

SE 560 Software Development Studio

Design Report

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1. INTRODUCTION	3
1.1 PURPOSE OF THIS DOCUMENT	3
1.2 PROBLEM DEFINITION	3
1.3 PROJECT SCOPE AND GOALS	3
1.4 DESIGN CONSTRAINTS	4
2. SYSTEM DESIGN	4
2.1 DATA DESIGN	4
2.1.1 DATA DICTIONARY	4
2.1.2 ENTITY RELATIONSHIP DIAGRAM	5
2.1.3 DATABASE DIAGRAM	7
3.2 ARCHITECTURAL DESIGN	7
3.3 USER INTERFACE DESIGN	8
3.3.1 WEB USER REGISTRATION USER INTERFACE	8
3.3.2 FIRM REGISTRATION USER INTERFACE	9
3.3.3 LOGIN USER INTERFACE	9
3.3.4 CINEMA INFORMATION USER INTERFACE	10
3.3.5 MOVIE INFORMATION USER INTERFACE	11
3.3.6 SALON INFORMATION USER INTERFACE	12
3. SYSTEM MODELING WITH UML	13
3.1. CLASS DIAGRAM	13
3.1.1 BUSSINESS LAYER CLASSES	13
3.1.2 DATAACCESS LAYER CLASS	14
3.1.3 TYPES LAYER CLASSES	15
3.2. ACTIVITY-SEQUENCE-COLLABORATION	31
3.2.1 ACTIVITY DIAGRAMS	31
3.2.2 SEQUENCE AND COLLOBORATION DIAGRAMS	34
Registration Sequence Diagram	34
Add Movie Sequence Diagram	35
Rate a Movie Collaboration Diagram	35
Make Reservation Collaboration Diagram	36
4. SCHEDULE	37

1. INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT

The purpose of this document is to define the design details of the A Web-based Cinema Reservation Application project .The main topics covered are, Description of the Project, Design and Application Overview, System Design Description and Modeling and finally the Project Schedule.

The information in this document is based on the requirements examined in Requirements Analysis Report.

1.2 PROBLEM DEFINITION

This project will be the development of a web-based application which serves mainly three kinds of user; Web User, Admin and the Cinema Owner. The system can be used to reserve seats offered by cinemas where cinema owner is able to

- define the schedule, seating plan and ticket prices beforehand;

and where web users are able to

- reserve/purchase or cancel their seats through a web client,
- search for movies in a given range from their current position,
- view movie details,
- rate movies;

and where admin

- approve cinema owner registrations, user ratings
- perform administrative operations like deleting, updating etc.

1.3 PROJECT SCOPE AND GOALS

The goal of this system is to provide each user a user friendly and efficient interface to manage cinema reservation issues. The main goal is to add a value on existing systems as states in requirements analysis report.

Scope of this work includes making a detailed design for the system, which consists of the following components; a login module, a ticket reservation module, and a cinema/movie information display module.

We have performed the system design in 3 parts:

- Data Design: consists of data dictionary and ER diagram which explain the main data in the system,
- Architectural Design: describes the structural information of main system modules and their interactions,
- Interface Design: mentions the basic user interfaces.

Other than system design parts, we tried to visualize our intended work by system modeling with UML diagrams. Finally the project schedule will demonstrate where we are now and what we will do for later progress.

1.4 DESIGN CONSTRAINTS

Development

Two PC or compatibles with the following configurations

- 1GB RAM
- 15GB Hard disk space
- Internet Connection
- MSSQL Server 2005
- Visual Studio 2008

Client Side

At client side, there is no specific constraint except having a computer capable of accessing internet

2. SYSTEM DESIGN

2.1 DATA DESIGN

2.1.1 DATA DICTIONARY

In this data dictionary, we aimed to describe the main and important data elements in order to not get into too many details. All the data elements can be seen in the Figure 1: Entity Relationship Diagram.

NAME	DATA TYPE	WHERE USED	COVERAGE DESCRIPTION
Username	Alphanumeric characters	In every activity	The unique identifier for each user for logging in.
Password	Alphanumeric characters	Registration, Login	The user defined data to verify login operation for each user.
Movie	A set of movie information	Movie adding, viewing,	Includes movie name, description, duration, actors etc.

	data	reservation	
Cinema	A set of cinema information data	Cinema adding, searching for a cinema	Includes cinema saloon, séance, seat, movie on play , etc.
Rating	Numeric	Movie rating	A numeric value from 1 to 10 given for a movie rating
Comment	Text	Movie commenting	A text describing a comment made about a movie.
Reservation Number	Numeric	Reservation	A unique number generated for a reservation
Validation	Boolean	Reservation and Ticket Buying	A value which indicates whether the given credit card information is valid or not.
Message	Text	In any activity	A general representation of any message shown to user during operations (error message, warning etc.)

Table 1 : Data Dictionary

2.1.2 ENTITY RELATIONSHIP DIAGRAM



2.1.3 DATABASE DIAGRAM

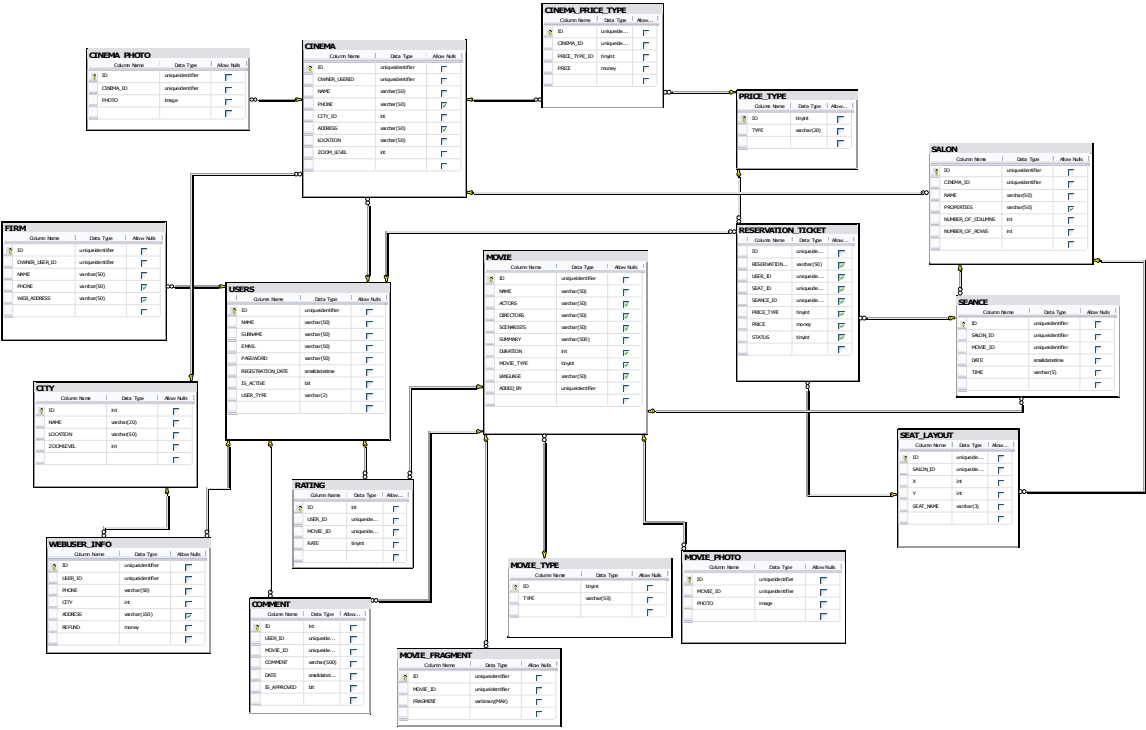


Figure 2 : Database Tables & Relationships

3.2 ARCHITECTURAL DESIGN

Project to be implemented will consist of a main part and a helper part. Main project part will have an n-tier architecture. Tiers are as follows:

- **Data Access Layer:** This layer is an interface between business calls and database management system. It contains connection objects and query functions to access and manipulate data on database.
- **Business Layer:** All of the business logic is in this layer. According to the data coming from presentation layer, the objects in this layer make necessary manipulations and operations on the data and passes it to Data Access layer or return results to presentation layer.
- **Presentation Layer:** Graphical User Interfaces are in this layer. Users of the system enter or display necessary information via these user interfaces. Presentation layer passes the entered data by user to the business layer to get operated.

Helper part of the project will be a service that will check the reservations and séance times and will delete expired reservations from the system. It will not

have a user interface. It will use Business Layer and Data Access Layer of the main part to perform the deletion operation.

Data Types: To achieve Object Relation Mapping (ORM) TypedDataSetGenerator class of the .NET Framework will be used. This class takes a database table schema as an input parameter and generates a typed DataSet class, which enables the manipulation of data at the database.

3.3 USER INTERFACE DESIGN

3.3.1 WEB USER REGISTRATION USER INTERFACE

Registration

Name

Surname

E-mail

Telephone

City

Ankara ▼

Ankara
İstanbul
İzmir
Samsun

Password

Confirm Password

[Log Out](#)

3.3.2 FIRM REGISTRATION USER INTERFACE

Firm Registration

Firm Name

Owner Name

Owner Surname

E-mail

Telephone

Web Address

Password

Confirm Password

Register

[Log Out](#)

3.3.3 LOGIN USER INTERFACE

Login

e-mail

Password

Login

[If you forgot your password, click here.](#)

[Log Out](#)

3.3.4 CINEMA INFORMATION USER INTERFACE

Cinema Information

Your Cinemas

- [Select](#) Armada Avşar
- [Select](#) CEPA Cinebonus
- [Select](#) Panora
- [Select](#) Bilkent Cinebonus---
- [Select](#) AFM Ankamall

Name

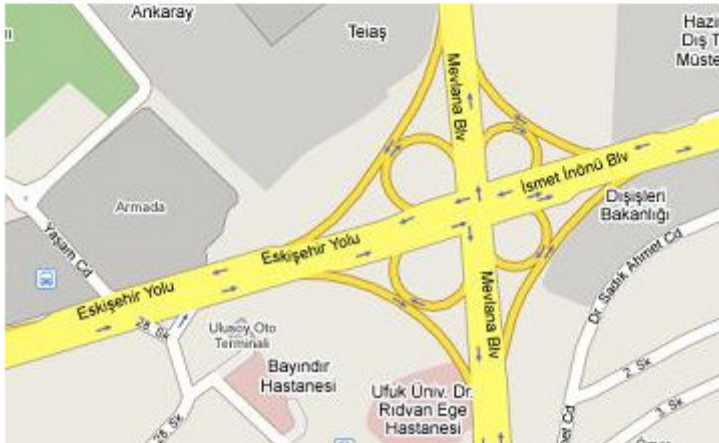
Telephone

City

Ankara ▾

Address

Location



3.3.5 MOVIE INFORMATION USER INTERFACE

Movie Information

Movies that you added

[Select](#) Osmanlı Cumhuriyeti
[Select](#) A.R.O.G.

