



Data Analysis using PostgreSQL

 Presented By: Ishika B. Chauhan

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Project Overview

This project uses PostgreSQL to analyze Netflix's content database and uncover insights related to content types, genres, countries, and key contributors like directors and actors. By solving real-world business questions using SQL, we reveal patterns in global content distribution, user preferences, and release trends over time.

📌 Objective: To extract actionable insights from Netflix data using SQL and support data-driven decisions for content strategy and audience targeting.

💻 Tools Used: PostgreSQL, SQL, pgAdmin,

📁 Dataset: Netflix shows and movies metadata



Database Schema

```
DROP TABLE IF EXISTS netflix;
CREATE TABLE netflix
(
    show_id      VARCHAR(5),
    type         VARCHAR(10),
    title        VARCHAR(250),
    director     VARCHAR(550),
    casts        VARCHAR(1050),
    country      VARCHAR(550),
    date_added   VARCHAR(55),
    release_year INT,
    rating       VARCHAR(15),
    duration     VARCHAR(15),
    listed_in    VARCHAR(250),
    description   VARCHAR(550)
);
```

15 Business Queries

- 1. Count the number of Movies vs TV Shows
- 2. Find the most common rating for movies and TV shows
- 3. List all movies released in a specific year (e.g., 2020)
- 4. Find the top 5 countries with the most content on Netflix
- 5. Identify the longest movie
- 6. Find content added in the last 5 years
- 7. Find all the movies/TV shows by director 'Rajiv Chilaka'!
- 8. List all TV shows with more than 5 seasons
- 9. Count the number of content items in each genre
- 10. Find each year and the average numbers of content release in India on netflix.
- return top 5 year with highest avg content release!
- 11. List all movies that are documentaries
- 12. Find all content without a director
- 13. Find how many movies actor 'Salman Khan' appeared in last 10 years!
- 14. Find the top 10 actors who have appeared in the highest number of movies produced in India.
- 15. Categorize the content based on the presence of the keywords 'kill' and 'violence' in the description field. Label content containing these keywords as 'Bad' and all other content as 'Good'. Count how many items fall into each category.

1. Count the number of Movies vs TV Shows

```
SELECT  
    type,  
    COUNT(*)  
FROM netflix  
GROUP BY 1
```

Data Output Messages Notifications

	type character varying (10)	count bigint
1	Movie	6131
2	TV Show	2676

2. Find the most common rating for movies and TV shows

```
WITH RatingCounts AS (
    SELECT
        type,
        rating,
        COUNT(*) AS rating_count
    FROM netflix
    GROUP BY type, rating
),
RankedRatings AS (
    SELECT
        type,
        rating,
        rating_count,
        RANK() OVER (PARTITION BY type ORDER BY rating_count DESC) AS rank
    FROM RatingCounts
)
SELECT
    type,
    rating AS most_frequent_rating
FROM RankedRatings
WHERE rank = 1;
```

Data Output Messages Notifications

	type character varying (10)	most_frequent_rating character varying (15)
1	Movie	TV-MA
2	TV Show	TV-MA

3. List all movies released in a specific year (e.g., 2020)

```
SELECT *
FROM netflix
WHERE release_year = 2020
```

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Showing rows: 1 to 953 | Page No: 1

	date_added character varying (55) 	release_year integer 	rating character varying (15) 	duration character varying (15) 	listed_in character varying (250)
1	September 25, 2021	2020	PG-13	90 min	Documentaries
2	September 22, 2021	2020	TV-MA	67 min	Documentaries, International Movies
3	September 22, 2021	2020	TV-MA	2 Seasons	Crime TV Shows, Spanish-Language TV Shows, TV Dramas
4	September 17, 2021	2020	TV-MA	3 Seasons	British TV Shows, International TV Shows, TV Comedies
5	September 17, 2021	2020	TV-Y7	1 Season	Kids' TV
6	September 16, 2021	2020	TV-MA	1 Season	International TV Shows, Romantic TV Shows, TV Comedies
7	September 11, 2021	2020	TV-14	145 min	Comedies, Dramas, International Movies
8	September 10, 2021	2020	TV-MA	147 min	Action & Adventure, Comedies, Dramas
9	September 6, 2021	2020	TV-MA	117 min	Dramas, International Movies, Thrillers
10	September 2, 2021	2020	TV-MA	99 min	Dramas, International Movies, Romantic Movies

