

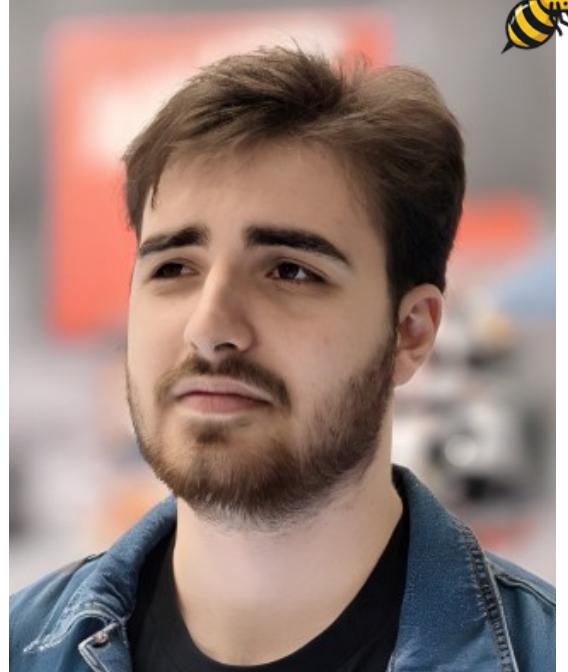


BEEMD®

b e e m o v i e d a t a b a s e



MEET OUR TEAM



Faruk Yiğit Oluşan

820230308

- Database design & normalization
- Data collection / preprocessing
- Episode + Recommend Page
- Episode Table



Ceyda Nur Akalın

820230311

- Database design & normalization
- Frontend
- Admin Page
- Genres + Principals Table



Eylül Ebrar Gülbeyaz

820230304

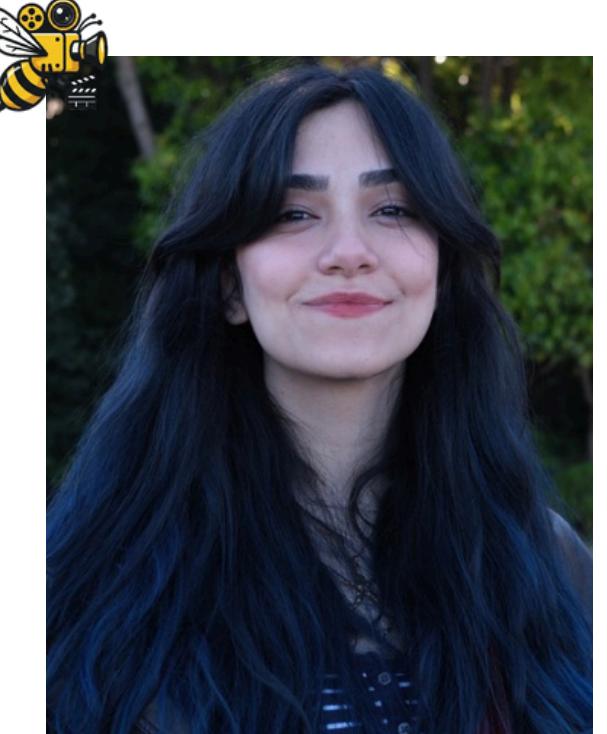
- Flask implementation
- Movies Page , Movie page
- Quiz Page
- Movie Table



Turgut Emre Sürenkök

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- User Page
- User Database
- Celebrity Page
- People + Profession Tables



Şevval Hayyar

820230338

- Frontend
- Series page, Serie Page
- Series Table



The screenshot shows the BeeMD application interface. At the top, there's a navigation bar with the BeeMD logo, a search bar, and user account icons. Below the header, a large central area features a collage of movie and TV show posters, including "The Mentalist", "Cruella", "House", "How I Met Your Mother", "Gilmore Girls", and "The Good, the Bad and the Ugly". A prominent call-to-action box in the center-left says "Discover and explore movies & series" with a subtext about curated picks and personalized recommendations. It includes two buttons: "Browse Movies" and "Get Recommendations". Below this, a "Featured Movies" section lists "The Dark Knight (2008)", "The Lord of the Rings: The Fellowship of the Ring (2001)", "The Good, the Bad and the Ugly (1966)", "Star Wars: Episode IV - A New Hope (1977)", and "Back to the Future (1985)" with their respective star ratings and vote counts.

ABOUT OUR PROJECT

BEEMD – Movie & TV Series Database Application

Motivation: Managing movies, series, episodes, celebrities, users, favorites, and quiz results requires a structured relational database with complex relationships.

Goal: To provide an interactive platform where users can search, explore, and interact with movie-related data in an organized and scalable way.