Movie Name

Actors

Director

Scenarist

Summary

Duration

Type

Action ▼

Language

Photos

Fragments

3.3.6 SALON INFORMATION USER INTERFACE

Salon Information

Salons at your Cinemas

Select	Avşar Armada - Salon 2
Select	Cinebonus CEPA - Salon 2
Select	Cinebonus CEPA - Salon 1
Select	Avşar Armada - Salon 1

Salon Name

Cinema

Salon Properties

Number of Columns

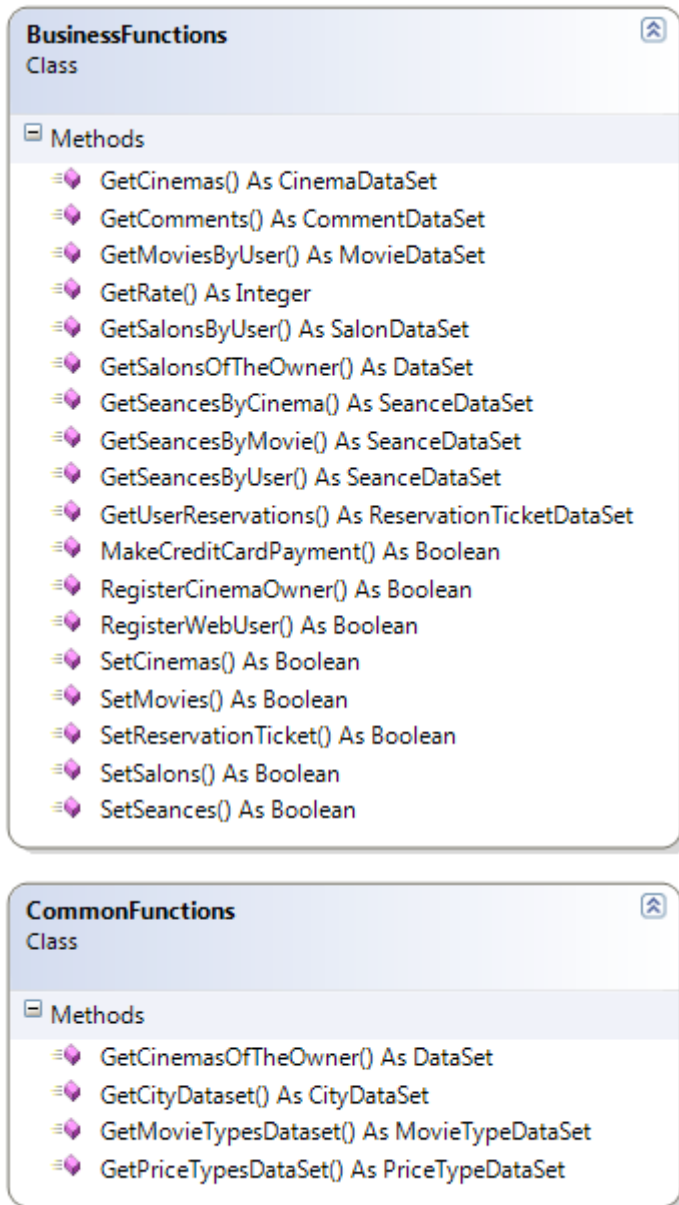
Number of Rows

[Log Out](#)

