

# **Database Management Systems**

## **(COP 5725)**

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## **Project phase I:**

**Movie Database Management system**

***FirstView***

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## Part I Introduction to Project:

The aim of our proposed project is to design and develop a movie database management system—FirstView. The main functions to be achieved are listed as follows:

- A. queries with respects to movies and cinemas
- B. tickets purchase according to users' preference
- C. management of user and cinema accounts

Besides the simple retrieval of data from the movie and cinema database, more queries of interest can include but not limited to:

1. Which movie was the best seller in last year?
2. What is the seat occupancy rate in a certain cinema within last month?
3. What is the ranking of popular movies according customers' ratings?
4. For a certain cinema, what is the most profitable category of movies during summer break?
5. What is the most annual net earning among cinemas?

More precisely, three different roles are identified in the current system as: customers, cinema administrators and system administrators. On one hand, through a customer request process, the customers are allowed to perform queries on the movie and cinema database system. On the other hand, other information related to cinemas is accessible and editable for the cinema managers via a cinema administrator request process. Full authority is given to the system administrators for managing both customer and cinema accounts. A schematic diagram is shown as below.

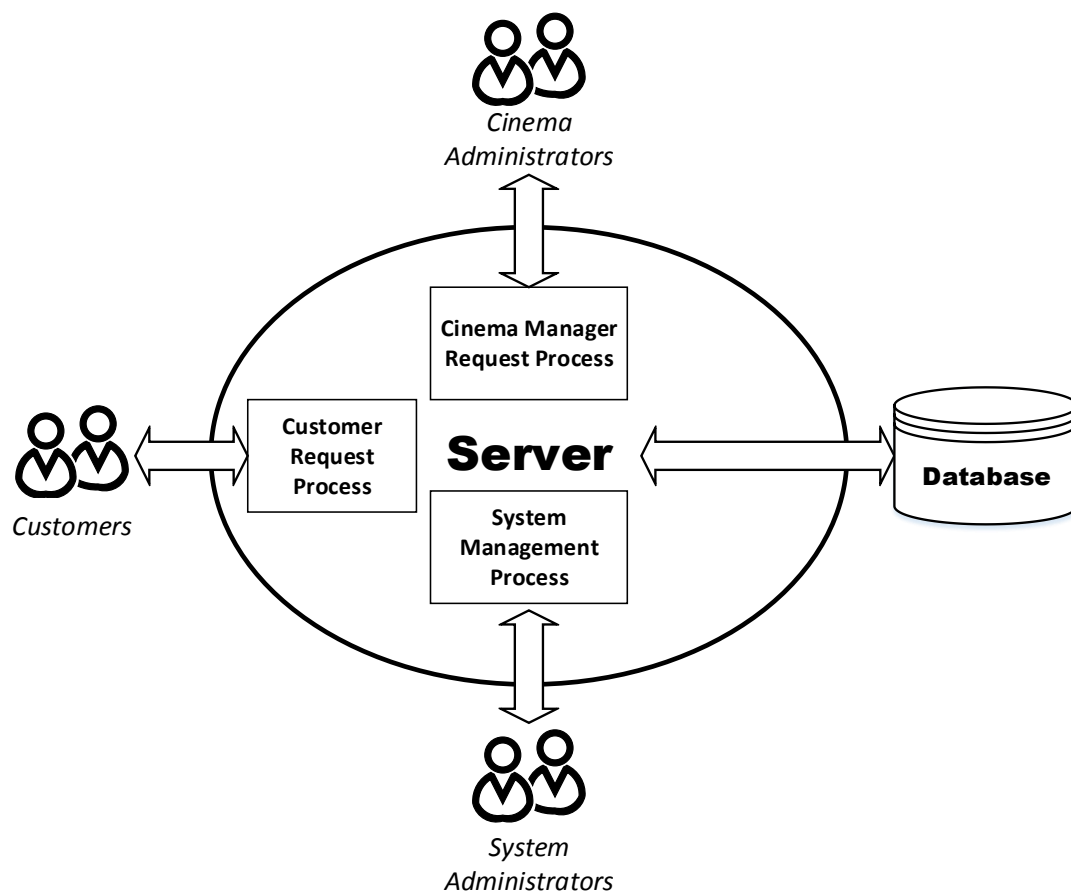


Figure 1. Schematic diagram of the movie database management system

## Part II Functionality Statement

In this section, the functionalities of the proposed movie database system are identified through requirement analysis with respects to three objectives, i.e. customer, cinema and system administrator. Several simple scenarios are tested to verify the fulfillment of these requirements.

### 1. Customer functions

1.1 All the costumers shall be able to search movies by their attributes, such as its categories, date, casting, title and rating etc. Also, they shall be able to perform sorting on the attributes of interest.

1.2 All the costumers shall see the some other statics of the movie data base including most views, best sellers, promotion and so on.

1.3 All the costumers shall be allowed to rate and add comments on the movies as well as cinemas.

1.4 If necessary, costumers shall be able to search cinemas by its location via the website server, on which the information of the cinemas shall be posted including address, contacts and near public transportation etc.

1.5 When the costumers wish to purchase tickets from certain cinemas, the ticketing-booking system on the website shall provide an interface for the debt or credit card information. In addition, after purchase a confirmation page of the e-tickets containing ticket information such as cinema name, seat number, time period of the movie as well as code bar shall be offered to the users.

