Database Management Systems LAB
(3+1 Credit Hours)
CSL-220

CINEMA MANAGEMENT SYSTEM
Project Report

Couse Instructor: Malik Ali
Lab Instructor: Hafsa Munawar

Group Members:

Enrollment	Name
02-134212-009	Afrah Imran
02-134212-080	Fatima Muhammad
02-134212-006	Syed Arham Ali

DEPARTMENT OF COMPUTER SCIENCE

BAHRIA UNIVERSITY, KARACHI, PAKISTAN

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Analysis:

Objectives:

A cinema management system is a specialized software solution designed to handle the unique requirements of managing a movie theatre. It is a comprehensive platform that combines various modules and functionalities to streamline cinema operations .
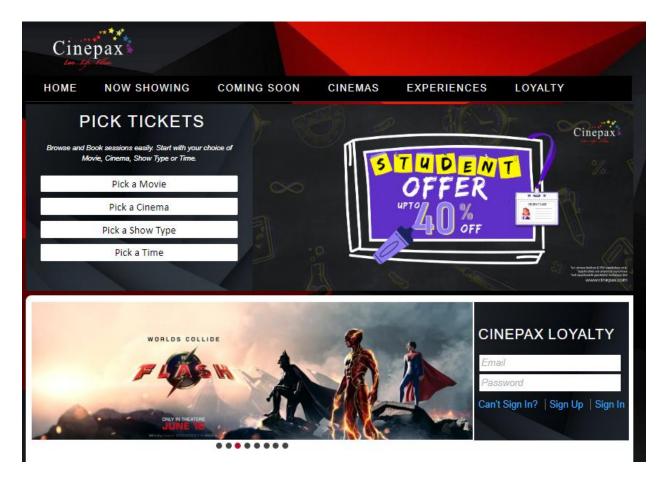
Cinema management system aims to provide efficient and enhanced movie-going experiences , comprehensive solutions for customer management. These systems are designed to streamline various aspects such as online ticketing, scheduling and showtime management, customer relationship management, seats allocation, marketing and reporting and analytics.
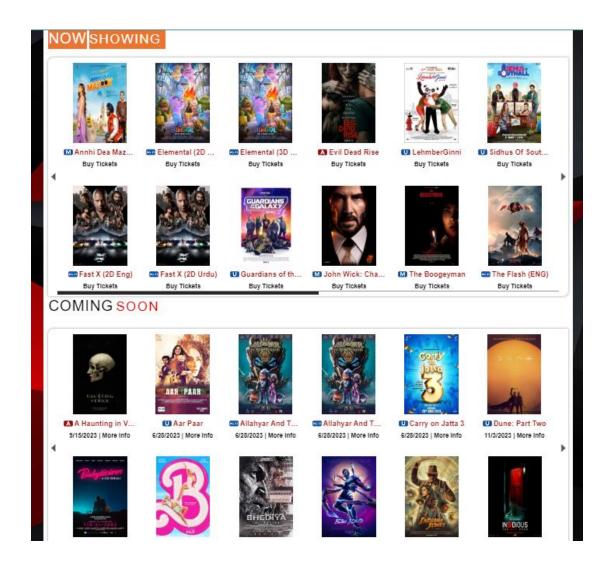
- **Ticketing System:** Cinema management system offers a robust ticketing system that enables customers to view the list of movies currently showing , showtimes , prices of the ticket , type of the movie and book tickets online. The objective is to provide a seamless ticketing experience and pre-booking , allowing customers to easily select seats, choose showtimes, and make secure payments.
- **Scheduling and Showtime Management:** The cinema management systems aim to efficiently manage the scheduling of movies and showtimes. The objective is to optimize screen utilization, minimize conflicts in scheduling, and ensure a diverse range of movies are available to cater to different audience preferences.
- **Seat Optimization and Allocation:** Cinema management systems aim to optimize seating arrangements to maximize occupancy . They assist in dynamically allocating seats based on customer preferences, group bookings, and seat availability, ensuring efficient utilization of theater capacity.
- **Customer Relationship Management:** This systems prioritize building and maintaining strong relationships with customers. The objective is to collect customer data, preferences, and feedback to personalize the cinema experience, offer loyalty programs, and engage with customers through targeted marketing campaigns.
- **Marketing and Promotion:** Cinema management systems often include marketing and promotion tools to help cinema owners attract customers and increase ticket sales. This may involve features like promotional offers, discounts, targeted advertising campaigns.
- **Reporting and Analytics:** Cinema management emphasize generating comprehensive reports and analytics on ticket sales, attendance and customer behavior. The objective is to provide cinema management with valuable insights for decision-making and operational improvements.