BeeMD

Search... Logout

Series Results

Browse and filter the complete TV series database

Search series... TYPE: TV Series START YEAR: All Years END YEAR: All End Years CONTENT: All Content

TITLE	YEAR RANGE	IMDB	GENRE	START YEAR	LIKE
Idaho Loves Bingo	2032 – ?	-	Unknown	2032	
Batman Cave	2029 – ?	-	Unknown	2029	
Yoink! of the Yukon	2029 – ?	-	Thriller	2029	
12 12 12	2026 – ?	-	Unknown	2026	
2026 Asian Games	2026 – ?	-	Unknown	2026	
2026-27 UEFA Nations League	2026 – ?	-	Unknown	2026	
29-Sai Dokushin Chuken Boukensha no Nichijou	2026 – ?	-	Unknown	2026	
A Fluffy Life	2026 – ?	-	Unknown	2026	

01

02

Search and list movies
and series

View detailed information

SERIES & MOVIES

BeeMD

Search... Logout

All Movies

Browse and filter the complete movie database

Movie Title Genre Release Year IMDb Rating

TITLE	YEAR	RATING	GENRE	RUNTIME	LIKE
666 the Satanic High Mass	2006	★ 10.0	-	42 min	
70'	2004	★ 10.0	Short	1 min	
A Day at Secondary School for the Girl with the Curly Hair	2018	★ 10.0	-	14 min	
A janela de Íris	2023	★ 10.0	-	28 min	
A Walk in West LA	2022	★ 10.0	-	20 min	
A Wonderful Day	2019	★ 10.0	Short	40 min	
Adobo	2023	★ 10.0	-	14 min	
Anuched	2022	★ 10.0	-	-	



01

Search and list episodes and celebrities

The screenshot shows the BeeMD website's 'Celebrities' section. At the top, there is a search bar with the placeholder 'Search...'. Below it is a 'Search' button and a row of user icons. The main area is titled 'Celebrities' and contains a search bar with the placeholder 'Search celebrities...'. Underneath are filter options: 'Select Professions' (dropdown), 'All Names' (dropdown), 'Birth Year' (dropdown), 'Death Year' (dropdown), 'Order By' (dropdown), and a 'Apply Filters' button. Below these filters, the heading 'Results (50)' is displayed. The results are listed in a grid format with five rows. Each row contains a celebrity's name, their profession, and two small interactive icons (a question mark and a heart).

Name	Profession	Actions	
Claire Scanlon	Director, Editor, Producer	?	Heart
David Rogers	Director, Editor, Producer	?	Heart
Michael G. Gallenberg		?	Heart
Barrie M. Osborne		1944	Heart
Fran Walsh		1959	Heart

02

View detailed information

The screenshot shows the BeeMD website's 'TV Episodes' search results page. At the top, there is a search bar with the placeholder 'Search...' and a 'Search' button. To the right are three user icons. The main area is titled 'TV Episodes' and contains a search form with fields for 'Episode Title', 'Runtime (min)', 'Series Name', 'Season Number', and 'Episode Number'. Below the search form, the heading 'Results (100 episodes)' is displayed. The results are listed in a table with seven columns: TITLE, RUNTIME, SERIES, SEASON, EPISODE, and LIKE. Each row represents a TV episode with its title, runtime, series, and broadcast details. A red heart icon is present in the 'LIKE' column for each row.

TITLE	RUNTIME	SERIES	SEASON	EPISODE	LIKE
El huésped del sevillano	86 min	Teatro lírico español	-	-	Heart
The Tenderfeet	30 min	The Lone Ranger	S1	E9	Heart
Othello	143 min	BBC Sunday-Night Theatre	S1	E17	Heart
The Tragedy of King Richard II/II	145 min	BBC Sunday-Night Theatre	-	-	Heart
Coriolanus	60 min	Studio One	S3	E42	Heart
The Life of King Henry V	133 min	BBC Sunday-Night Theatre	S2	E16	Heart
Julius Caesar	N/A	BBC Sunday-Night Theatre	S2	E8	Heart

CELEBRITIES & EPISODES



RECOMMEND & QUIZES

*Requires login

The screenshot shows the BeeMD homepage with a dark theme. At the top, there's a search bar and a navigation bar with icons for help, user profile, and logout. Below the header, a section titled "Personalized Recommendations" displays a message: "Here are some recommendations just for you, emre." It includes filters for genre (All Genres (Personalized)), start year (e.g. 2000), end year (e.g. 2023), and an "Apply" button. A note says "Based on: Short".