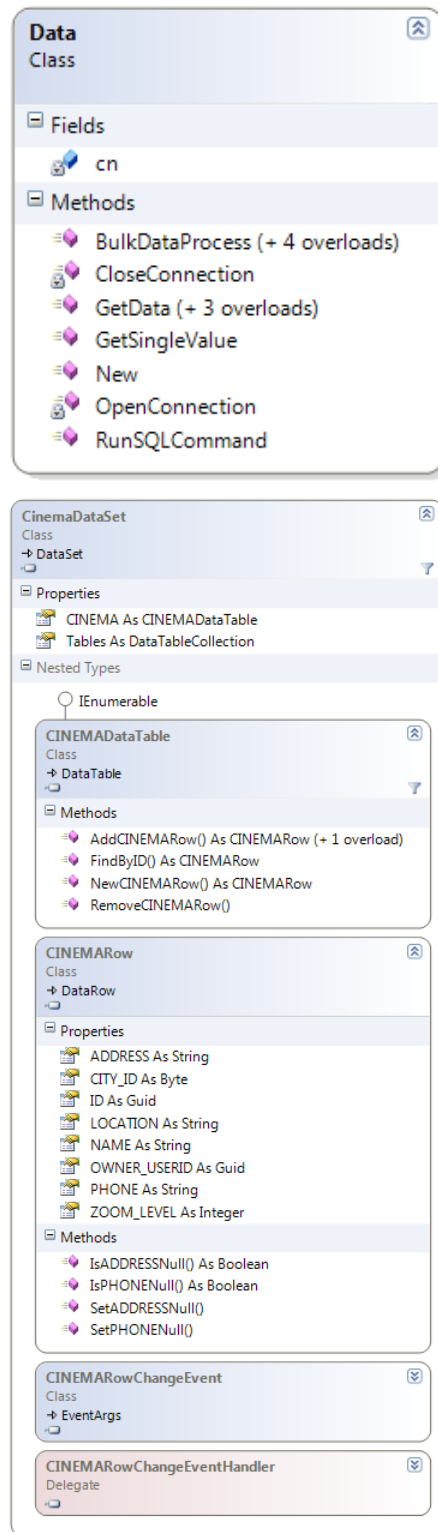
3. SYSTEM MODELING WITH UML

3.1. CLASS DIAGRAM

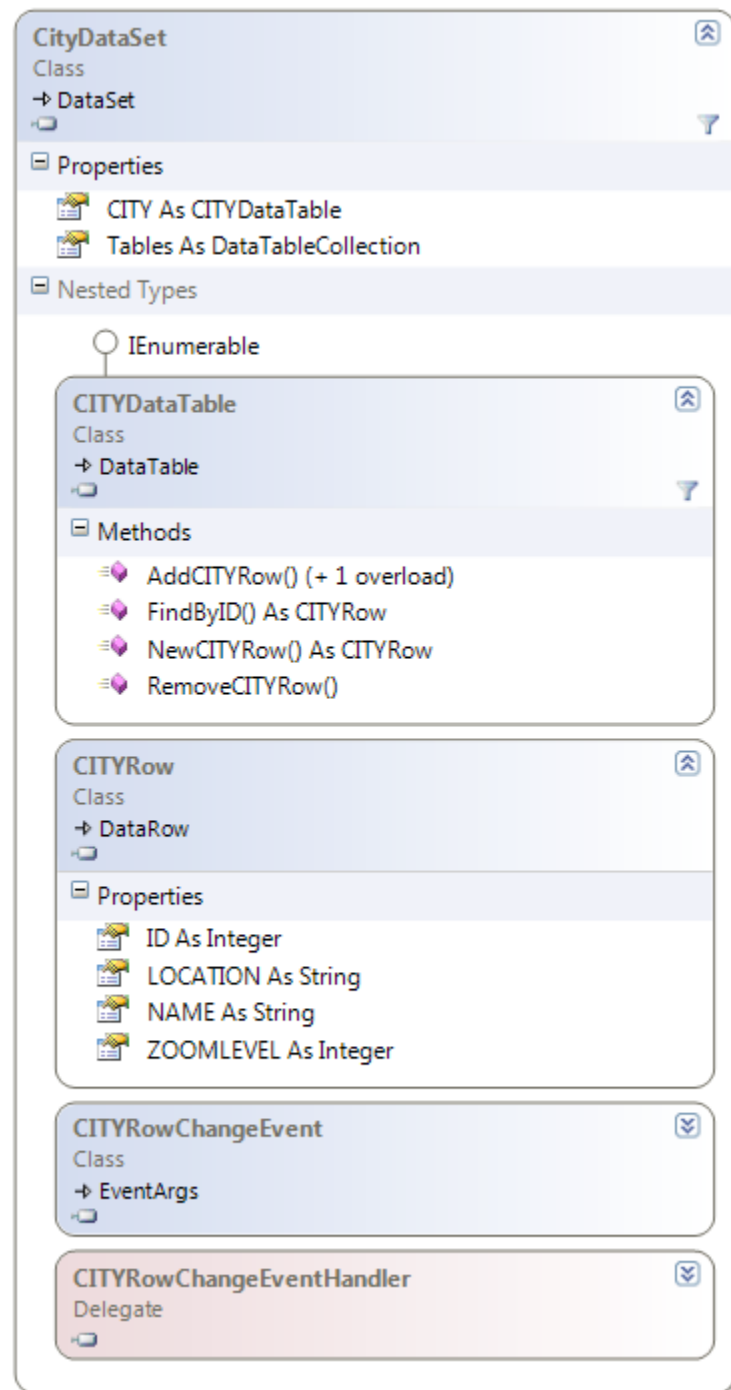
3.1.1 BUSSINESS LAYER CLASSES

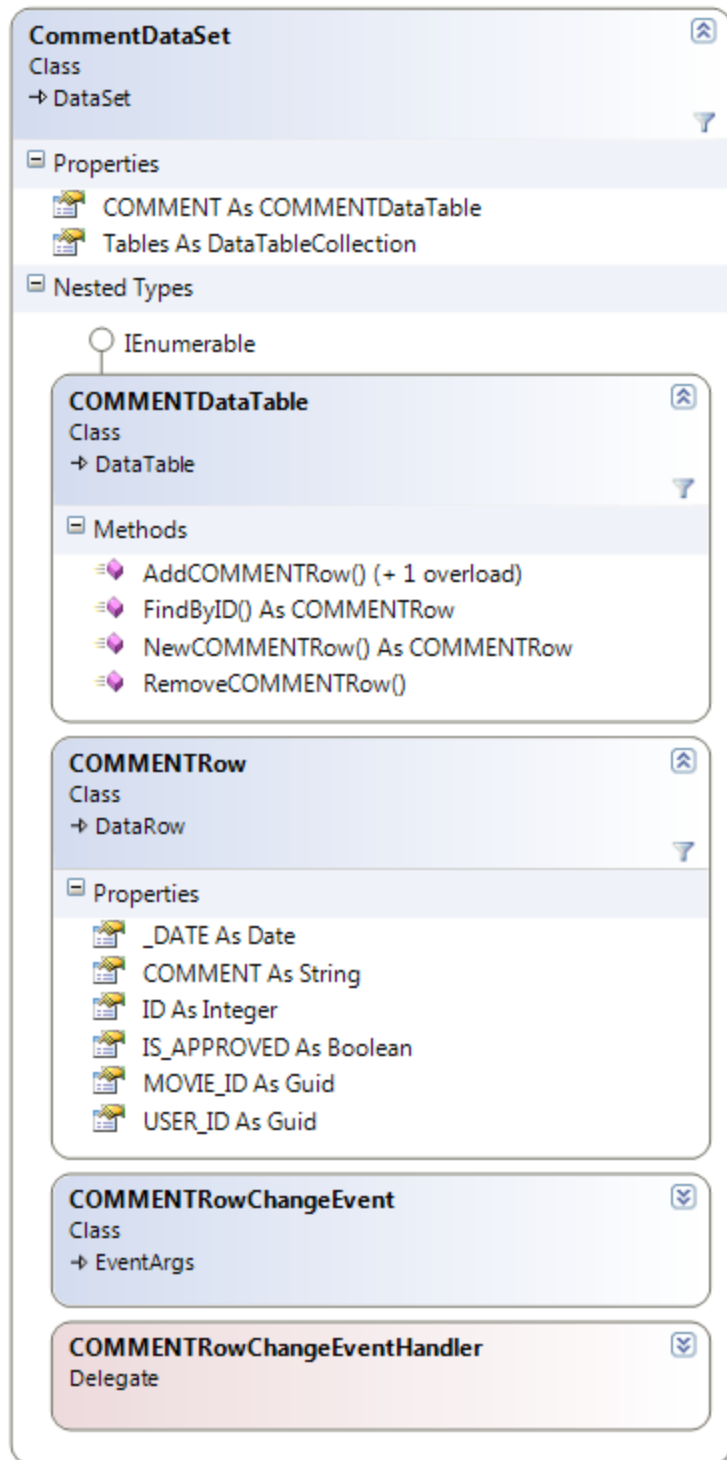


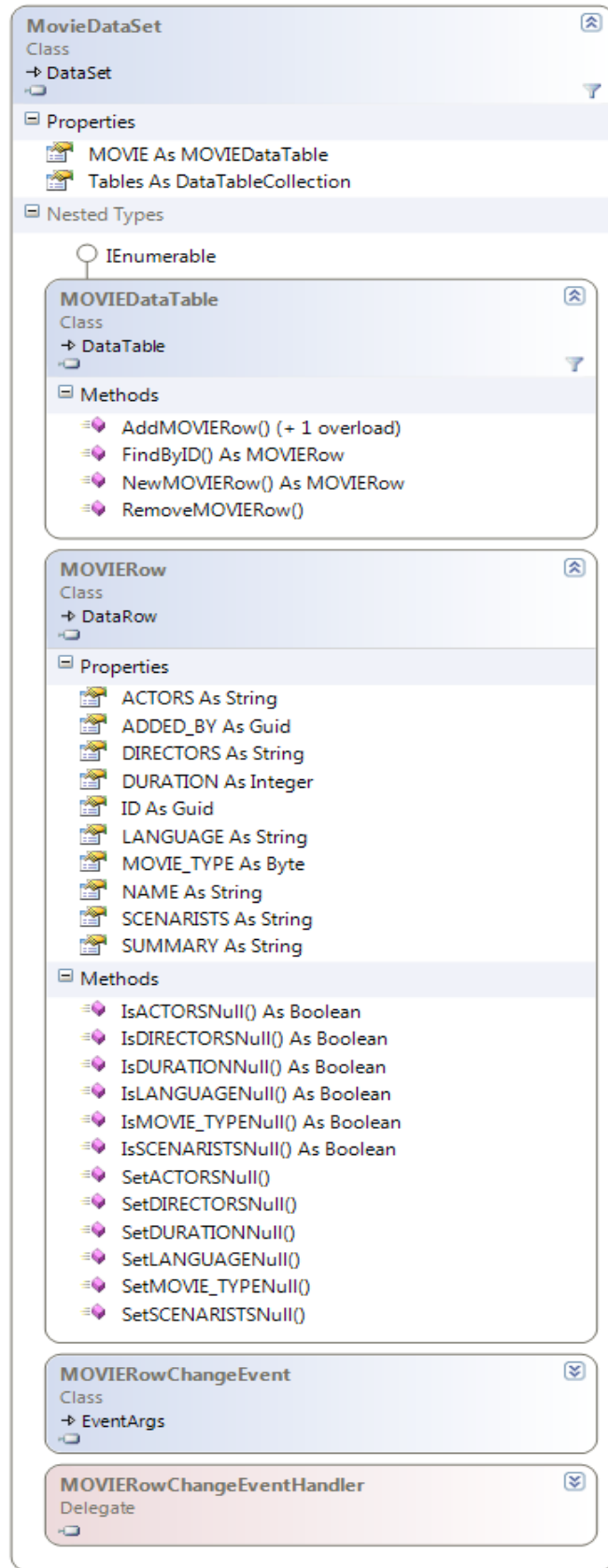
3.1.2 DATAACCESS LAYER CLASS

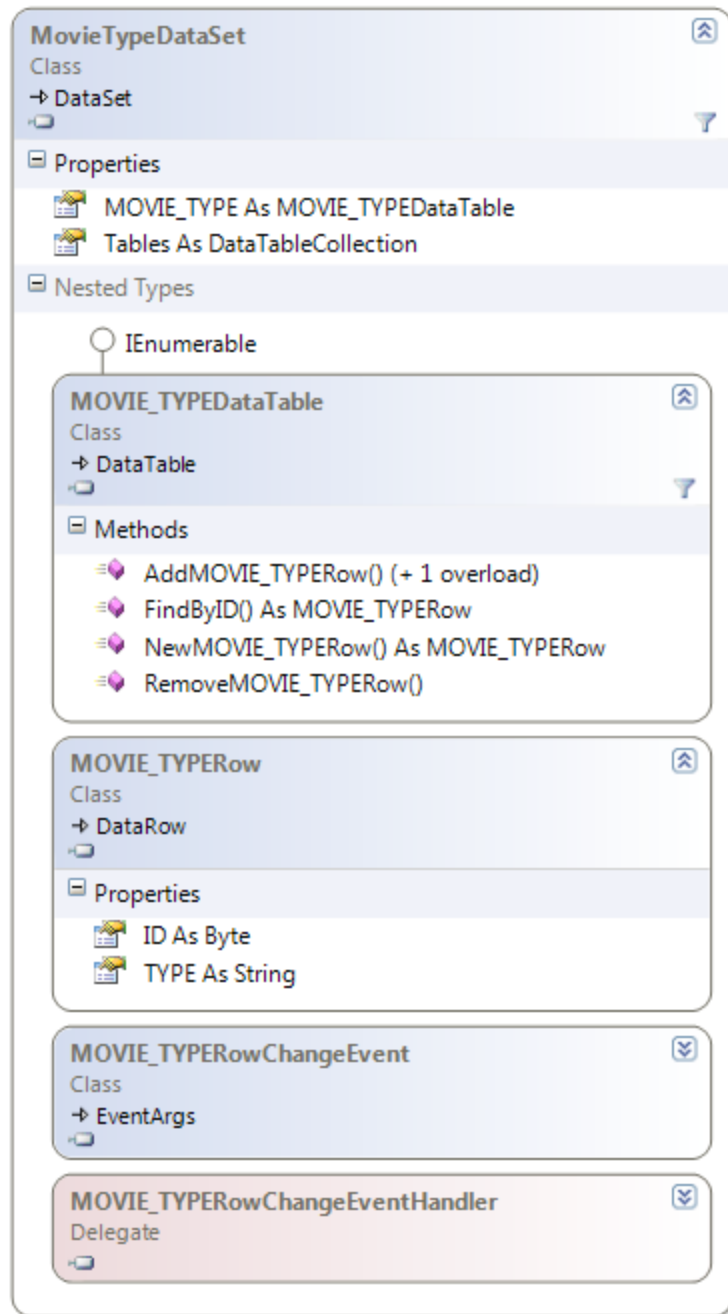


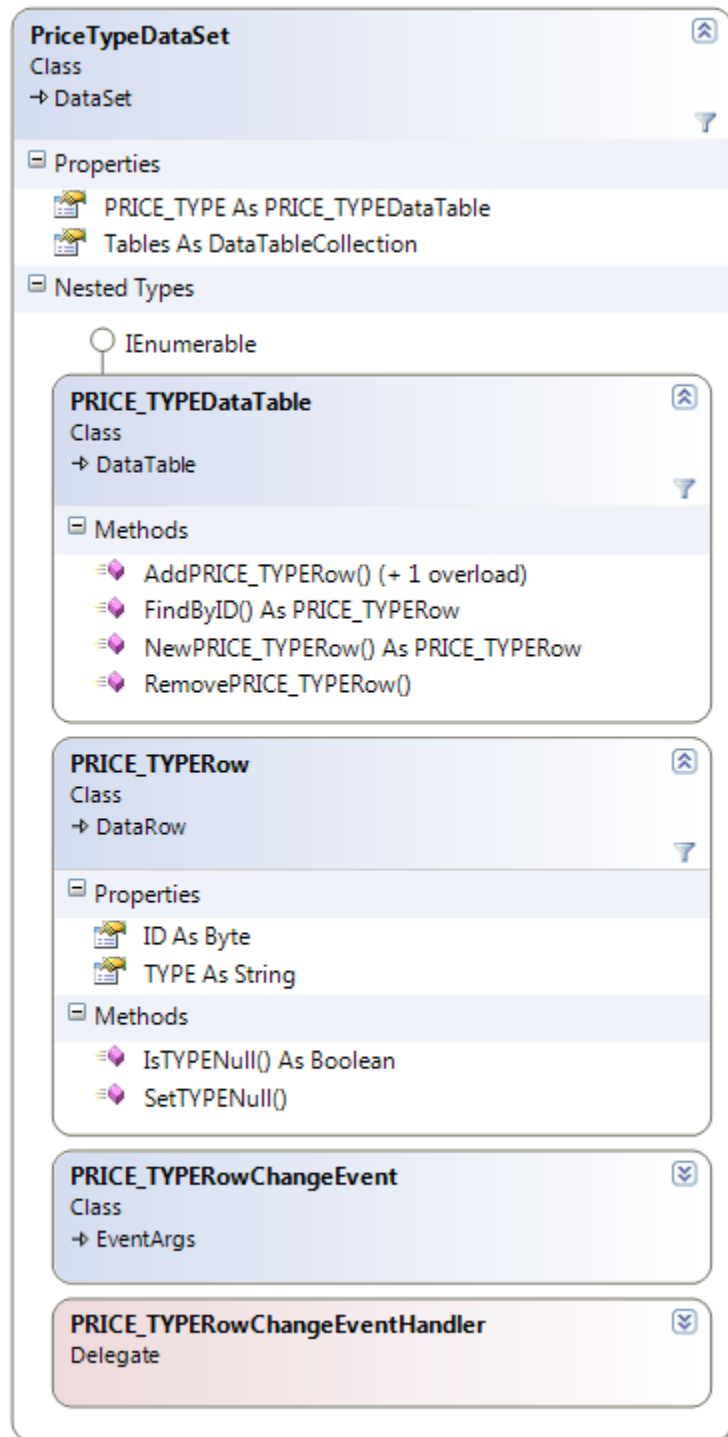