Studied Applications:

Cinepax and Nueplex are popular cinema chains in Pakistan that operate multiple theaters across different cities. Both cinemas strive to provide audiences with a comfortable and enjoyable cinema experience. They offer advanced facilities, a variety of movie choices. Their cinema management systems likely play a crucial role in managing ticketing, scheduling, customer engagement, and other operational aspects to ensure efficient and smooth operations. Through their commitment to quality, Cinepax and Nueplex have become popular destinations for movie enthusiasts in Pakistan.
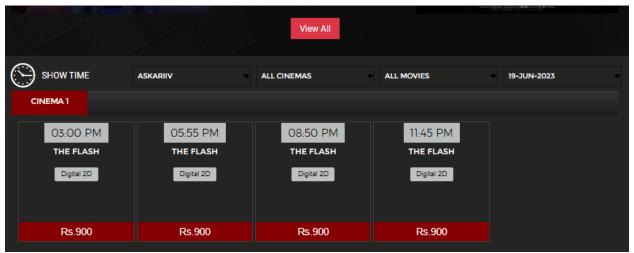
Main Modules to be Replicated:

NOW SHOWING

M Annhi Dea Maz...	**PG13** Elemental (2D ...	**PG13** Elemental (3D ...	**A** Evil Dead Rise	**U** LehmberGinni	**U** Sidhus Of Sout...
Buy Tickets	Buy Tickets	Buy Tickets	Buy Tickets	Buy Tickets	Buy Tickets

PG13 Fast X (2D Eng)	**PG13** Fast X (2D Urdu)	**U** Guardians of th...	**M** John Wick: Cha...	**M** The Boogeyman	**PG13** The Flash (ENG)
Buy Tickets	Buy Tickets	Buy Tickets	Buy Tickets	Buy Tickets	Buy Tickets

COMING SOON

A A Haunting in V...	**U** Aar Paar	**PG13** Allahyar And T...	**PG13** Allahyar And T...	**U** Carry on Jatta 3	**U** Dune: Part Two
9/15/2023 | More Info	6/28/2023 | More Info	6/28/2023 | More Info	6/28/2023 | More Info	6/28/2023 | More Info	11/3/2023 | More Info

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DELIVERY BOOKING
FIND OUT MORE ABOUT TICKETS

nueplex cinemas

NUE NEWS   TICKETS INFO   ABOUT US   PRIVATE SCREENING   NUEPLEX CARES   JB FILMS   ADVERTISE   CONTACT US

View All

SHOW TIME

ASKARIIV	ALL CINEMAS	ALL MOVIES	19-JUN-2023

CINEMA 1

03:00 PM	05:55 PM	08:50 PM	11:45 PM
THE FLASH	**THE FLASH**	**THE FLASH**	**THE FLASH**
Digital 2D	Digital 2D	Digital 2D	Digital 2D
Rs.900	Rs.900	Rs.900	Rs.900

Scope of the Project:

The purpose of Cinema Management System is to automate the existing manual system by the help of computerized equipments and full-fledged computer softwares, fulfilling the requirements so that the valueable data/information mjjncan be stored for longer period of time with easy accessing and manipulation of data. The project is built at Customer end as well as Administrator end.

Our Project manages following Modules :

- **Movie Management Module:**

  The Movie module maintains a comprehensive database of movies, including details such as title, genre, cast and crew information, duration, language, release date, and rating. It also supports setting up pricing structures and categories for different movie screenings. It allows administrators to define ticket prices based on factors like movie type (e.g., 2D, 3D and also manages pricing rules for discounts, promotions or loyalty customers.

- **ShowTiming Module:**

  The ShowTime module enables the scheduling and management of showtimes across multiple screens and theaters. It helps optimize the utilization of resources, prevent scheduling conflicts, and efficiently plan movie screenings.

- **Cinema Hall Module:**

  The Screening module allows cinema managers to schedule and book cinema halls for different movie screenings and events. It manages the availability of halls, assigns showtimes, and ensures proper utilization of the cinema hall resources.

- **Ticket Management Module:**

  The Ticket module automates the ticketing process, allowing customers to book tickets online. It provides real-time seat availability and easy selection and ticket printing , optimizing seat allocation to maximize occupancy.

- **Seats Module:**

    The Seats module facilitates the management of seating arrangements within the cinema hall. Admin allocate seats to specific showtimes, and manage seat availability for ticket booking.

- **Login Module:**

    The Login module verifies the identity of customers and Admin attempting to log in. It validates the provided username and password combination against the stored user credentials in the system's database. Strong encryption techniques are used.

- **Admin Module:**

    The Admin module empowers cinema administrators with the tools and functionalities needed to oversee and manage various aspects of cinema operations. It facilitates efficient decision-making, data analysis, and system administration, contributing to the overall success and smooth functioning of the cinema.