Recommended Movies

- Hande Ercel ile Dingin ve Derin Sularda (2021) ★ 9.6 (3733 votes)
- Fantastic Beasts and Where to Find Them: Before Harry Potter (2017) ★ 7.2 (27258 votes)

Recommended Series

- Vikings: The Viking Sagas (2014) ★ 8.7 (21852 votes)
- Omerta (2017) ★ 7.1 (4020 votes)
- Marmadesam (1997) ★ 9.6 (1011 votes)
- Rick and Morty (2013) ★ 9.0 (672675 votes)
- Avatar: The Last Airbender (2005) ★ 9.3 (420257 votes)
- Batman: The Animated Series (1992) ★ 9.0 (131334 votes)

The screenshot shows a "Quiz Time" section on the BeeMD website. It features a search bar and navigation icons at the top. The main content area is titled "Quiz Time" with a film icon. It says "Answer all questions and submit the quiz." Two questions are listed:

1. What is the name of the high school where Walter White teaches chemistry?
 - J.P. Wynne High School
 - Albuquerque High School
 - Rio Rancho High School
 - J.P. Stevens High School
2. Which character is known for saying 'I am the one who knocks'?
 - Jesse Pinkman
 - Hank Schrader
 - Walter White
 - Saul Goodman

01

Recommend
according to users
favourite genres

02

Generate **AI-based**
quizzes for selected
movies or series
Updates the **leader**
board accordingly



USER PAGE & AUTH. & FEEDBACK

- User authentication
(sha256 encrypted passwords)
- Control liked content
- Track quiz scores
- Send suggestions

Sign Up

Username

Email

Password

Date of Birth
 mm/dd/yyyy

Gender
 Select an option...

Sign Up

Already have an account? [Login](#)

Login

Email

Password

Login

Don't have an account? [Sign up now](#)

We Value Your Feedback

Help us improve BeeMD by sharing your thoughts, feature requests, or reporting bugs.

Subject
 General Feedback

Your Suggestion
 Type your suggestion here...

Send Suggestion

emre
Email: emre@gmail.com
Date of Birth: 19.01.2025 Gender: Male

My Quiz Score:
0 Top 100.0% of all users

Liked Movies

The Lord of the Rings: The Fellowship of the Ring 2001	70' ★ 8.9	666 the Satanic High Mass 2004	★ 10.0
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Liked Series

2028 Republican National Convention 2028 - Present	2030 FIFA World Cup 2030 - Present	A Misanthrope Teaches a Class for Demi-Humans 2026 - Present
---	---------------------------------------	---

Liked Episodes

Teatro lírico español El huésped del sevillano S0 • E0	Studio One Coriolanus S3 • E42	BBC Sunday-Night Theatre The Life of King Henry V S2 • E16
--	--------------------------------------	--

Liked Celebrities

Fran Walsh 1959



ADMIN

CRUD

- Create new data
- Update existing data
- Delete unwanted data

Admin Menu

- Dashboard
- Manage People
- Manage Movies
- Manage Series
- Manage Episodes
- Manage Ratings
- Manage Genres
- Manage Principals
- Manage Professions
- Manage Users
- Manage Suggestions

Admin Dashboard

Manage all system databases and user data

GitHappens Database

Content management & metadata

- People
- Movies
- Series
- Episodes
- Ratings
- Genres
- Principals
- Professions

User Database

User accounts & activity management

- Users
- Suggestions



ADMIN

Edit User

Search by username or email Search

ID	Username	Email	DOB	Gender	Score	Admin	Action
1	adminfaruk	adminfaruk@beemd.com	2004-02-25	male	9	<input checked="" type="checkbox"/>	Edit
3	faruk	faruk@gmail.com	2004-02-25	Male	0	<input type="checkbox"/>	Edit

Delete Person

Search by name or ID... Search

ID	Name	Action
nm7127207	' Calvin x 'Murphy Calvin	<input type="button" value="Delete"/>
nm3181118	'58' Pal Gunna	<input type="button" value="Delete"/>

Edit Series

Series Title

'60s Pop Rock Reunion

Title Type

tvSpecial

Start Year

2004

End Year

Runtime (minutes)

0

Adult Content

New Movie

Movie Title

Cars

Title Type

movie

Start Year

2010

Runtime (minutes)

12345

Adult Content

Assign Professions to Person

Person Name

Enter person's full name

Select Professions:

- actor
- actress
- archive_footage
- art_director
- choreographer
- composer
- director
- editor
- executive
- legal
- music_artist
- podcaster
- producer
- publicist
- set_decorator
- special_effects
- unknown
- visual_effects
- writer

[Cancel](#)