3.1.3 TYPES LAYER CLASSES

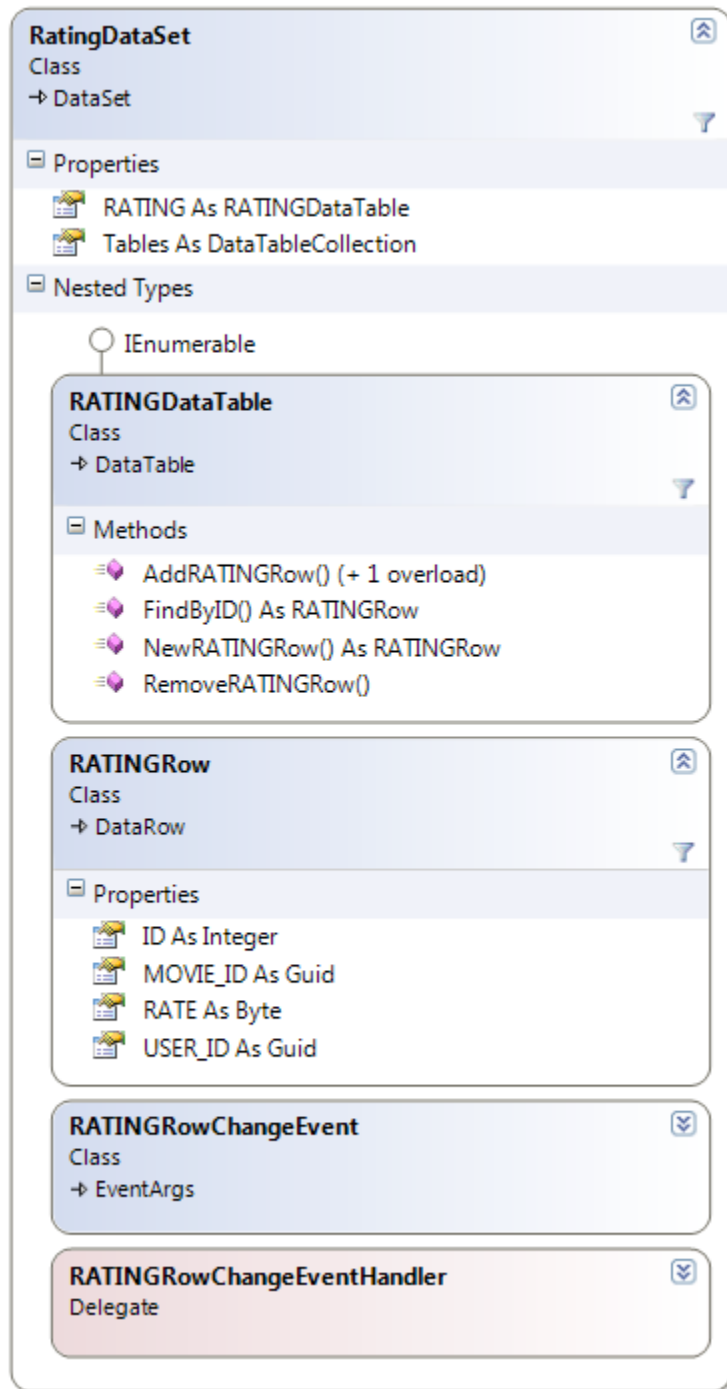


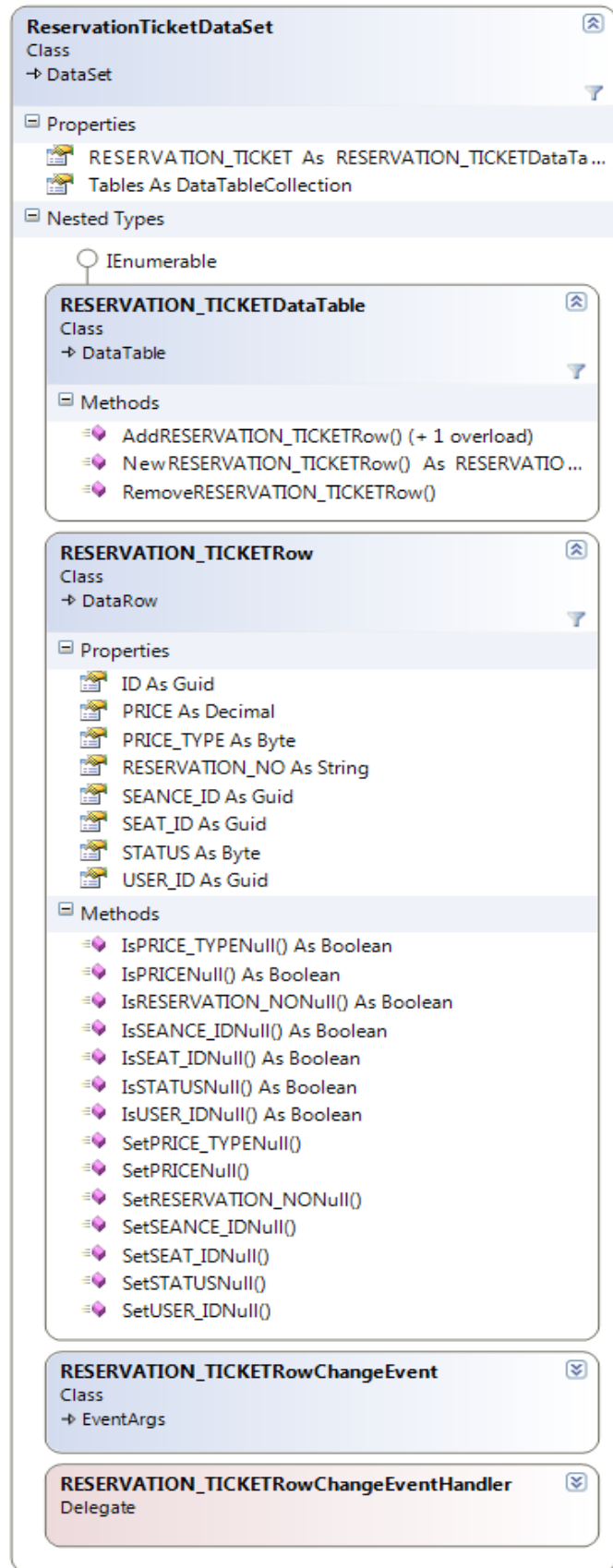


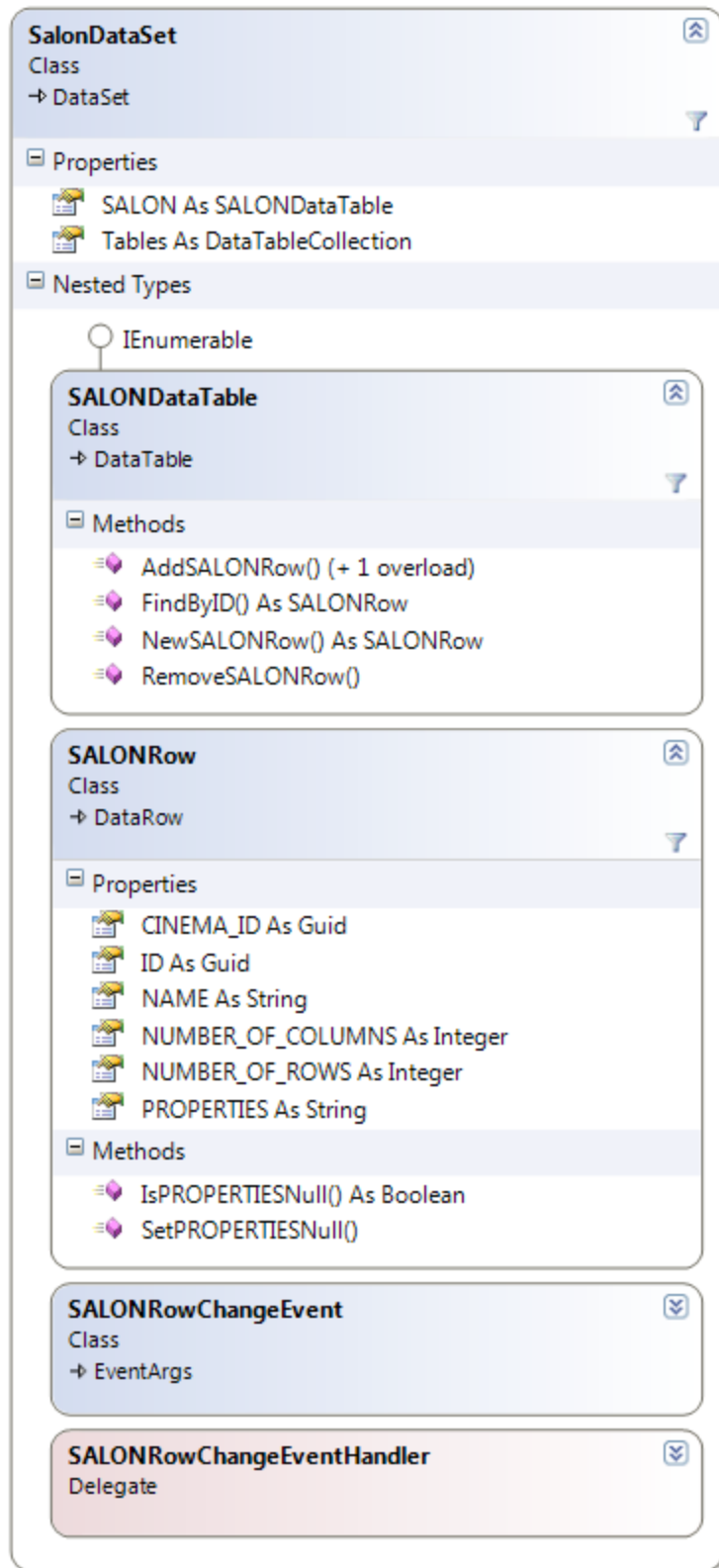


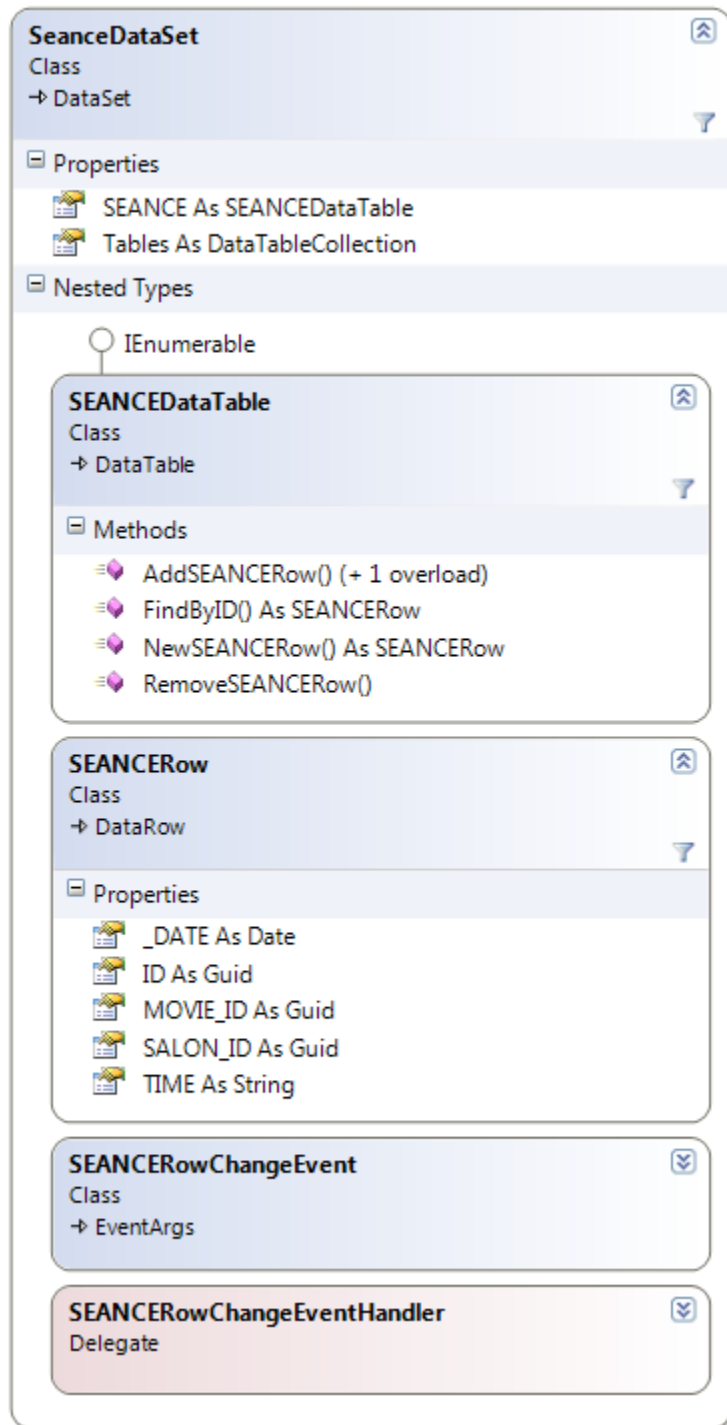


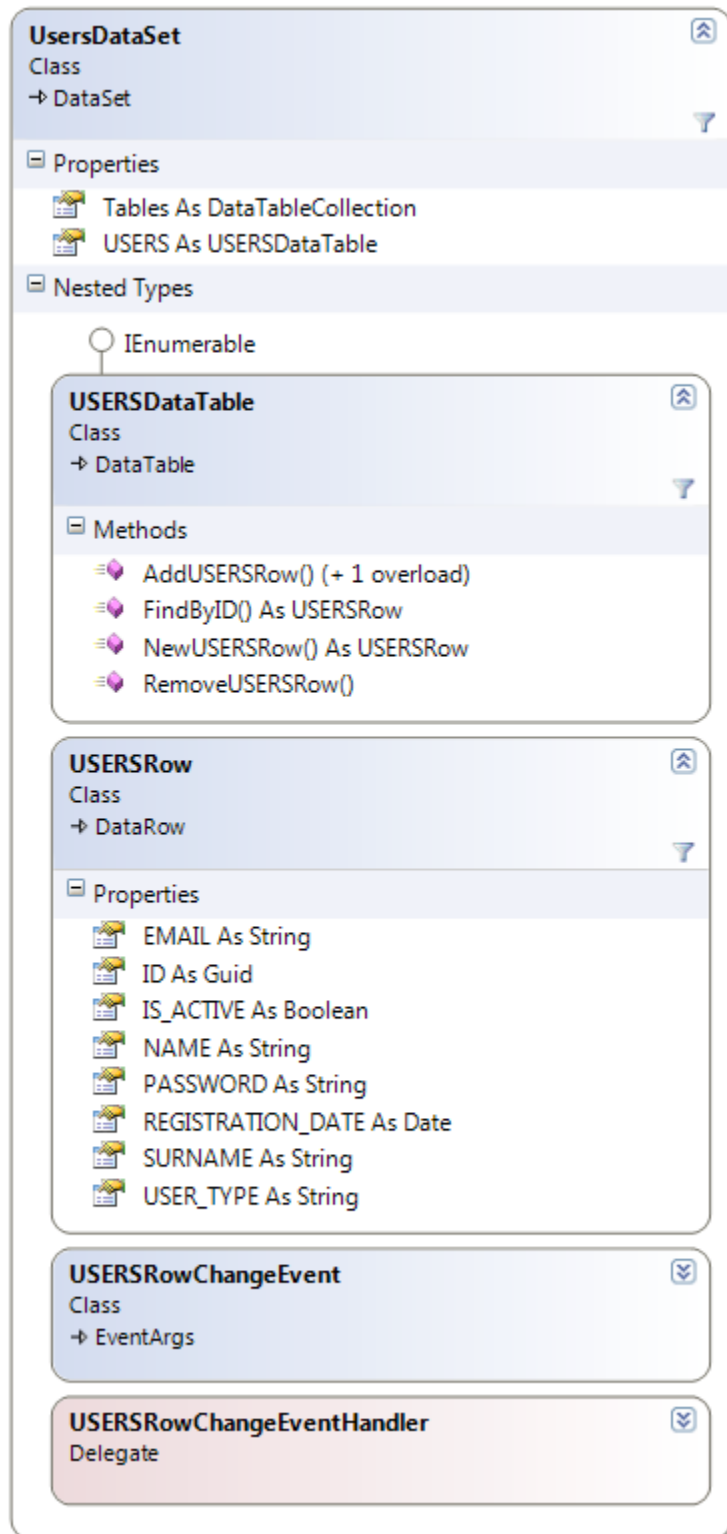




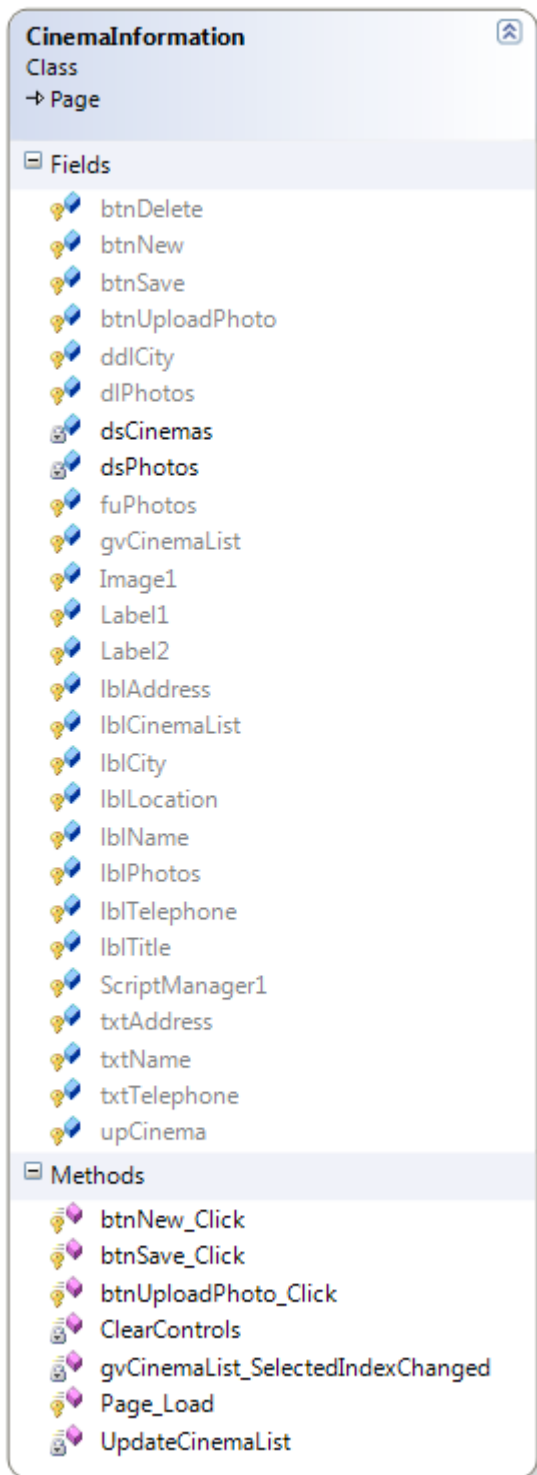








4.1.4 Presentation Layer Classes



