

Group 25 (Konami Code) - Project Step 6 (Portfolio Assignment)

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Project Title: IncrediFilms, a Cinema Experience

Website: <http://flip1.engr.oregonstate.edu:40593/>

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Executive Summary

- **Summary of feedback**

- **Step 1 & 2:**

- Add numerical facts to the outline so the end user can have a clear picture of the scope and scale of the project.
 - Adjust ON DELETE clauses to define relationships clearer.

- **Step 3, Step 4 & Step 5:**

- Implement data validation to set restrictions on the inserted and updated records.
 - Clean the UI so it is more intuitive for the end user.

- **Changes made from initial version until now**

- **DML, DDL**

- Updated SQL queries to match the finalized UI, including new UNIQUE constraints to halt duplications and updated ON DELETE clauses.

- **ERD, Schema, Outline**

- Enforced a nullable relationship between ticket and customer, and finalized attributes in other entities, including CHECK restrictions on attribute mpa_rating in the Movie table.

- **UI**

- Added Toast messages to alert users of both successful and unsuccessful attempts to insert, update, and delete database records.
 - Made the UI cleaner for the user by limiting the number of rows shown on a page, and moved both the add and update functionality on the main page of each table.

- **Reflection**

- After each draft, we made significant improvements to resolve any inquiries our implementation left the reviewers. Our main driver for any changes from the initial draft to the portfolio was ease and clarity for the end user. As an example, when a reviewer suggested including the add record page on each entity's dashboard, we tested both a separate page routing back to the homepage and their suggestion, noted pros and cons of each method, and ultimately agreed with their assessment. This made checking for duplicate records more transparent.

Project Outline

IncrediFilms™ is a burgeoning player in the world of movie-goer experience. IncrediFilms theaters seek to celebrate a fusion between the nostalgic atmosphere of the red-velvet curtain theater and the web native systems that today's audience expects. Each IncrediFilms theater remains community-owned and operated, while utilizing a modern logistics backend—orchestrating scheduling, stock, and operational needs across their 12 locations. IncrediFilms prides itself in keeping costs to consumers low—no \$12 popcorn, here—and employee compensation fair. The organization is proud to state that all employees receive a living wage, at minimum.

In order to accomplish each of their defining qualities, the organization relies on a modern tech backend that keeps operations efficient, organized, and intuitive across all locations. The number of IncrediFilms cinema screens statewide increased 20% between 2019 and 2023 to 12, with overall attendance growing more than 40% in the same time frame to a record 4 million unique movie-goers and counting (as reported in their earnings report.) With plans to open another two locations in the next two years, they can no longer rely on their fleet of Etch-A-Sketches alone to handle record keeping. To this end, IncrediFilms requires a web-enabled frontend that facilitates employee and patron needs. Underlying this frontend and other interface systems, a well-structured and robust database is crucial for managing organizational data.

Phase I of this database implementation is to streamline Movie scheduling amongst IncrediFilms' flagship Theaters and track financial performance of each Movie and Movie Genre via Tickets sold to Customers to decide Showtimes for the following week. This system must be capable of recording sales for 5,000 Showtimes in its 12 Theaters annually. Additionally, in acting as a record of IncrediFilm's screening history, the database should track basic movie details such as year, runtime, and its genre categorizations. These details will help to inform the online information system and ticket-buying experience for customers. Finally, IncrediFilms seeks to manage its loyal customer fanbase. The system will also need to keep track of IncrediFilms customer records, supplying contact information and linking customers with their ticket purchases. It is hoped that the data gleaned from these records will inform IncrediFilms decisions and strategy in the future, catering the experience to the organization's most prolific customers.

Database Outline

1. **Entity 1: Customer** - records and stores information about each customer and/or potential customer

- customer_id int NOT NULL AUTO_INCREMENT UNIQUE PRIMARY KEY
- first_name varchar(30) NOT NULL
- last_name varchar(30) NOT NULL
- dob date NOT NULL
- email varchar(254)

Relationship(s):

- **1:M** relationship between **Customer** and **Ticket**; a Customer can be associated with zero or more Tickets, whereas a Ticket will be associated with one and only one Customer.