ABOUT THE DATA

IMDb Non-Commercial Dataset

<https://developer.imdb.com/non-commercial-datasets/>

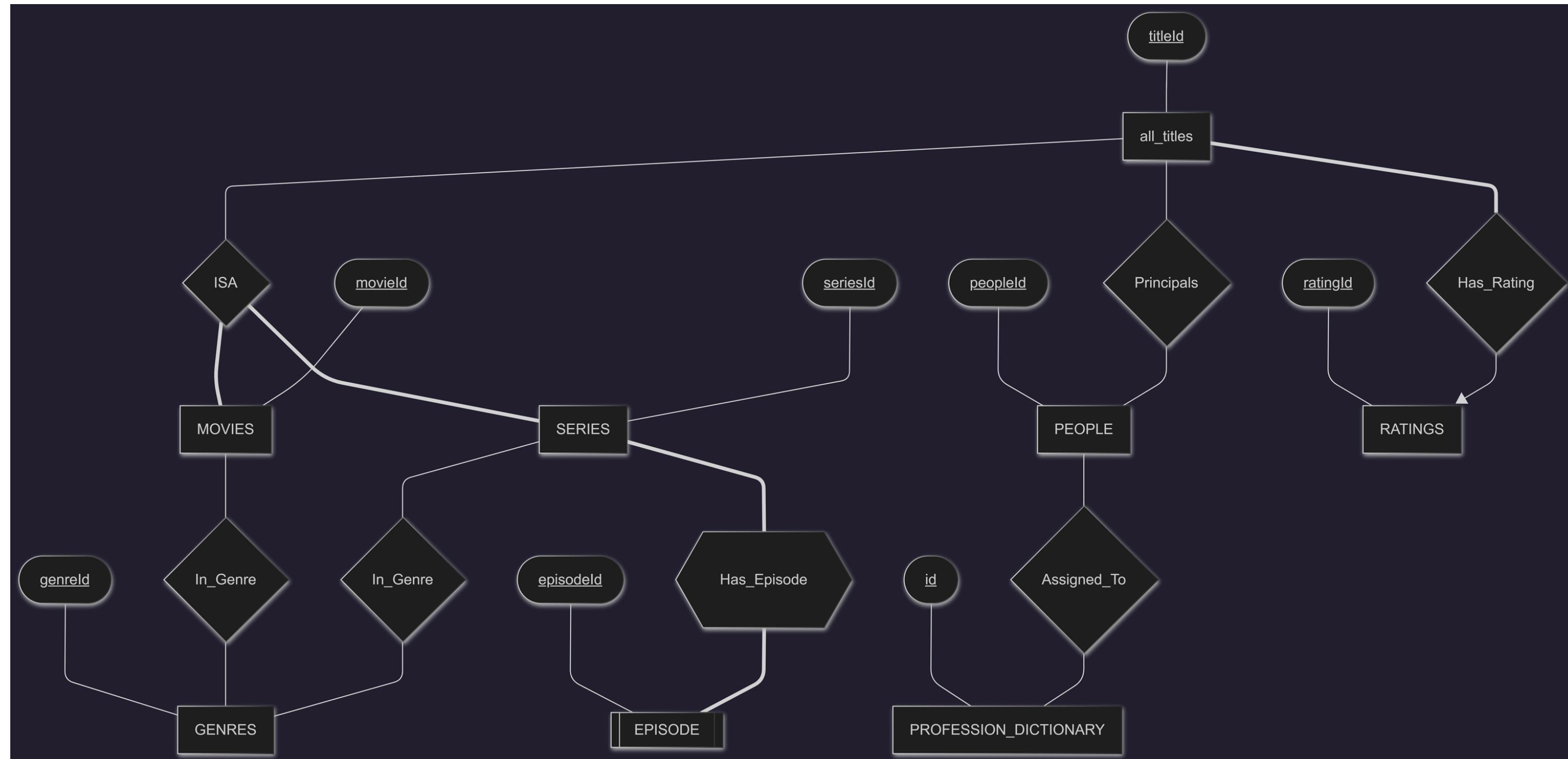
- Millions of movies, TV series records, episode
- 96 Million principal data and millions of celebrities
- 7 Gb raw data

User Dataset

[synthetic/generated data](#)