1.6 The seat information shall be updated automatically by ticketing-booking system after each purchase made.

1.7 If necessary, the system shall allow the costumers to register non-anonymous user accounts in the system.

### 2. Cinema administrator functions

2.1 A registration with providing detailed information of the cinema shall be mandatory if anyone wishes to get a cinema administrator account. The information shall contain its address, contacts, seats and so on, which the cinema administrator shall be allowed to update anytime later.

2.2 Cinema administrators shall be able to add and update movies to its show-time schedule from the movie database.

2.3 Within its own cinema account, the cinema administrators shall have the authority of updating its movie information, such as schedule, ticket prices etc. Furthermore, if interested, more sale statics of the film (both shown before and being shown currently) shall be provided.

### 3. System administrator functions

3.1 System administrators shall own the full authority to manage both customer and cinema administrator accounts.

3.2 System administrators shall get access to updating movie database by adding, deleting or editing.

### Testing Scenarios:\*

A. Zach is interested in horror movies and he wishes to search a best horror movie shown in last year. <sup>[1.1]</sup> Also, he wants to add comments on movie 'E.T.'. <sup>[1.3]</sup>

B. Alexander plans to buy two tickets in front seats of movie 'Interstellar' around 8:00 tonight. <sup>[1.5]</sup> He also wishes to find which cinema is closest to where he lives. <sup>[1.4]</sup>

C. Gator theta, a new cinema just open, wants to register for a cinema administrator account this system. They own a small projection hall consist of 100 seats. <sup>[2.1]</sup> They are planning to display film 'Godzilla' from 3 p.m. to 5 p.m. during Feb. 1st till Feb 11.th. <sup>[2.2]</sup>

D. Oaks mall cinema need to update its seat information for the movie '*Big Hero 6*' to be on show from 10 a.m. to 12 a.m. on Jan. 29th due to several phone call reservation. <sup>[2,3]</sup>

*\*The number in the square bracket refers to the specific functionality that fulfill the requirements of the scenario.*

### **Part III Future Work**

In the previous section, the introduction and functionalities of the movie database management system are demonstrated. Here we propose the future work planned in phase II.

The overall framework of our movie database management system is to be designed. The flows of action and expected website shall be described to convey the functionalities proposed in terms of graphs; As for the conceptual database design, the Entity-Relationship (ER) Model is to be provided that identifies the important entity set, relationship sets and attributes.