2. **Entity 2: Genre** - records and stores information about possible genres associated with movies.

- genre_id int NOT NULL AUTO_INCREMENT UNIQUE PRIMARY KEY
- genre_name varchar(45) NOT NULL UNIQUE

Relationship(s):

- **M:N** relationship between **Genre** and **Movie**. Each Genre can have zero or more Movies associated with it; each Movie will have one or more Genres associated with it.
 - An intersection table, **Movie_Genre**, will facilitate this **M:N** relationship between Movie and Genre.

3. **Entity 3: Movie** - records and stores information of each movie IncrediFilms shows in their theaters.

- movie_id - int NOT NULL AUTO_INCREMENT UNIQUE PRIMARY KEY
- movie_name varchar(100) NOT NULL
- runtime_min int NOT NULL
- mpa_rating varchar(5) NOT NULL
- movie_year year NOT NULL

Relationship(s):

- **1:M** relationship between **Movie** and **Showtime**; each Movie can have zero or more Showtimes associated with it, each Showtime will be associated with one and only one movie.
- **M:N** relationship between **Movie** and **Genre**. Each Movie will have one or more Genres associated with it; each Genre can have zero to many associated Movies.
 - An intersection table, **Movie_Genre**, will facilitate this **M:N** relationship between Movie and Genre.

4. **Entity 4: Showtime** - records and stores information about each showtime.

- showtime_id int NOT NULL AUTO_INCREMENT UNIQUE PRIMARY KEY
- show_date_time datetime NOT NULL
- movie_id int, FK
- theater_id int, FK

Relationship(s):

- **1:M** relationship between **Showtime** and **Ticket**; a Showtime will be associated with zero or more Tickets, while a Ticket will be associated with one and only one Showtime.
- **1:M** relationship between **Movie** and **Showtime**; a given Showtime will be associated with one and only one Movie; a given Movie can have zero or more Showtimes. movie_id is the foreign key in the Showtime table that facilitates the relationship between the two entities.
- **1:M** relationship between **Showtime** and **Theater**; a given Showtime will take place in one and only one Theater; a Theater can have zero to many Showtimes. theater_id is the foreign key in the Showtime table that facilitates the relationship between the two entities.

5. **Entity 5: Theater** - records and stores information about each IncrediFilms theater location.

- theater_id int NOT NULL AUTO_INCREMENT UNIQUE PRIMARY KEY
- theater_name varchar(50) NOT NULL UNIQUE
- no_of_seats int NOT NULL

Relationship(s):

- **1:M** relationship between **Theater** and **Showtime**; a Theater can have zero to many Showtime instances. A given showtime will have one and only one associated Theater.

6. **Entity 6: Ticket** - records and stores the details of each movie ticket.

- ticket_id int NOT NULL AUTO_INCREMENT UNIQUE PRIMARY KEY
- customer_id int, FK
- showtime_id int, FK
- price decimal(5,2) NOT NULL
- payment_method varchar(45)

Relationship(s):

- **1:M** relationship between **Customer** and **Ticket**; a given Customer can have zero or more Tickets, while a given Ticket can have zero or one customer. customer_id is the foreign key in the Ticket table that facilitates the relationship between the two entities.
- **1:M** relationship between **Showtime** and **Ticket**; a given Ticket will have one and exactly one Showtime (on creation), while a given Showtime can be associated with zero to many Tickets. showtime_id is the foreign key in the Ticket table that facilitates the relationship between the two entities.