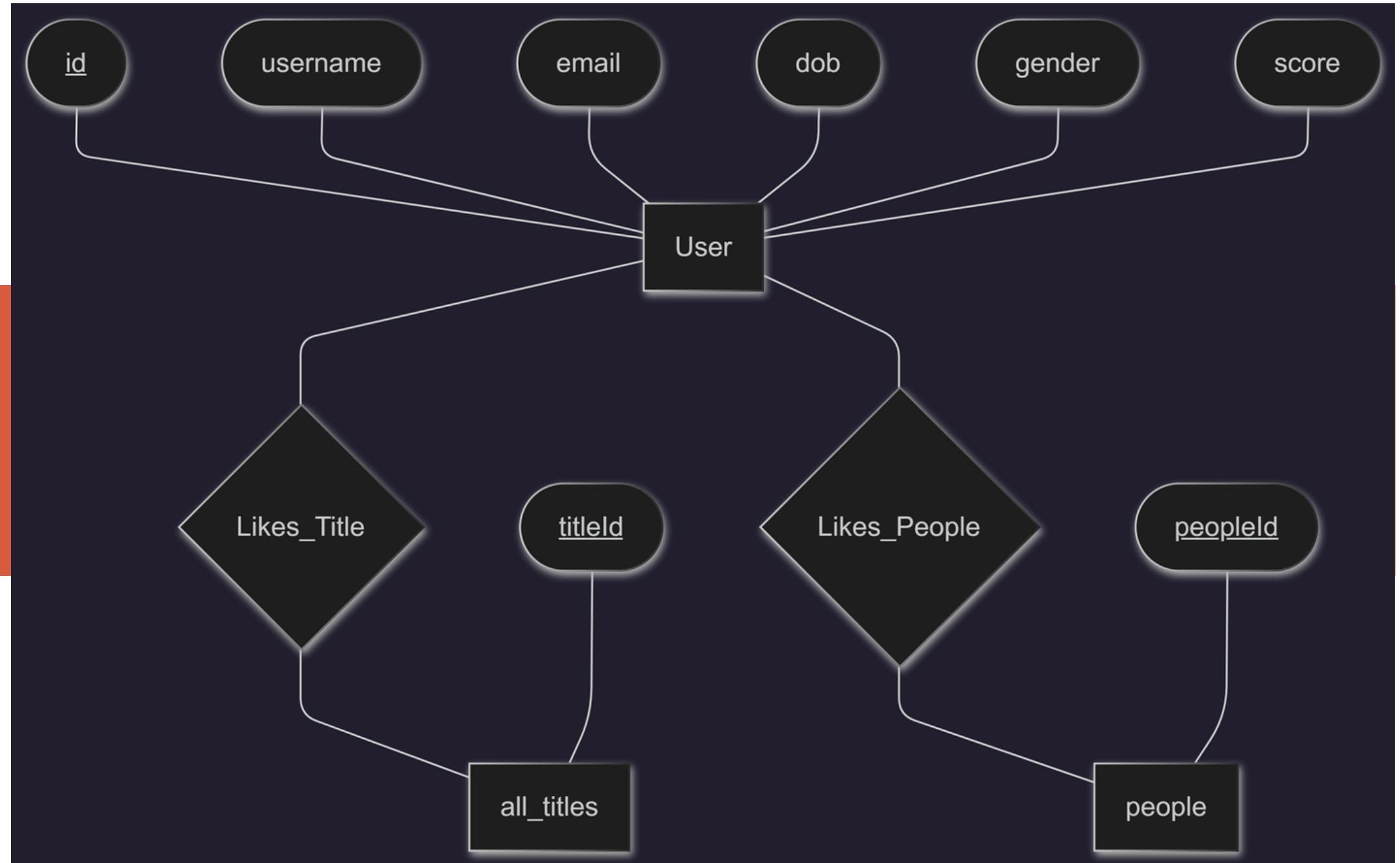


DATASET ER DIAGRAM



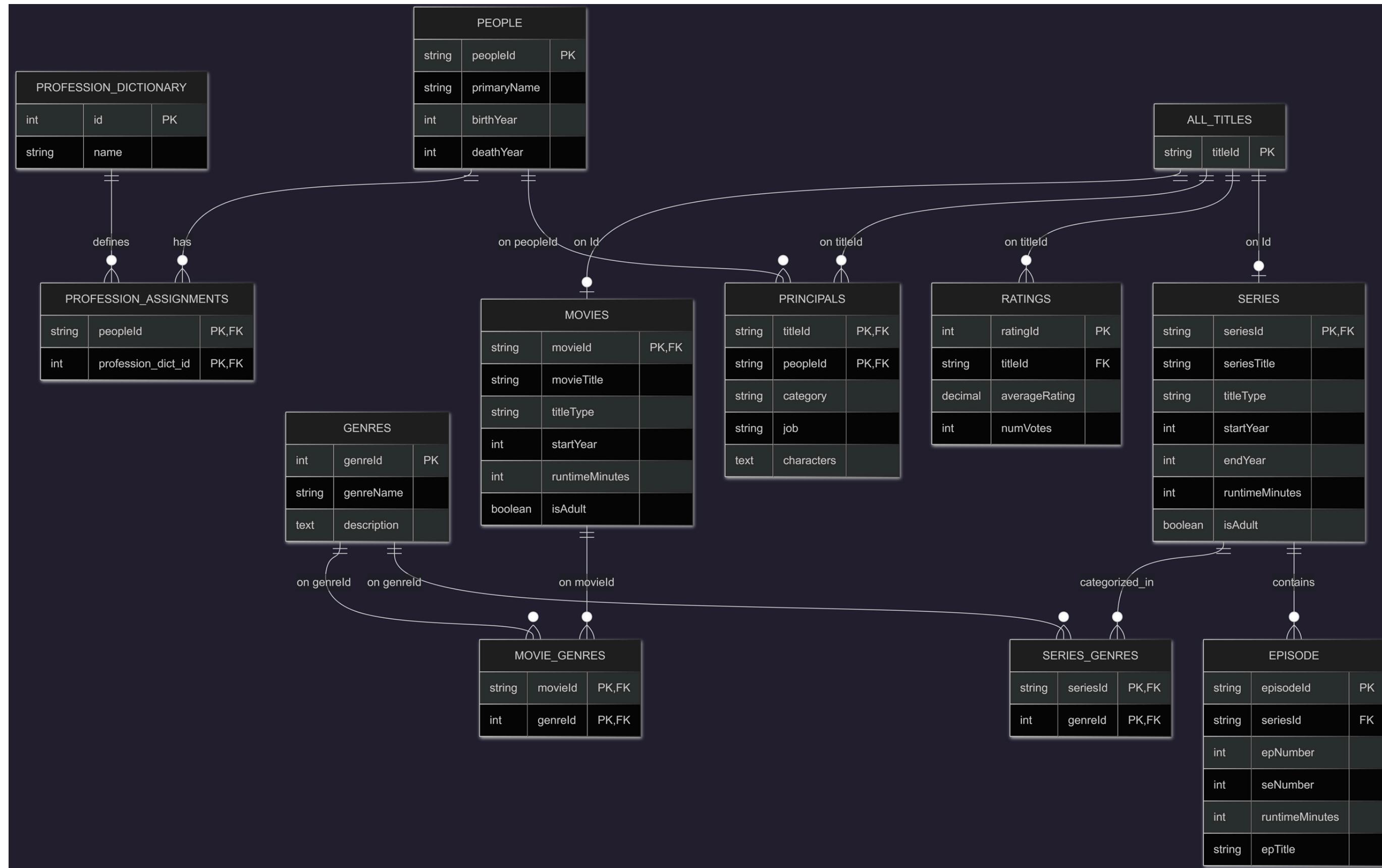


USER ER DIAGRAM





MAIN RELATION MAP





USER RELATION MAP



Normalization

primaryProfession	knownForTitles
actor,miscellaneous,producer	tt0072308,tt0050419,tt0027125,tt0025164
actress,miscellaneous,soundtrack	tt0037382,tt0075213,tt0038355,tt0117057
actress,music_department,producer	tt0057345,tt0049189,tt0056404,tt0054452
actor,writer,music_department	tt0072562,tt0077975,tt0080455,tt0078723
writer,director,actor	tt0050986,tt0069467,tt0083922,tt0050976
actress,producer,soundtrack	tt0034583,tt0038109,tt0036855,tt0038787
actor,producer,miscellaneous	tt0034583,tt0043265,tt0037382,tt0042593
actor,director,writer	tt0078788,tt0068646,tt0047296,tt0070849
actor,producer,director	tt0061184,tt0087803,tt0057877,tt0059749
actor,director,producer	tt0029870,tt0031867,tt0042041,tt0034236
actor,stunts,producer	tt0044706,tt0034167,tt0027996,tt0033373
actress,make_up_department,producer	tt0042192,tt0056687,tt0031210,tt0035140
actress,producer,miscellaneous	tt0048317,tt0045591,tt0053172,tt0040745
actress,soundtrack,archive_footage	tt0031381,tt0041452,tt0040806,tt0029843
actor,miscellaneous,archive_footage	tt0048028,tt0048545,tt0049261,tt0039123
composer,music_department,actor	tt0091763,tt0096320,tt0069946,tt0070460

genres
Documentary,Short
Animation,Short
Animation,Comedy,Romance
Animation,Short
Short
Short
Short,Sport
Documentary,Short