MovieInformation

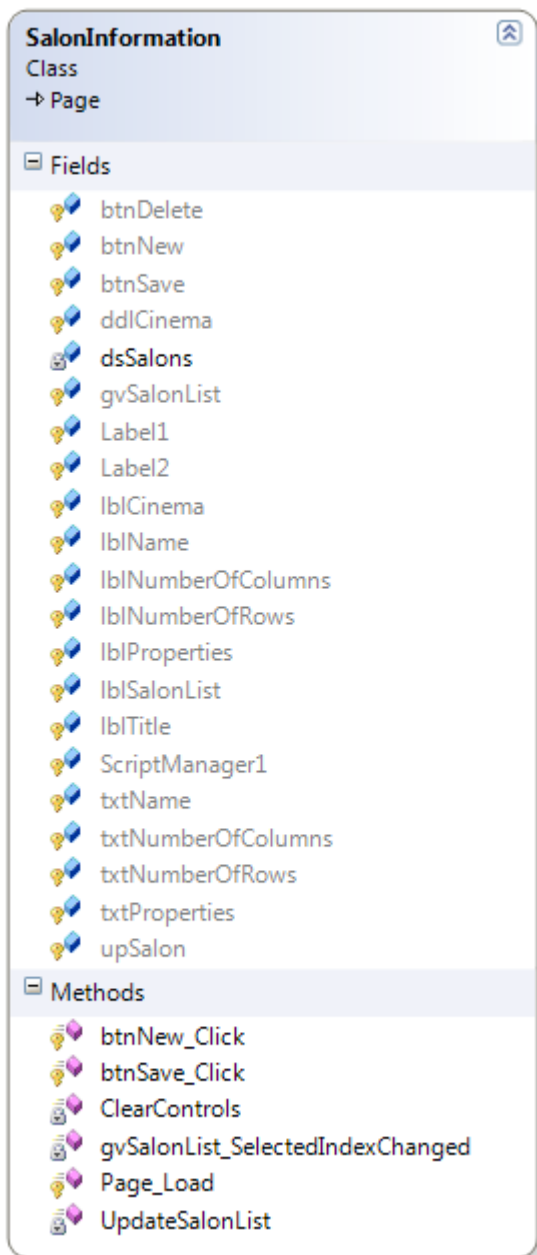
Class
 → Page

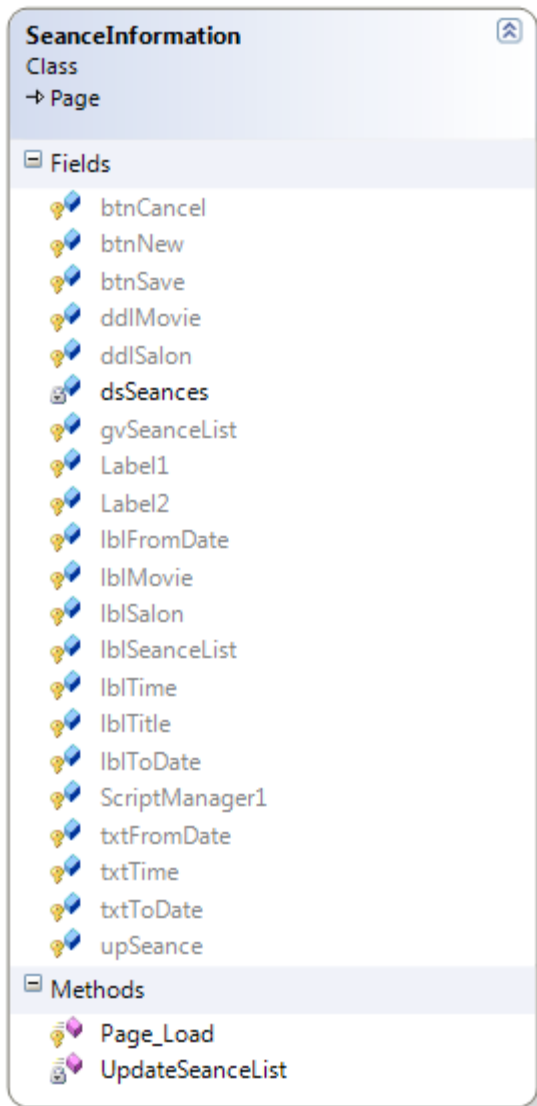
Fields

btnDelete
 btnNew
 btnSave
 btnUploadFragment
 btnUploadPhoto
 ddlType
 dlFragments
 dlPhotos
 dsFragments
 dsMovies
 dsPhotos
 fuFragments
 fuPhotos
 gvMovieList
 Label1
 Label2
 lblActors
 lblDirector
 lblDuration
 lblFragments
 lblLanguage
 lblMovieList
 lblName
 lblPhotos
 lblScenarist
 lblSummary
 lblTitle
 lblType
 ScriptManager1
 txtActors
 txtDirector
 txtDuration
 txtLanguage
 txtName
 txtScenarist
 txtSummary
 upMovie

Methods

btnNew_Click
 btnSave_Click
 ClearControls
 gvMovieList_SelectedIndexChanged
 Page_Load
 UpdateMovieList