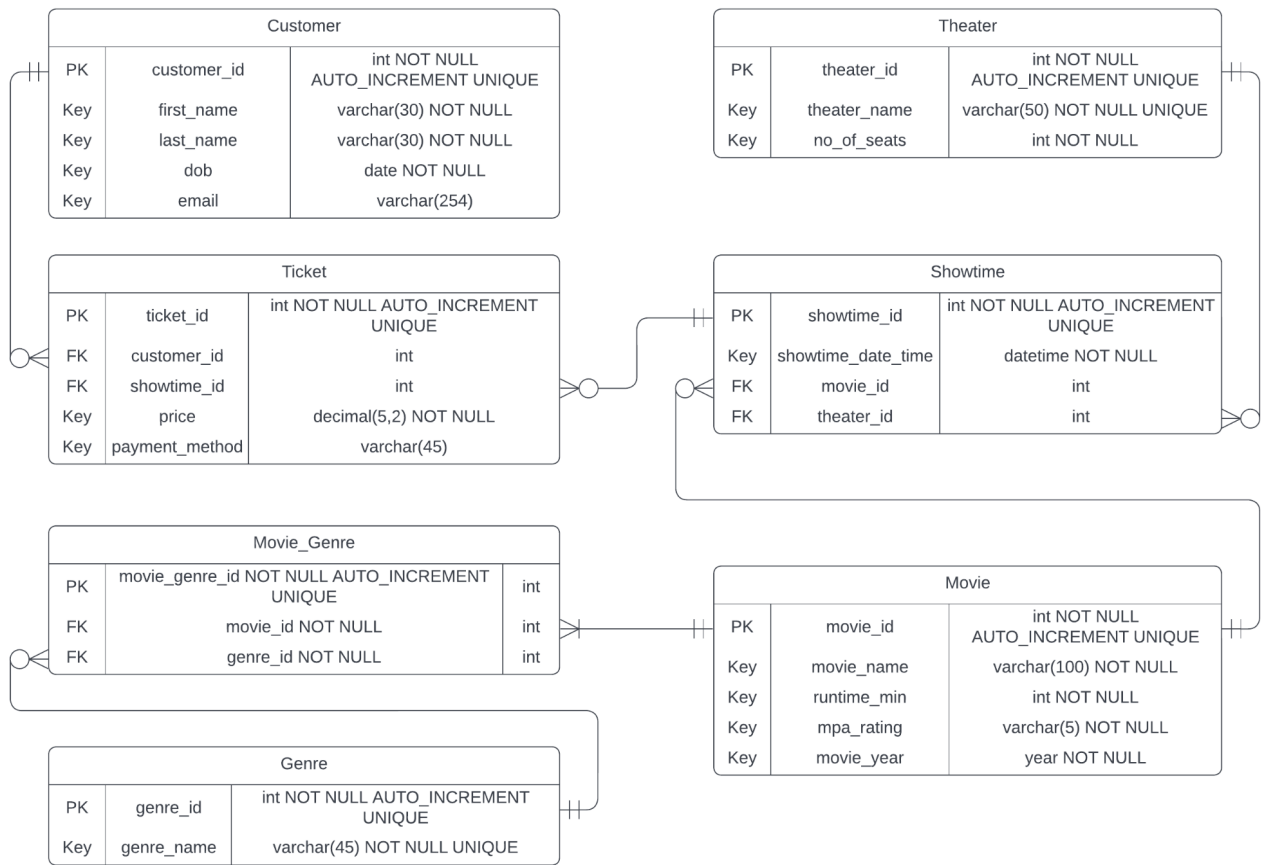
7. **Intersection Table: Movie_Genre** - Facilitates the M:N relationship between Movie and Genre entities.

- movie_genre_id int NOT NULL AUTO_INCREMENT UNIQUE PRIMARY KEY
- movie_id int NOT NULL, FK
- genre_id int NOT NULL, FK