Romance
Documentary,Short
Documentary,Short
Documentary,Short
Documentary,Short
Comedy,Short
Animation,Comedy,Short
Documentary,Short
Documentary,Short
Short,Sport
Comedy,Short
Documentary,Short,Sport
Documentary,Short
Documentary,Short

- Dataset had **non-normalized** columns, containing arrays, every title had multiple genres in a string
- CSV's had commas in fields and between fields
- Having **HUGE** dataset crashed MySQL few times
- We had to work around computational limits



genres
Documentary, Short
Animation, Short
Animation, Comedy, Romance
Animation, Short
Short
Short
Short, Sport
Documentary, Short
Romance
Documentary, Short
Documentary, Short
Documentary, Short
Documentary, Short
Comedy, Short
Animation, Comedy, Short
Documentary, Short
Documentary, Short
Short, Sport
Comedy, Short
Documentary, Short, Sport
Documentary, Short
Documentary, Short
News, Short
News, Short, Sport

genreId	genreName	description
1	Action	Fast-paced stories wi
2	Adult	Mature themes for ad
3	Adventure	Exciting journeys and
4	Animation	Stories presented thr

movieId	genreId
tt0008996	9
tt0009118	6
tt0009175	18
tt0009176	21
tt0009182	6
tt0009183	9

seriesId	genreId
tt0040024	15
tt0040025	15
tt0040047	15
tt0040050	10
tt0040062	20
tt0040992	15

1NF (ATOMICITY VIOLATION)

We addressed the 1NF violation caused by **non-atomic, comma-separated values** in the 'genres' column by decomposing it into the movie_Genres & serie_genres association table.