Login
Class
→ Page

Fields

btnLogin

IbForgotPassword

IblEmail

IblLogin

IblPassword

txtEmail

txtPassword

Methods

btnLogin_Click

IbForgotPassword_Click

RegisterCinemaOwner
Class
→ Page

Fields

btnRegister

IblConfirmPassword

IblEmail

IblFirmName

IblName

IblPassword

IblSurname

IblTelephone

IblTitle

IblWebAddress

txtConfirmPassword

txtEmail

txtFirmName

txtName

txtPassword

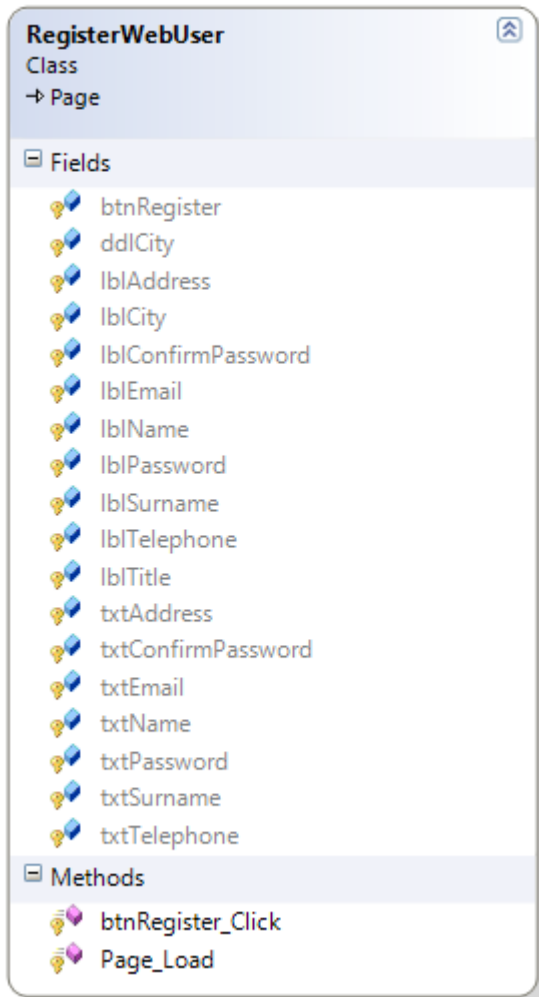
txtSurname

txtTelephone

txtWebAddress

Methods

btnRegister_Click



3.2. ACTIVITY-SEQUENCE-COLLABORATION

3.2.1 ACTIVITY DIAGRAMS

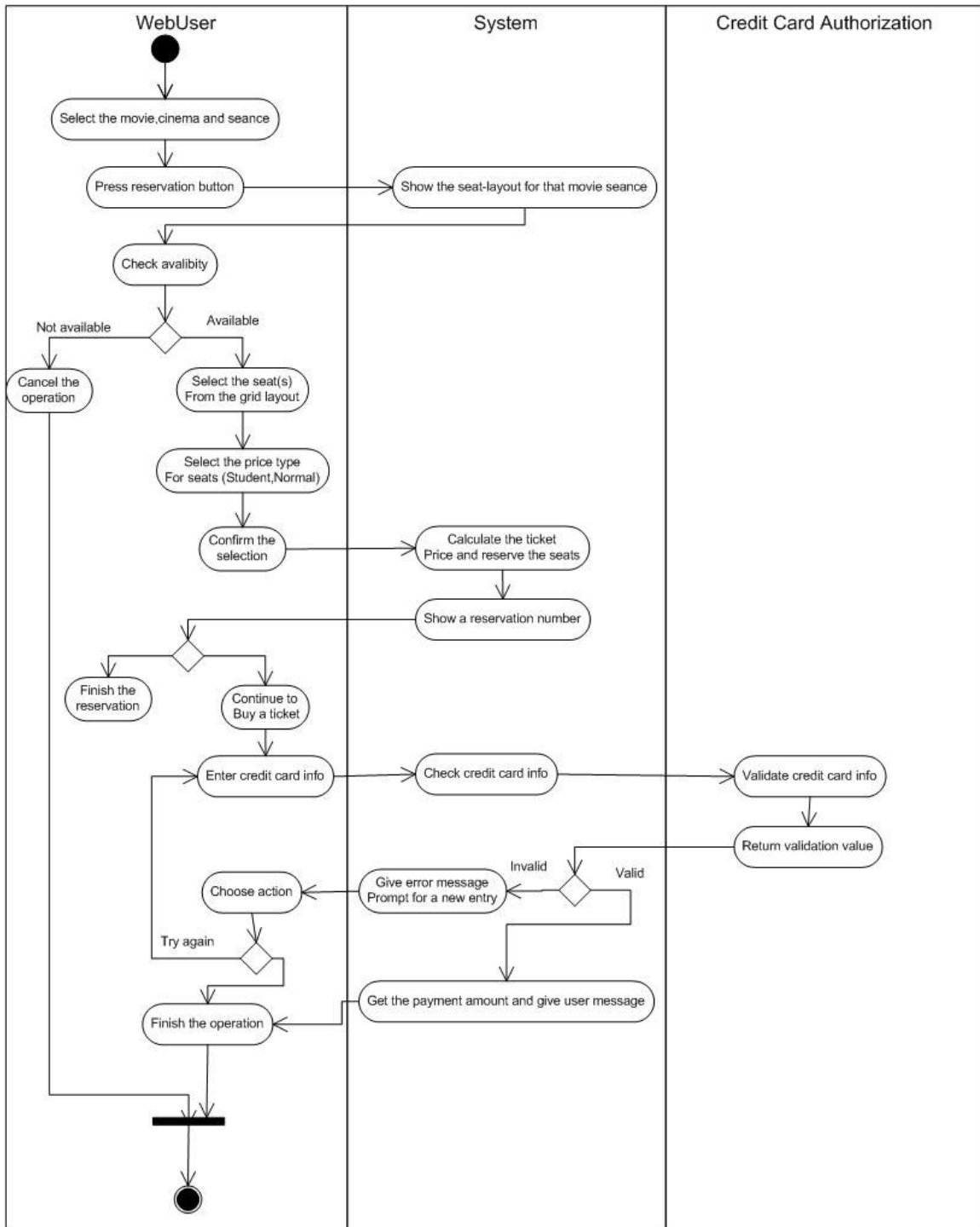


Figure 3 : Reservation Activity Diagram

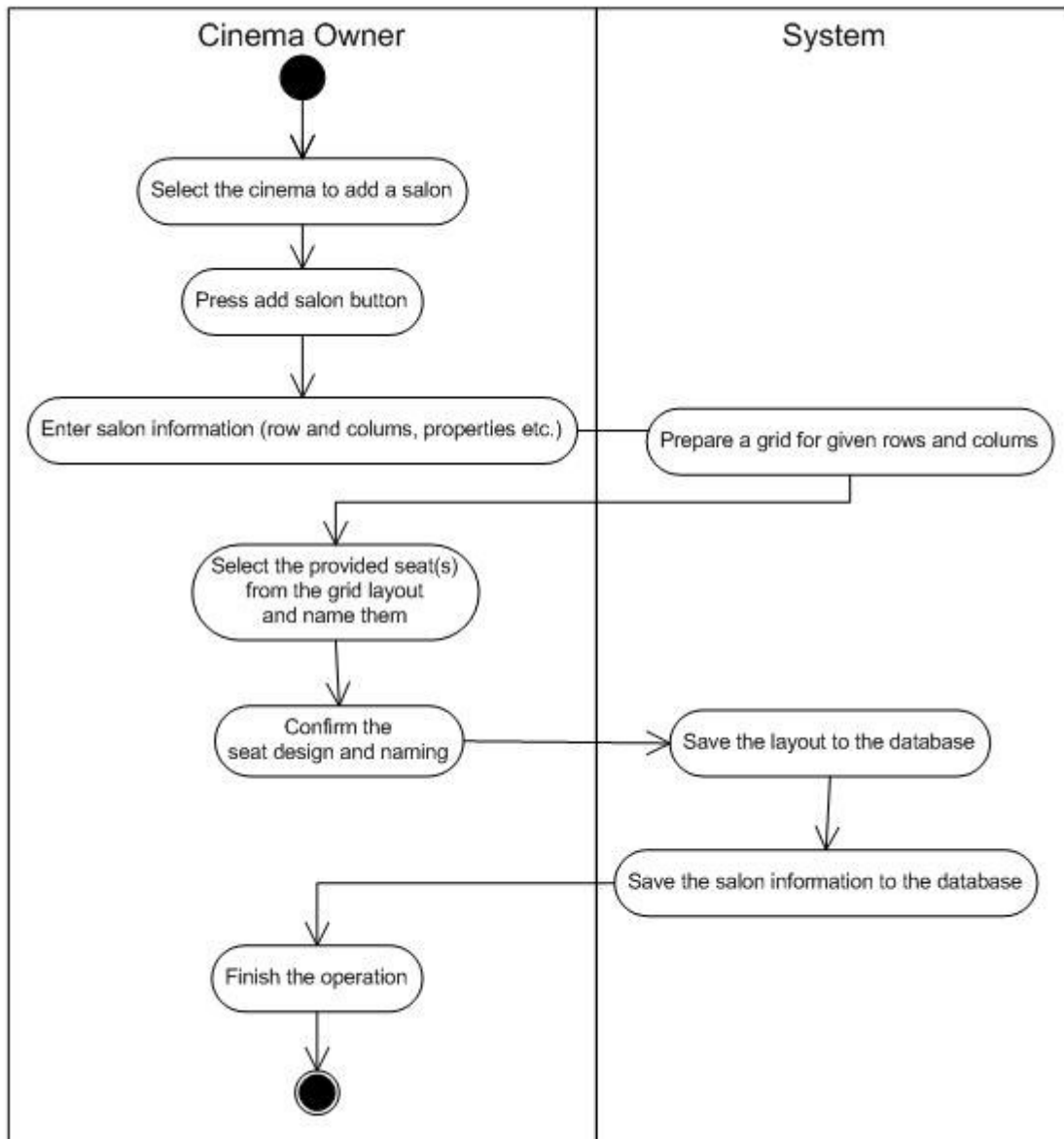


Figure 4 : Add Saloon Activity Diagram

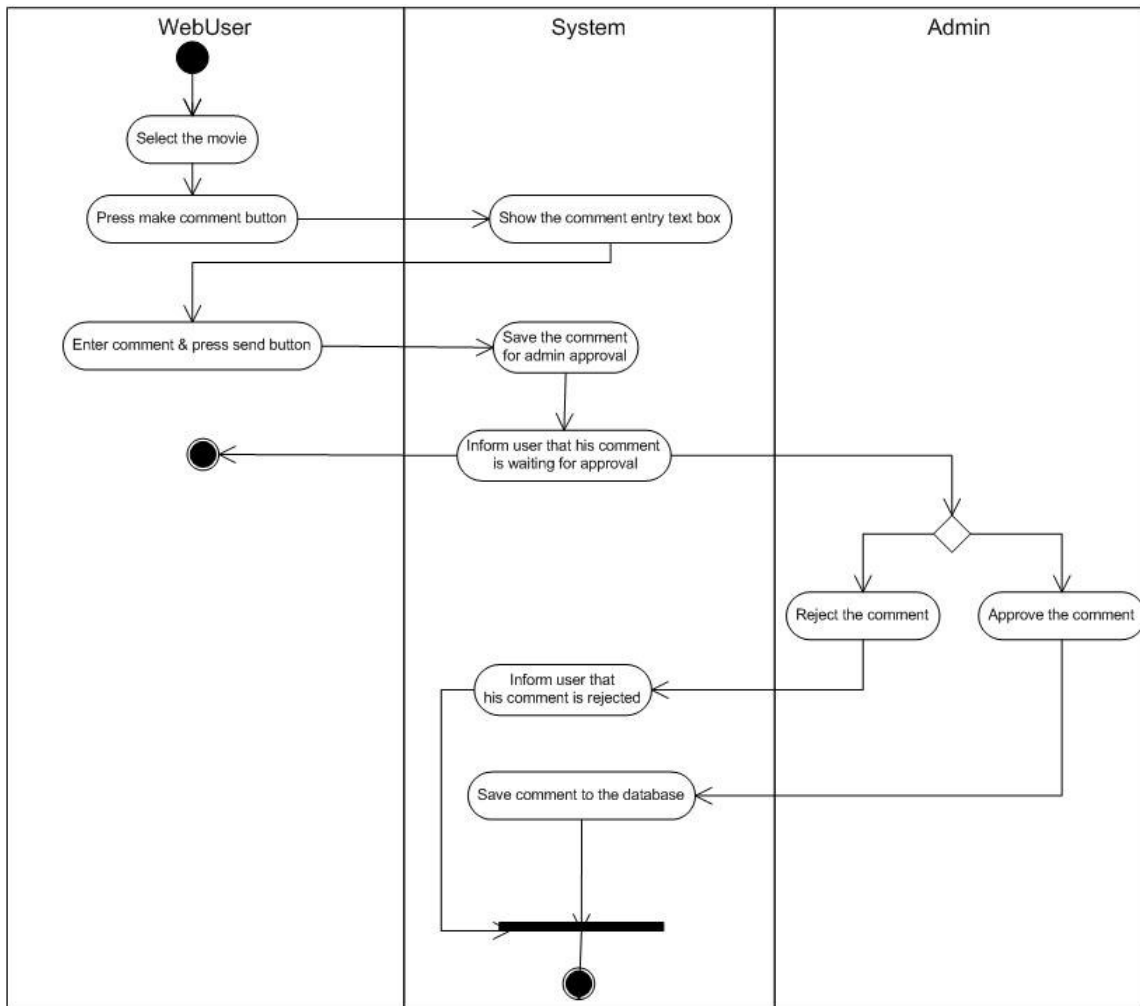


Figure 5 : Make Comment

3.2.2 SEQUENCE AND COLLOBORATION DIAGRAMS

Registration Sequence Diagram

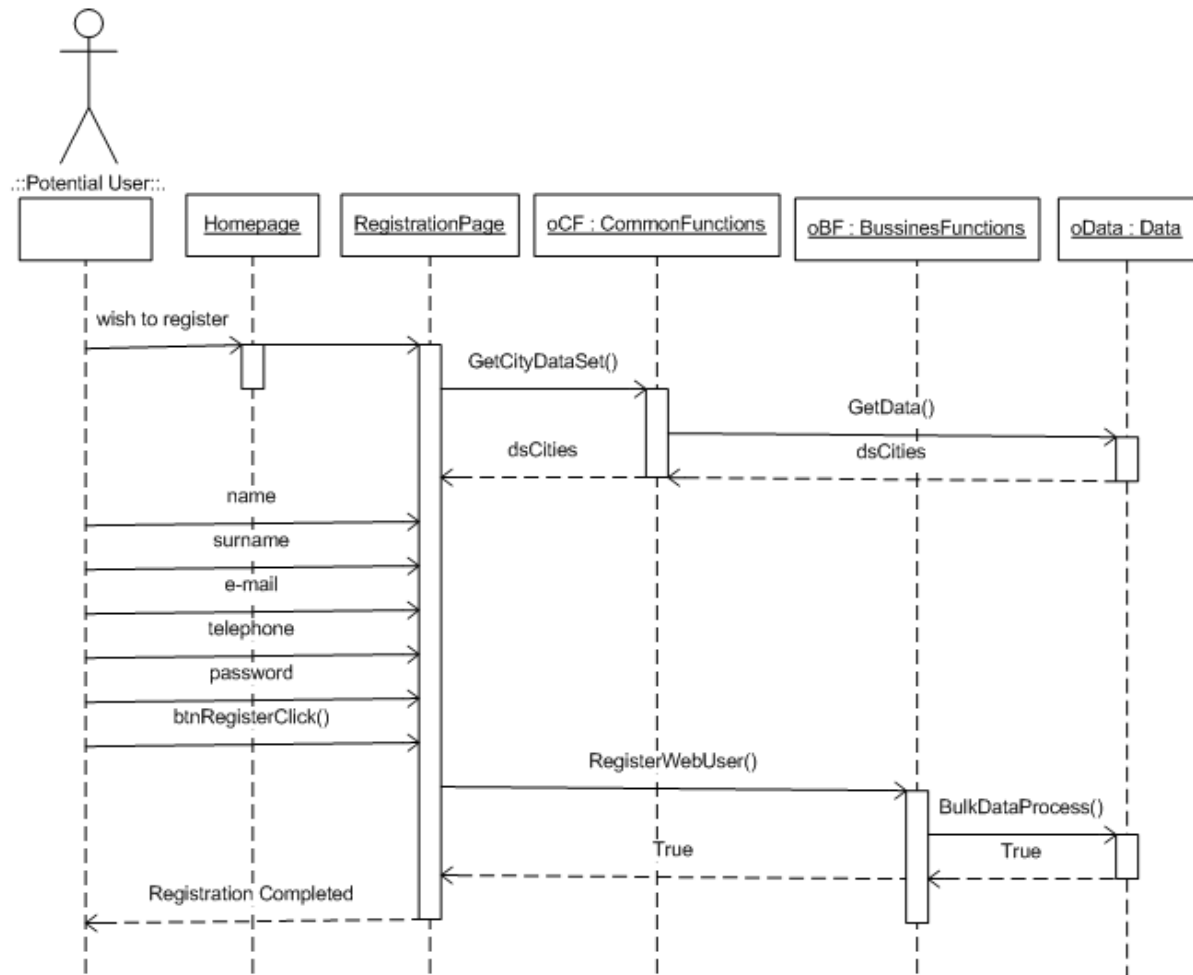


Figure 6 : Registration

Add Movie Sequence Diagram

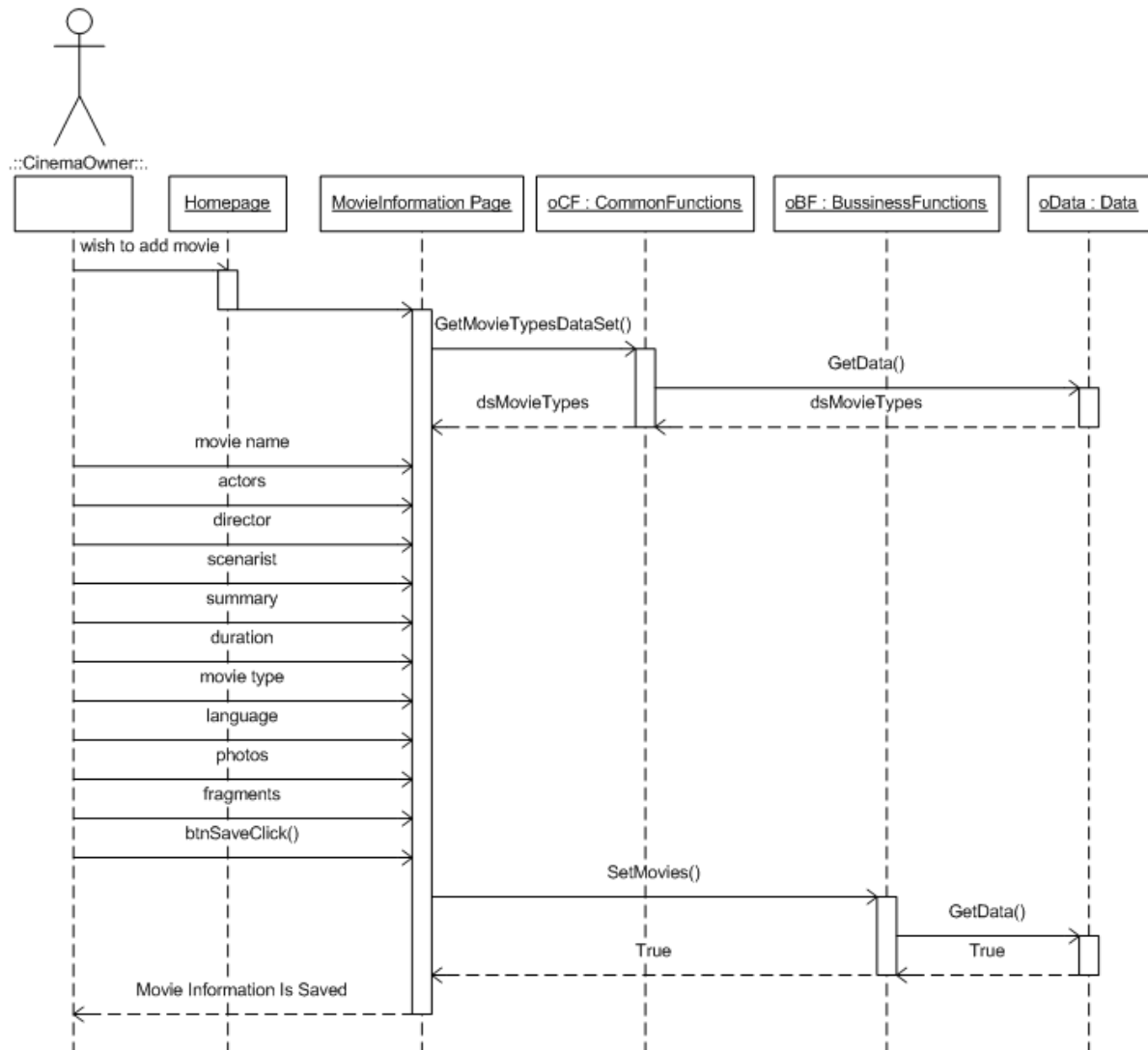


Figure 7 : Add Movie

Rate a Movie Collaboration Diagram

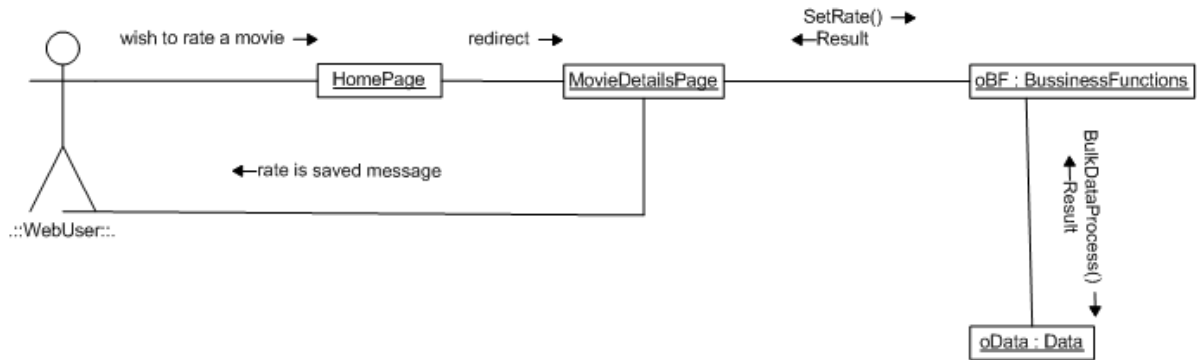


Figure 8 : Rate Movie

Make Reservation Collaboration Diagram

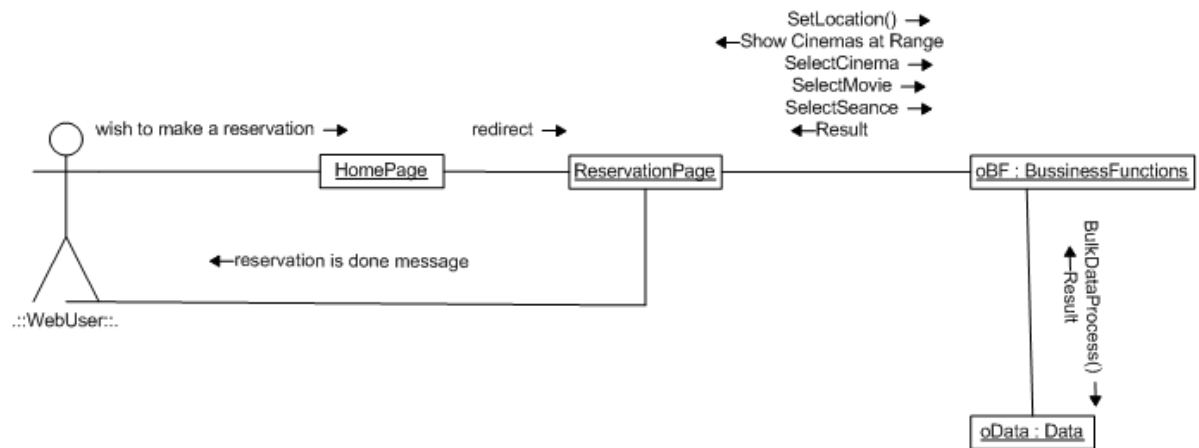


Figure 9 : Make Reservation

4. SCHEDULE

		Task Name	Duration	Start	Finish	Resource Names
1	✓	- ANALYSIS	17 days?	Thu 23.10.08	Fri 14.11.08	Nur,Hakan
2	✓	Meeting with the customer	1 day?	Thu 23.10.08	Thu 23.10.08	Nur,Hakan
3	✓	Analysis Work Part1	1 day?	Wed 05.11.08	Wed 05.11.08	Nur,Hakan
4	✓	Meeting with the customer	1 day?	Wed 05.11.08	Wed 05.11.08	Nur,Hakan