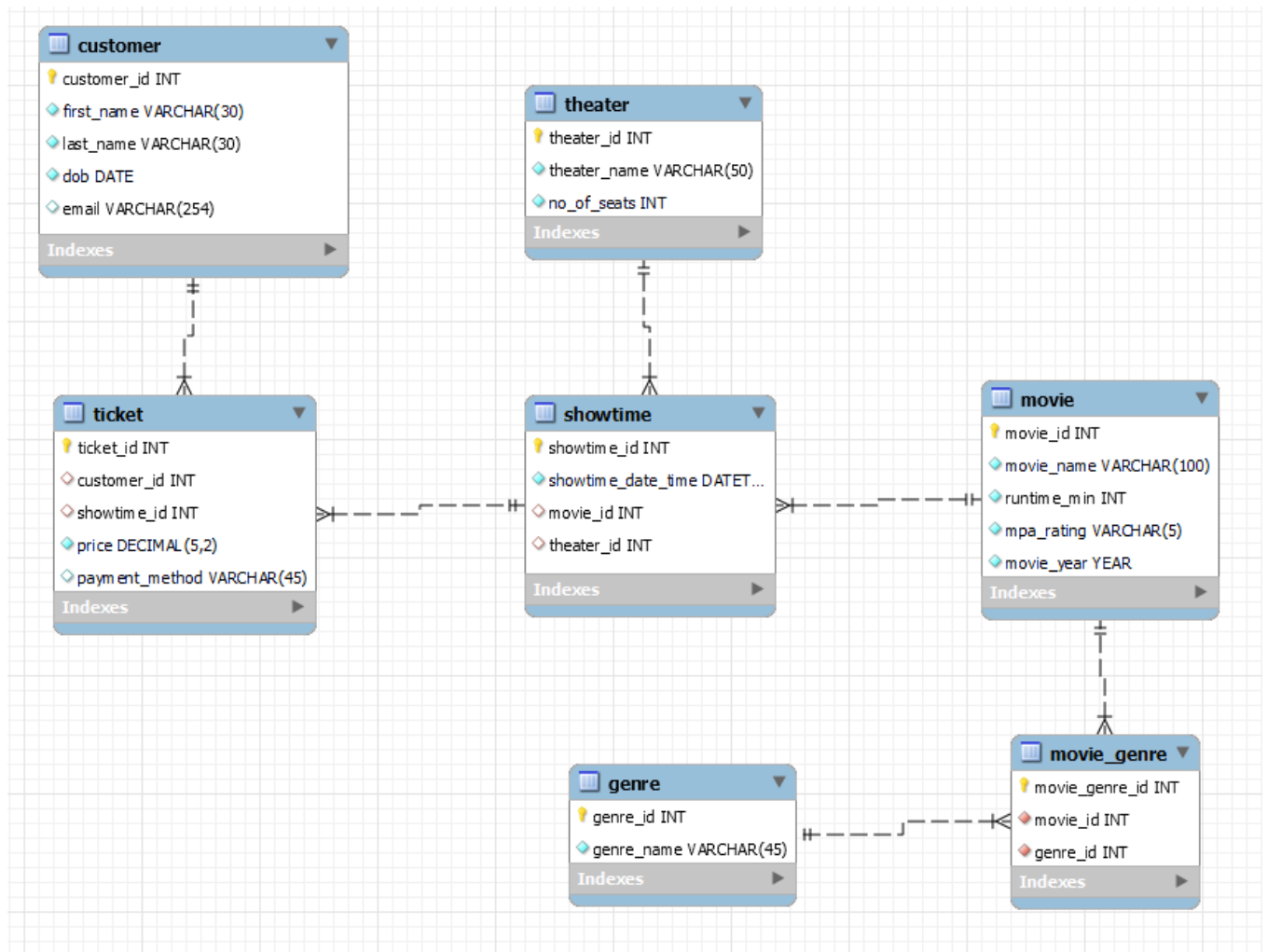
Relationship(s):

- Facilitates **M:N** relationship between **Movie** and **Genre**. Each Movie will have one or more Genres associated with it; each Genre can have zero to many associated Movies.
- **1:M** relationship between Genre and Movie_Genre implemented with genre_id as the foreign key in Movie_Genre.
- **1:M** relationship between Movie and Movie_Genre implemented with movie_id as the foreign key in Movie_Genre.