Features of the Project:

- It satisfies user requirement
- Easy to understand and operate
- Have a good user interface
- Work becomes speedy
- Easy to Update , Delete and Add data
- Fast retrieval of information
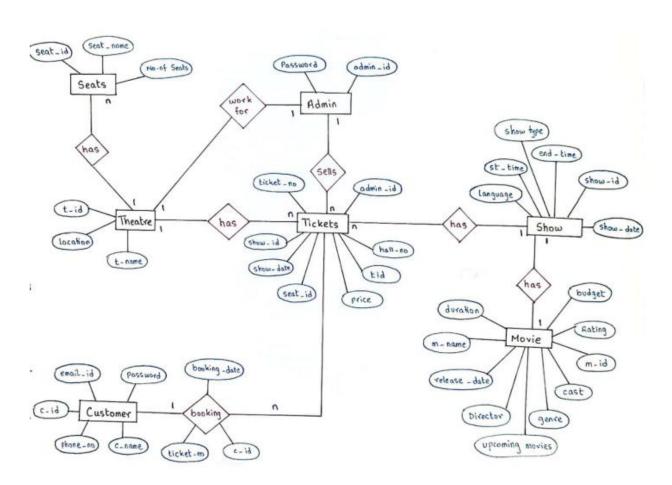
Methodology:

Business Rules in DBMS:

In the context of a Database Management System (DBMS), business rules refer to the guidelines and constraints that define how data should be stored, manipulated, and maintained within the database.

Here are some Business Rules applied in our project :

1. Entity Integrity Rule
2. Referential Integrity Rule
3. Domain Integrity Rule
4. Business Relationship Rule
5. Business Validation Rule
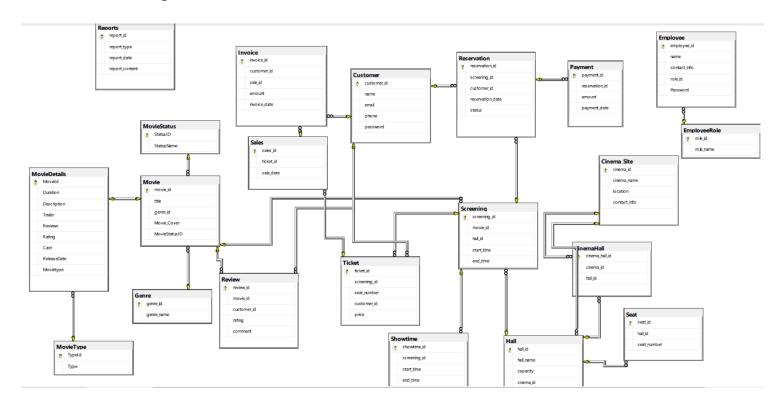
6. Data Consistency Rule
7. Data Access Rule
8. Data Retention Rule
9. Data Validation Rule
10. Data Transformation Rule

Entiy Relationship Diagram (ERD):

Implementation:

Schema Diagram:

Code Snippets:

- Code snippets of DDL

Creating Tables

```sql
CREATE TABLE [dbo].[Customer](
    [customer_id] [int] NOT NULL,
    [name] [varchar](255) NULL,
    [email] [varchar](255) NULL,
    [phone] [varchar](255) NULL,
    [password] [varchar](255) NULL,
PRIMARY KEY CLUSTERED
```

```sql
CREATE TABLE [dbo].[Hall](
    [hall_id] [int] NOT NULL,
    [hall_name] [varchar](255) NULL,
    [capacity] [int] NULL,
    [cinema_id] [int] NULL,
PRIMARY KEY CLUSTERED
```

Altering tables:

```
ALTER DATABASE [Cinema_Managment_System] SET ANSI_PADDING OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET ANSI_WARNINGS OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET ARITHABORT OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET AUTO_CLOSE OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET AUTO_SHRINK OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET AUTO_UPDATE_STATISTICS ON
GO
ALTER DATABASE [Cinema_Managment_System] SET CURSOR_CLOSE_ON_COMMIT OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET CURSOR_DEFAULT  GLOBAL
GO
ALTER DATABASE [Cinema_Managment_System] SET CONCAT_NULL_YIELDS_NULL OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET NUMERIC_ROUNDABORT OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET QUOTED_IDENTIFIER OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET RECURSIVE_TRIGGERS OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET  DISABLE_BROKER
GO
ALTER DATABASE [Cinema_Managment_System] SET AUTO_UPDATE_STATISTICS_ASYNC OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET DATE_CORRELATION_OPTIMIZATION OFF
GO
ALTER DATABASE [Cinema_Managment_System] SET TRUSTWORTHY OFF
```