2NF (PARTIAL DEPENDENCY)

primaryProfession	knownForTitles
actor,miscellaneous,producer	tt0072308,tt0050419,tt0027125,tt0025
actress,miscellaneous,soundtrack	tt0037382,tt0075213,tt0038355,tt011
actress,music_department,producer	tt0057345,tt0049189,tt0056404,tt005
actor,writer,music_department	tt0072562,tt0077975,tt0080455,tt007
writer,director,actor	tt0050986,tt0069467,tt0083922,tt0050
actress,producer,soundtrack	tt0034583,tt0038109,tt0036855,tt0038
actor,producer,miscellaneous	tt0034583,tt0043265,tt0037382,tt0041
actor,director,writer	tt0078788,tt0068646,tt0047296,tt0070
actor,producer,director	tt0061184,tt0087803,tt0057877,tt0059
actor,director,producer	tt0029870,tt0031867,tt0042041,tt0034
actor,stunts,producer	tt0044706,tt0034167,tt0027996,tt0033
actress,make_up_department,producer	tt0042192,tt0056687,tt0031210,tt0035
actress,producer,miscellaneous	tt0048317,tt0045591,tt0053172,tt0040

peopleId	profession_dict_id
nm0000005	2
nm0000005	8
nm0000005	19
nm0000009	2
nm0000009	8
nm0000009	14
nm0000019	2
nm0000019	8
nm0000019	19
nm0000033	8
nm0000033	14
nm0000033	19

id	name
2	actor
3	actress
4	archive_footage
5	art_director
6	choreographer
7	composer
8	director

To satisfy 2NF, we moved the professionName attribute to separate lookup table to **eliminate its partial dependency** on the composite primary key of the intermediate person-profession relation.



3NF (TRANSITIVE DEPENDENCY):

File: README.md name.basics.tsv

+ - | Search | Edit in Data Wrangler

	nconst	primaryName	birthYear	deathYear	primaryProfession	knownForTitles
1	nm0000001	Fred Astaire	1899	1987	actor, miscellaneous, producer	tt0072308, tt0050419, tt0027125, t
2	nm0000002	Lauren Bacall	1924	2014	actress, miscellaneous, soundtrack	tt0037382, tt0075213, tt0038355, t
3	nm0000003	Brigitte Bardot	1934	\N	actress, music_department, producer	tt0057345, tt0049189, tt0056404, t
4	nm0000004	John Belushi	1949	1982	actor, writer, music_department	tt0072562, tt0077975, tt0080455, t
5	nm0000005	Ingmar Bergman	1918	2007	writer, director, actor	tt0050986, tt0069467, tt0083922, t
6	nm0000006	Ingrid Bergman	1915	1982	actress, producer, soundtrack	tt0034583, tt0038109, tt0036855, t
7	nm0000007	Humphrey Bogart	1899	1957	actor, producer, miscellaneous	tt0034583, tt0043265, tt0037382, t
8	nm0000008	Marlon Brando	1924	2004	actor, director, writer	tt0078788, tt0068646, tt0047296, t
9	nm0000009	Richard Burton	1925	1984	actor, producer, director	tt0061184, tt0087803, tt0057877, t
10	nm0000010	James Cagney	1899	1986	actor, director, producer	tt0029870, tt0031867, tt0042041, t
11	nm0000011	Gary Cooper	1901	1961	actor, stunts, producer	tt0044706, tt0034167, tt0027996, t

titleId	peopleId	category	job	characters
tt0016960	nm0043969	actress	0	["Nancy D...
tt0016961	nm0288715	cinematographer	cinematographer	0
tt0016961	nm0838053	writer	adaptation	0
tt0016961	nm0884979	cinematographer	cinematographer	0
tt0016962	nm0632160	actress	0	["Mrs. Co...

peopleId	primaryName	birthYear	deathYear
nm0000009	Richard Burton	1925	1984
nm0000011	Gary Cooper	1901	1961
nm0000013	Doris Day	1922	2019
nm0000015	James Dean	1931	1955

by extracting actor details (Name, BirthYear) from the principals table into a separate people entity, we removed the transitive dependency where actor details relied on the casting ID rather than being directly dependent on the movie



```
SELECT
    m.movieId,
    m.movieTitle,
    m.startYear,
    r.averageRating,
    COUNT(DISTINCT pr.peopleId) AS cast_count,
    COUNT(DISTINCT g.genreId) AS genre_count
FROM movies m
LEFT JOIN ratings r ON m.movieId = r.titleId
LEFT JOIN principals pr ON m.movieId = pr.titleId
LEFT JOIN movie_genres mg ON m.movieId = mg.movieId
LEFT JOIN genres g ON mg.genreId = g.genreId
WHERE 1=1
```