Entity-Relationship Diagram (ERD)



Schema



Sample Data and Screen Captures

Sample Data

Customer Entity's Sample Data¹

customer_id	first_name	last_name	dob	email
1	AJ	Styles	1977-06-02	AJ.Styles@gmail.com
2	Stephanie	Helmsley	1976-09-24	Stephanie.Helmsely@gmail.com
3	Alexa	Bliss	1991-08-09	Alexa.Bliss@gmail.com
4	Booker	T	1965-03-01	NULL
5	Jenna	Andrade	1989-11-03	Jenna.Andrade@gmail.com
6	Andre	Giant	1946-05-19	NULL
7	Michaela	Hargrove	2001-05-30	Michaela.Hargrove@gmail.com
8	Em	Patterson	2017-12-02	NULL

Movie Entity's Sample Data

movie_id	movie_name	runtime_min	mpa_rating	movie_year
1	Dr. Strangelove or: How I Learned to Stop Worrying...	95	PG	1964
2	Interstellar	169	PG-13	2014
3	Amélie	122	R	2001
4	The Shining	146	R	1980
5	Everything Everywhere All at Once	139	R	2022
6	Encanto	102	PG	2021
7	Bee Movie	91	PG	2007

¹ Data for Customer Table is a blend of invented data and adapted data from mdabbert (2020). See Works Cited section for more details.

Genre Entity's Sample Data

genre_id	genre_name
1	Documentary
2	Kids
3	Family
4	Comedy
5	Independent
6	International
7	Drama
8	Musical
9	Thriller
10	Horror
11	Sci-Fi
12	Romance
13	Animated
14	Sports
15	Action
16	Cult Classic
17	Adventure
18	LGBTQ+
19	Crime
20	Mystery
21	Fantasy
22	Historical

Theater Entity's Sample Data

theater_id	theater_name	no_of_seats
1	IncrediFilms Rogers Park	300
2	IncrediFilms Wicker Park	500
3	IncrediFilms Uptown	300
4	IncrediFilms Lincoln Square	250
5	IncrediFilms North Center	250
6	IncrediFilms Lake View	250

Ticket Entity's Sample Data

ticket_id	customer_id	showtime_id	price	payment_method
1	2	5	9.00	CREDIT
2	2	6	5.00	CREDIT
3	8	1	9.00	CASH
4	NULL	1	9.00	DEBIT
5	3	2	9.00	CREDIT
6	4	4	9.00	NULL

Showtime Entity's Sample Data

showtime_id	showtime_date_time	movie_id	theater_id
1	2023-02-10 16:00:00	1	1
2	2023-02-10 15:00:00	2	4
3	2023-02-14 17:00:00	2	4
4	2023-02-14 18:00:00	7	2
5	2023-02-14 18:00:00	7	1
6	2023-02-16 12:00:00	3	5
7	2023-02-16 15:30:00	4	1

Movie_Genre's Sample Data (Intersection Table)

movie_genre_id	movie_id	genre_id
1	1	4
2	1	15
3	2	11
4	2	15
5	2	17
6	2	9
7	3	12
8	3	4
9	4	10
10	4	20
11	5	11
12	5	4
13	5	20
14	6	2
15	6	3
16	6	8
17	6	17
18	7	3
19	7	4
20	7	15
21	7	17
22	7	16

IncrediFilms Database Manager UI

<http://flip1.engr.oregonstate.edu:40593/>

IncrediFilms

Movies

Genres

Theaters

Showtimes

Tickets

Customers

MovieGenres

IncrediFilms Admin Dashboards

Welcome

IncrediFilms™ is a burgeoning player in the world of movie-goer experience and the web native systems that today's audience expects. Each IncrediFil scheduling, stock, and operational needs across their 12 locations. IncrediFil organization is proud to state that all employees receive a living wage, at r

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UI Screenshots with Informative Titles

Movies Dashboard - CRUD Functionality

<http://flip1.engr.oregonstate.edu:40593/movie>

Read movie records

IncrediFilms Admin Dashboards

Movies

Create, Retrieve, Update or Delete a Movie Record

Type a keyword...

