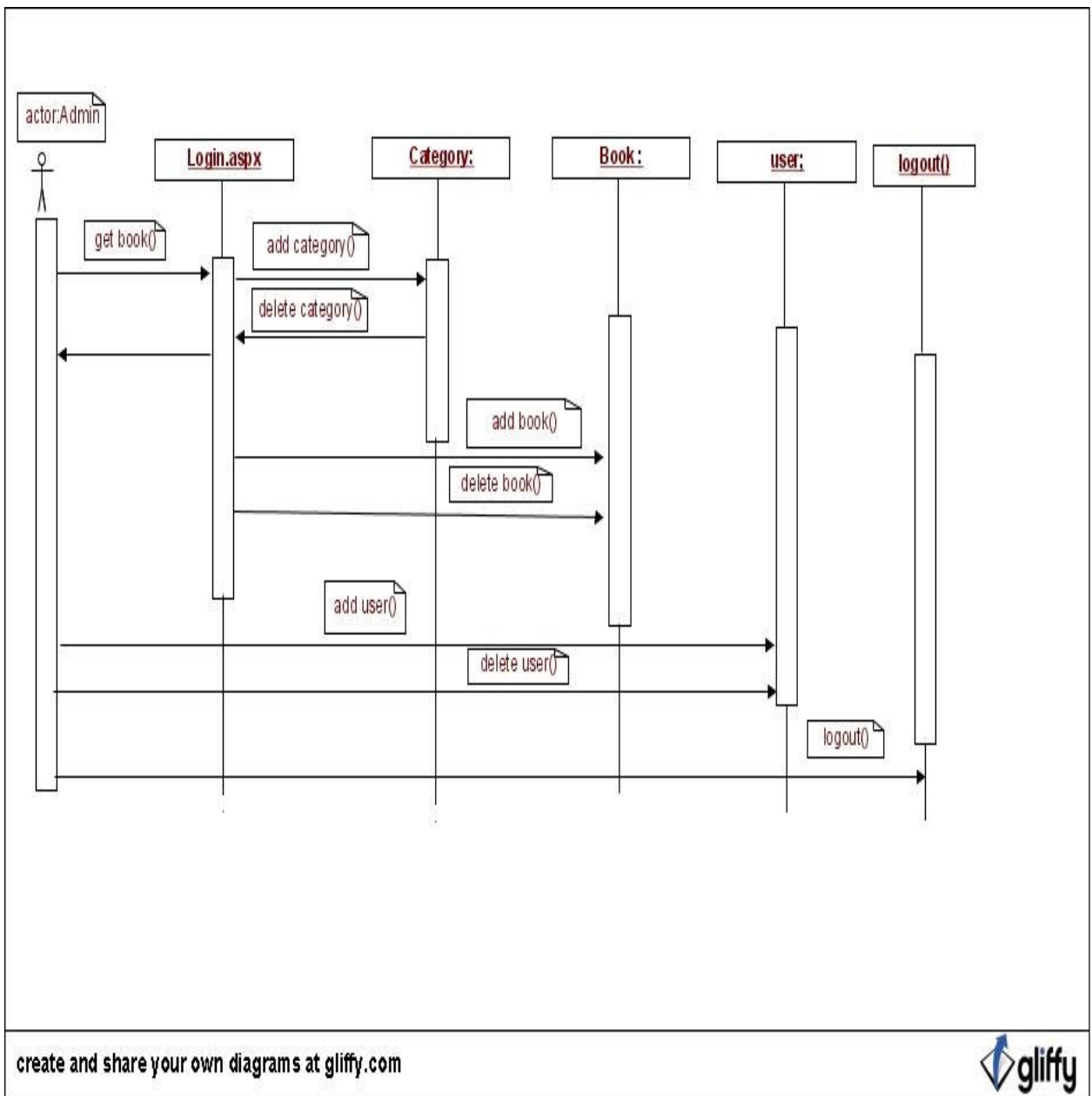
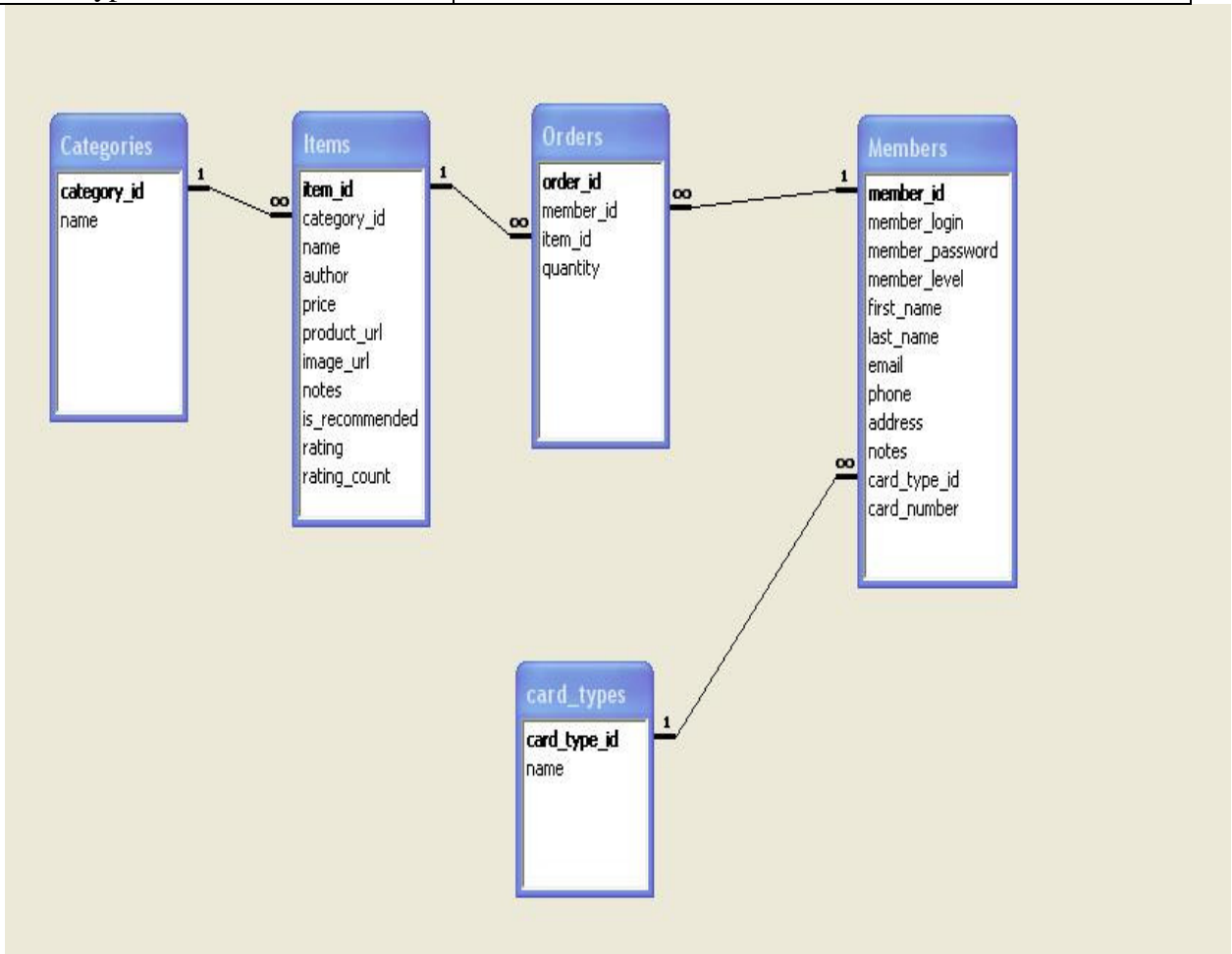


Fig.9 Administrator- Sequence Diagram

#### 4. Data Tier

The system database has five tables Categories, Items, Orders, Members and Card types. The system database design is shown below.

Table Name	Definition
Categories	Contains the Book Categories Information
Items	Contains the Book Information.
Members	Contains the Members Information
Orders	Contains the Book Orders Information
Card Types	Contains the Credit Card Information



## Fig.10 System Database Design

### References:

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2. [www.gliffy.com](http://www.gliffy.com)
3. [www.wikipedia.com](http://www.wikipedia.com)