MOVIES

COMPLEX QUERY 1

The screenshot shows the BeeMD application interface. At the top, there is a navigation bar with a BeeMD logo, a search bar, and user account icons. Below the navigation bar, the title "Detailed Movie Statistics" is displayed, followed by a subtitle "Browse and filter the complete movie database". There are four input fields for filtering: "Movie Title" (with a dropdown placeholder "Search title..."), "Genre" (with a dropdown placeholder "All Genres"), "Release Year" (with a dropdown placeholder "e.g. 2023"), and "IMDb Rating" (with a range slider from 0 to 10). Below these filters is a "Search" button and a "Reset" button. A "Back to Movie List" link is also present. The main content area displays a table of movie statistics:

TITLE	YEAR	RATING	CAST COUNT	GENRE COUNT	LIKE
Two Cats	2018	★ 10.0	0 Actors		Heart
Rosewood: The Best Version of Yourself	2017	★ 10.0	0 Actors		Heart
Where Are You From	2017	★ 10.0	0 Actors	Short	Heart
A Day at Secondary School for the Girl with the Curly Hair	2018	★ 10.0	0 Actors		Heart
Clip-135-02-05	2017	★ 10.0	0 Actors	Short	Heart
The Casting Call	2017	★ 10.0	0 Actors		Heart
Love Unleashed	2017	★ 10.0	0 Actors		Heart
Documentar: Un pic mai mult si un pic diferit	2025	★ 10.0	0 Actors	Documentary	Heart



COMPLEX QUERY 2

```
SELECT
    e.episodeId, e.epTitle, e.runtimeMinutes,
    e.seriesId, e.seNumber, e.epNumber,
    s.seriesTitle, s.startYear, s.endYear,
    (SELECT COUNT(DISTINCT e2.seNumber) FROM Episode e2 WHERE e2.seriesId = e.seriesId) AS total_seasons,
    (SELECT COUNT(*) FROM Episode e3 WHERE e3.seriesId = e.seriesId) AS total_episodes,
    g.genreName,
    p.peopleId, p.primaryName, pr.category, pr.characters, prof.professionName
FROM Episode e
LEFT JOIN Series s ON e.seriesId = s.seriesId
LEFT JOIN Series_Genres sg ON s.seriesId = sg.seriesId
LEFT JOIN genres g ON sg.genreId = g.genreId
LEFT JOIN principals pr ON pr.titleId = e.seriesId
LEFT JOIN people p ON pr.peopleId = p.peopleId
LEFT JOIN profession prof ON p.professionId = prof.professionId
WHERE e.episodeId = :episodeId
ORDER BY pr.category, p.primaryName
```

EPISODES

Crossroads ❤️ ⓘ

Band of Brothers – Season 1, Episode 5

Episode ID	Title	Season	Episode	Runtime
tt1247464	Crossroads	1	5	53 minutes

Series Information

Genres	Series Stats	Years
No genres available	1 SEASONS 10 EPISODES	2001 - Present

Cast & Crew

No cast information available for this episode.



COMPLEX QUERY 3

```
SELECT
    p.peopleId,
    p.primaryName,
    p.birthYear,
    p.deathYear,
    GROUP_CONCAT(DISTINCT pd.name SEPARATOR ', ') as professionName,
    MAX(r.averageRating) as top_rating,
    CASE WHEN ul.user_id IS NOT NULL THEN 1 ELSE 0 END as is_liked
FROM people p
JOIN principals pr ON p.peopleId = pr.peopleId
JOIN ratings r ON pr.titleId = r.titleId
LEFT JOIN profession_assignments pa ON p.peopleId = pa.peopleId
LEFT JOIN profession_dictionary pd ON pa.profession_dict_id = pd.id
LEFT JOIN githappens_users.user_likes_people ul ON p.peopleId = ul.people_id
    AND ul.user_id = 1
WHERE r.numVotes > 1000
GROUP BY p.peopleId, p.primaryName, p.birthYear,
p.deathYear, ul.user_id
HAVING COUNT(pr.titleId) >= 1
ORDER BY top_rating DESC, p.primaryName ASC
LIMIT 50
```

The screenshot shows the BeeMD application interface. At the top, there is a navigation bar with a search bar, a 'Search' button, and several user icons. Below the navigation bar, the title 'Celebrities' is displayed. A search bar labeled 'Search celebrities...' is present, along with dropdown filters for 'Select Professions', 'All Names', 'Birth Year', 'Death Year', and 'Order By', followed by a 'Search' button. The main area is titled 'Results (50)' and lists five celebrity profiles:

- Claire Scanlon (Director, Editor, Producer)
- David Rogers (Director, Editor, Producer)
- Michael G. Gallenberg
- Barrie M. Osborne (1944)
- Fran Walsh (1959)

Each result card includes a question mark icon, a heart icon, and a small orange rating indicator.

PEOPLE



THANK YOU



Ceyda Nur Akalın
DATABASE ARCHITECT
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Designs and optimizes database schemas for efficient data retrieval.



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Lead developer focusing on backend architecture and database optimization.



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