Movie ID	Movie Name	Runtime (mins)	MPA Rating	Year	Edit	Delete
1	Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb	95	PG	1964		
2	Interstellar	169	PG-13	2014		
3	Amélie	122	R	2001		
4	The Shining	146	R	1980		
5	Everything Everywhere All at Once	139	R	2022		
6	Encanto	102	PG	2021		
7	Bee Movie	91	PG	2007		

Showing 1 to 7 of 7 results

Previous 1 Next

Add a new movie

Movie Name

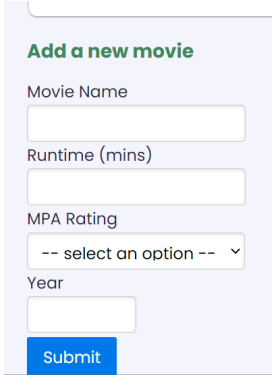
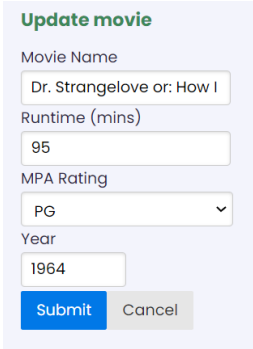
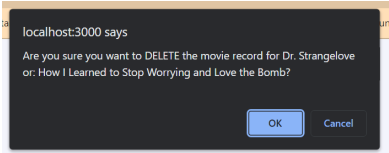
Runtime (mins)

MPA Rating

-- select an option --

Year

Submit

Create a movie record	Update a movie record	Delete a movie record
Visible at load time directly under the records table	Click on a pencil icon next to a record to update it. Will replace the “add a new record” field at the end of the page.	Click on the trash bin icon next to a record to delete it. A pop-up will ask to confirm deletion.
		

Genres Dashboard - CRUD Functionality

<http://flip1.engr.oregonstate.edu:40593/genre>

Read genre records

IncrediFilms Admin Dashboards

Genres

Create, Retrieve, Update or Delete a Genre

Type a keyword...

Genre ID	Genre Name	Edit	Delete
1	Documentary		
2	Kids		
3	Family		
4	Comedy		
5	Independent		
6	International		
7	Drama		
8	Musical		
9	Thriller		
10	Horror		

Showing 1 to 10 of 22 results

Previous 1 2 3 Next

Add a new genre

Genre name

Submit

Create a genre record	Update a genre record	Delete a genre record
Visible at load time directly under the records table	Click on a pencil icon next to a record to update it. Will replace the "add a new record" field at the end of the page.	Click on the trash bin icon next to a record to delete it. A pop-up will ask to confirm deletion.
<p>Add a new genre</p> <p>Genre name</p> <input type="text"/> <p>Submit</p>	<p>Update genre</p> <p>Genre name</p> <input type="text" value="Documentary"/> <p>Submit Cancel</p>	<p>localhost:3000 says</p> <p>Are you sure you want to DELETE the genre record for Documentary?</p> <p>OK Cancel</p>

Theaters Dashboard - CRUD Functionality

<http://flip1.engr.oregonstate.edu:40593/theater>

Read theater records

IncrediFilms Admin Dashboards

Theaters

Create, Retrieve, Update or Delete a Theater

Type a keyword...

Theater ID	Theater Name	Number of seats	Edit	Delete
1	IncrediFilms Rogers Park	300		
2	IncrediFilms Wicker Park	500		
3	IncrediFilms Uptown	300		
4	IncrediFilms Lincoln Square	250		
5	IncrediFilms North Center	250		
6	IncrediFilms Lake View	250		

Showing 1 to 6 of 6 results

Previous 1 Next

Add a new theater

Theater name

Number of seats

Submit

Create a theater record	Update a theater record	Delete a theater record
Visible at load time directly under the records table	Click on a pencil icon next to a record to update it. Will replace the "add a new record" field at the end of the page.	Click on the trash bin icon next to a record to delete it. A pop-up will ask to confirm deletion.
<div><h3>Add a new theater</h3><p>Theater name</p><input type="text"/><p>Number of seats</p><input type="text"/><p>Submit</p></div>	<div><h3>Update a theater</h3><p>Theater name</p><input type="text" value="IncrediFilms Lincoln Squc"/><p>Number of seats</p><input type="text" value="250"/><p>Submit Cancel</p></div>	<div><p>localhost:3000 says</p><p>Are you sure you want to DELETE the theater record for IncrediFilms Lincoln Square?</p><p>OK Cancel</p></div>