- Code snippets of DML

```
INSERT [dbo].[Cinema_Site] ([cinema_id], [cinema_name], [location],
[contact_info]) VALUES (1, N'ABC Cinema', N'City XYZ', N'123-456-7890')
```

- Code snippet of Views

```sql
CREATE VIEW employee_view AS

SELECT id, first_name, last_name, salary

FROM employees

WHERE department = 'HR';
```

- Code snippet of Stored Procedures

```sql
USE [Cinema_Managment_System]
GO
/** Object:  StoredProcedure [dbo].[InsertCustomer]    Script Date: 6/20/2023 12:21:29 PM **/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
ALTER PROCEDURE [dbo].[InsertCustomer]
    @Name VARCHAR(100),
    @Password VARCHAR(100),
    @Email VARCHAR(100),
    @Phone VARCHAR(20)
AS
BEGIN
    DECLARE @customerId INT;
    SELECT @customerId = ISNULL(MAX(customer_id), 0) + 1 FROM Customer;

    INSERT INTO Customer (customer_id,name, Password, Email, Phone)
```

```
    VALUES (@customerId,@Name, ENCRYPTBYPASSPHRASE('13163', @Password),
@Email, @Phone);
END
```

- Code Snippet of Stored Functions

```
USE [Cinema_Managment_System]
GO
/** Object:  UserDefinedFunction [dbo].[GetAllMovieIDs]    Script Date: 6/20/2023
12:21:57 PM **/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
ALTER FUNCTION [dbo].[GetAllMovieIDs]()
RETURNS TABLE
AS
RETURN
(
    SELECT movie_id
    FROM Movie
)
```

- Code Snippet of Triggers

```
CREATE TRIGGER update_timestamp
AFTER INSERT ON your_table
FOR EACH ROW
BEGIN
    UPDATE your_table
    SET timestamp_column = CURRENT_TIMESTAMP
    WHERE id = NEW.id;
END
```

Conclusion:

Evaluation of the Project:

Login Module:

The Project meets the Objectives above, The Customer and Admin LogIns and The Database checks the entered data trough User Validation.

Customer Module:

When Customer logs in , they are directed to a Homepage where movies, Advertisements are shown and further Buttons to direct them to next Pages Such as Now Showing , Coming Soon , Book your Ticket , Contact Us , ShowTimes and more which give them further details

A customer can view List of movies currently showing in cinema , can book their tickets ,

Select Seats of their preference and then their Ticket will be printed.

Admin Module:

An Admin enters it Username , Password and will be directed to A Homepage where the Admin can manage the overall cinema management . The Admin can Insert , Delete , Update Movies and its details. They can keep record of How many seats are available in different Cinema Halls , How many seats are reserved , stil available.

The Admin can also manipulate data of ShowTimes and Screenings can check which Show is playing in which Hall at what Time.

There is a setting Option where Admin can add an other account , Update their personal information (Phone No , Password etc)

Screenshots of Major Modules:

Dashboard

Welcome, Arham

11:00:05 PM
Monday, June 19, 2023

Home
Movies
Cinema Hall
Ticket
Seats
ShowTime
Sales and Report
Settings

CINEVERSE

Coming Soon

It absolutely has the goods as a violent horror movie.

May 19, 2023 | Rating: 3/5 | Full Review...

Tim Brayton
Alternate Ending

CINEVERSE

Now Showing | Coming Soon | Show Times | Book Tickets | Loyalty | About Us

DISNEY · PIXAR
ELEMENTAL

MOVIE TICKETS
FOR STUDENTS
-50%
SHOP NOW

Connect with us

Ticketsinfo

Book Your Ticket

- **User Details**
- **Pick A Movie**
- **Pick A Time**
- **Pick A Seat**

- **Print Ticket**

| The Little Mermaid | Acid Man | Elemental | Quantumania |
| Fast X | Guardians Of The Galaxy | Avatar | Evil Dead Rise |

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showtimes

SHOW TIMES

Movie: [▾]   Date: Monday , June 19, 2023 ▾

CINEMA 1

03:00 pm	06:30 pm	09:00 pm	12:00 am
Digital 2D	Digital 2D	Digital 3D	Digital 3D
Rs 900	Rs 900	Rs 1000	Rs 1000

02:05 am
Digital 2D
Rs 900

Book Your Ticket

Please Select Your Seats

Selected Seat

Reserved or Disabled Seat

Empty Seat

	1	2	3	4	5	6	7	8	9
A					■				
B							■	■	
C	■	■	■						
D									

User Details

Pick A Movie

Pick A Time

Pick A Seat

Print Ticket