5	✓	Detailed project plan preparation	1 day?	Thu 06.11.08	Thu 06.11.08	Nur,Hakan
6	✓	Analysis Work Part2	1 day?	Fri 14.11.08	Fri 14.11.08	Nur,Hakan
7	✓	Write a requirement analysis report	1 day?	Fri 14.11.08	Fri 14.11.08	Nur,Hakan
8	✓	- DESIGN	20 days?	Mon 17.11.08	Fri 12.12.08	Nur,Hakan
9	✓	Design database	8 days?	Mon 17.11.08	Wed 26.11.08	Nur,Hakan
10	✓	Design system modules	8 days?	Wed 26.11.08	Fri 05.12.08	Nur,Hakan
11	✓	Design test cases	4 days?	Fri 05.12.08	Wed 10.12.08	Nur,Hakan
12	✓	Write a detailed design report	4 days?	Tue 09.12.08	Fri 12.12.08	Nur,Hakan
13		- IMPLEMENTATION	20 days?	Mon 15.12.08	Fri 09.01.09	Nur,Hakan
14		Create the database	4 days?	Mon 15.12.08	Thu 18.12.08	Nur,Hakan
15		Implement login®istration	6 days?	Mon 15.12.08	Mon 22.12.08	Nur,Hakan
16		Implement Admin Operations	6 days?	Thu 18.12.08	Thu 25.12.08	Nur,Hakan
17		Implement Cinema Owner Operations	5 days?	Thu 25.12.08	Wed 31.12.08	Nur,Hakan
18		Implement Web User Operations	6 days?	Fri 02.01.09	Fri 09.01.09	Nur,Hakan
19		- TESTING & INTEGRATION	5 days?	Mon 12.01.09	Fri 16.01.09	Nur,Hakan
20		Test login®istration	1 day?	Mon 12.01.09	Mon 12.01.09	Nur
21		Test Admin Operations	1 day?	Mon 12.01.09	Mon 12.01.09	Hakan
22		Test Cinema Owner Operations	1 day?	Tue 13.01.09	Tue 13.01.09	Hakan
23		Test Web User Operations	1 day?	Tue 13.01.09	Tue 13.01.09	Nur
24		Integration	1 day?	Wed 14.01.09	Wed 14.01.09	Nur,Hakan
25		Integration Testing	1 day?	Fri 16.01.09	Fri 16.01.09	Nur,Hakan
26		- PACKAGING AND DEPLOYMENT	3 days?	Mon 19.01.09	Wed 21.01.09	Nur,Hakan
27		Package	2 days?	Mon 19.01.09	Tue 20.01.09	Nur
28		Deploy	1 day?	Wed 21.01.09	Wed 21.01.09	Hakan