Showtimes - CRUD Functionality + Filter

<http://flip1.engr.oregonstate.edu:40593/showtime>

Read showtime records

IncrediFilms Admin Dashboards

Showtimes

Create, Retrieve, Update or Delete a Showtime

To display only showtimes between two given dates please indicate a start and end date:

Filter results by date range:

mm/dd/yyyy --:-- -- mm/dd/yyyy --:-- -- Clear

Type a keyword...

Showtime ID	Datetime	Movie	Theater	Edit	Delete
1	02/10/23 9:00pm	Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb	IncrediFilms Rogers Park		
2	02/10/23 8:00pm	Interstellar	IncrediFilms Lincoln Square		
3	02/14/23 10:00pm	Interstellar	IncrediFilms Lincoln Square		
5	02/14/23 11:00pm	Bee Movie	IncrediFilms Rogers Park		
6	02/16/23 5:00pm	Amélie	IncrediFilms North Center		
7	02/16/23 8:30pm	The Shining	IncrediFilms Rogers Park		

Showing 1 to 6 of 6 results

Previous 1 Next

Add a new showtime

Datetime
mm/dd/yyyy --:-- --

Movie
-- select an option --

Theater
-- select an option --

Submit

Create a showtime record	Update a showtime record	Filter a showtime record	Delete a showtime record
Visible at load time directly under the records table	Click on a pencil icon next to a record to update it. Will replace the "add a new record" field at the end of the page.	Visible at load time. Select a start date and/or an end date to filter showtimes by date. Select clear to display all records	Click on the trash bin icon next to a record to delete it. A pop-up will ask to confirm deletion.

Tickets Dashboard - CRUD Functionality, nullable relationship

<http://flip1.engr.oregonstate.edu:40593/ticket>

Read Ticket records

IncrediFilms Admin Dashboards ←

Tickets

Create, Retrieve, Update, or Delete a Ticket

Type a keyword...

Ticket...	Customer Name	Showtime Date & Time	Movie	Theater	Price	Payment Method	Edit	Delete
2	Stephanie Helmsley	02/16/23 5:00pm	Amélie	IncrediFilms North Center	\$5.00	CREDIT	✎	🗑
3	Em Patterson	02/11/23 2:00am	Amélie	IncrediFilms Lake View	\$9.00	CASH	✎	🗑
4		02/11/23 2:00am	Amélie	IncrediFilms Lake View	\$9.00	DEBIT	✎	🗑

Showing 1 to 3 of 3 results

Previous 1 Next

Add a new ticket

Customer
-- None --

Showtime
-- None --

Price
-- select an option --

Payment Method
-- select an option --

Submit

←

Create a ticket record	Update a ticket record	Delete a ticket record
Visible at load time directly under the records table	Click on a pencil icon next to a record to update it. Will replace the “add a new record” field at the end of the page.	Click on the trash bin icon next to a record to delete it. A pop-up will ask to confirm deletion.
<div> <p>Add a new ticket</p> <p>Customer -- None --</p> <p>Showtime -- None --</p> <p>Price -- select an option --</p> <p>Payment Method -- select an option --</p> <p>Submit</p> </div>	<div> <p>Update ticket</p> <p>Customer Patterson, Em (3)</p> <p>Showtime Amélie at IncrediFilms Lake View on 2023-02-10 21:00:00</p> <p>Price Standard - \$9.00</p> <p>Payment Method CASH</p> <p>Submit Cancel</p> </div>	<div> <p>localhost:3000 says</p> <p>Are you sure you want to DELETE the record for ticket ID = 3 for Em Patterson for Amélie at IncrediFilms Lake View on this date?</p> <p>OK Cancel</p> </div>

Customers Dashboard - CRUD Functionality

<http://flip1.engr.oregonstate.edu:40593/customer>

Read customer records

IncrediFilms Admin Dashboards

Customers

Create, Retrieve, Update or Delete a Customer

Type a keyword

ID	First Name	Last Name	Date of Birth	Email	Edit	Delete
1	AJ	Styles	1977-06-02	AJ.Styles@gmail.com		
2	Stephanie	Helmsley	1976-09-24	Stephanie.Helmsley@gmail.com		
3	Alexa	Bliss	1991-08-09	Alexa.Bliss@gmail.com		
4	Booker	T	1965-03-01			
5	Jenna	Andrade	1989-11-03	Jenna.Andrade@gmail.com		
6	Andre	Giant	1946-05-19			
7	Michaela	Hargrove	2001-05-30	Michaela.Hargrove@gmail.com		
8	Em	Patterson	2017-12-02			

Showing 1 to 8 of 8 results

Previous 1 Next

Add a new customer

First name

Last name

Date of Birth

mm/dd/yyyy

Email

Submit

Create a customer record	Update a customer record	Delete a customer record
Visible at load time directly under the records table	Click on a pencil icon next to a record to update it. Will replace the "add a new record" field at the end of the page.	Click on the trash bin icon next to a record to delete it. A pop-up will ask to confirm deletion.
<div> <p>Add a new customer</p> <p>First name</p> <p>Last name</p> <p>Date of Birth</p> <p>mm/dd/yyyy</p> <p>Email</p> <p>Submit</p> </div>	<div> <p>Update customer</p> <p>First name</p> <p>Em</p> <p>Last name</p> <p>Patterson</p> <p>Date of Birth</p> <p>12/02/2017</p> <p>Email</p> <p>Submit Cancel</p> </div>	<div> <p>localhost:3000 says</p> <p>Are you sure you want to DELETE the record for customer Em Patterson?</p> <p>OK Cancel</p> </div>

MovieGenres Dashboard - CRUD Functionality, Intersection table
<http://flip1.engr.oregonstate.edu:40593/moviegenre>

Read movie genre records

IncrediFilms Admin Dashboards

MovieGenres

Create, Retrieve, Update, or Delete a Movie Genre relationship

Type a keyword...

Movie Genre ID	Movie	Genre	Edit	Delete
1	Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb	Comedy		
2	Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb	Action		
3	Interstellar	Sci-Fi		
4	Interstellar	Action		
5	Interstellar	Adventure		
6	Interstellar	Thriller		
7	Am��lie	Romance		
8	Am��lie	Comedy		
9	The Shining	Horror		
10	The Shining	Mystery		

Showing 1 to 10 of 22 results

Previous

1

2

3

Next

Add a new movie genre relationship

Movie

-- select an option --

Genre

-- select an option --

Submit

Create a movie genre relationship record	Update a movie genre relationship record	Delete a movie genre relationship record
Visible at load time directly under the records table	Click on a pencil icon next to a record to update it. Will replace the “add a new record” field at the end of the page.	Click on the trash bin icon next to a record to delete it. A pop-up will ask to confirm deletion.
<div> <div>Add a new movie genre relationship</div> <div> <div>Movie</div> <div>-- select an option --</div> </div> <div> <div>Genre</div> <div>-- select an option --</div> </div> <div>Submit</div> </div>	<div> <div>Update movie genre relationship</div> <div> <div>Movie</div> <div>Am��lie</div> </div> <div> <div>Genre</div> <div>Romance</div> </div> <div> <div>Submit</div> <div>Cancel</div> </div> </div>	<div> <div>localhost:3000 says</div> <div>Are you sure you want to DELETE the movie genre relationship between movie Am��lie and genre Comedy?</div> <div> <div>OK</div> <div>Cancel</div> </div> </div>

Works Cited

mdabbert. "Professional Wrestling Champions (WWE/WWF)." 2020,

<https://www.kaggle.com/datasets/mdabbert/professional-wrestling-champions-wwewwf>.

Retrieved on 2/5/23 via the web.