4. Find the top 5 countries with the most content on Netflix

```
SELECT *  
FROM  
(  
    SELECT  
        -- country,  
        UNNEST(STRING_TO_ARRAY(country, ',')) as country,  
        COUNT(*) as total_content  
    FROM netflix  
    GROUP BY 1  
)as t1  
WHERE country IS NOT NULL  
ORDER BY total_content DESC  
LIMIT 5
```

Data Output Messages Notifications

	country	total_content
1	United States	3211
2	India	1008
3	United King...	628
4	United Stat...	479
5	Canada	271

5. Identify the longest movie

```
SELECT * FROM netflix
WHERE
    type = 'Movie'
    AND
duration = (SELECT MAX(duration) FROM netflix)
```

Data Output Messages Notifications

Showing rows: 1 to 118 | Page No: 1 of 1 | ▶◀ ▶▶

	country character varying (550)	date_added character varying (55)	release_year integer	rating character varying (15)	duration character varying (15)	listed_in character varying (250)
1	Japan	September 15, 2021	2002	TV-14	99 min	Action & Adventure, Anime Features
2	Japan	September 15, 2021	2003	TV-14	99 min	Action & Adventure, Anime Features
3	[null]	September 2, 2021	2020	TV-MA	99 min	Dramas, International Movies, Roma
4	United States, Canada	August 1, 2021	2007	R	99 min	Comedies, Romantic Movies
5	United States	August 1, 2021	1994	PG	99 min	Children & Family Movies, Comedies
6	New Zealand	July 22, 2021	2021	TV-MA	99 min	Dramas
7	United States	June 15, 2021	2020	R	99 min	Action & Adventure

6. Find content added in the last 5 years

```
SELECT * FROM netflix
WHERE TO_DATE(date_added, 'Month DD, YYYY') >= CURRENT_DATE - INTERVAL '5 years'
```

Data Output Messages Notifications

Showing rows: 1 to 1000 Page No: 1 of 3

	country character varying (550)	date_added character varying (55)	release_year integer	rating character varying (15)	duration character varying (15)	listed_in character varying (250)
1	United States	September 25, 2021	2020	PG-13	90 min	Documentaries
2	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Documentaries
3	[null]	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Documentaries
4	[null]	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV
5	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Documentaries
6	[null]	September 24, 2021	2021	TV-MA	1 Season	TV Dramas, TV Horror, TV Mystery
7	[null]	September 24, 2021	2021	PG	91 min	Children & Family Movies

7. Find all the movies/TV shows by director 'Rajiv Chilaka'!

```
SELECT * FROM netflix  
WHERE director ILIKE '%Rajiv Chilaka%'
```

Data Output Messages Notifications

Showing rows: 1 to 22 Page No: 1 of 1

	show_id	type	title	director	casts
	character varying (7)	character varying (10)	character varying (150)	character varying (208)	character varying (1000)
1	s407	Movie	Chhota Bheem - Neeli Pahaadi	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
2	s408	Movie	Chhota Bheem & Ganesh	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
3	s409	Movie	Chhota Bheem & Krishna: Mayanagar	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
4	s410	Movie	Chhota Bheem & Krishna: Pataliputra- City of the Dead	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
5	s411	Movie	Chhota Bheem And The Broken Amulet	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
6	s412	Movie	Chhota Bheem And The Crown of Valhalla	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
7	s413	Movie	Chhota Bheem and the Incan Adventure	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
8	s414	Movie	Chhota Bheem and The Shinobi Secret	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
9	s415	Movie	Chhota Bheem Aur Hanuman	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
10	s416	Movie	Chhota Bheem aur Krishna	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
11	s417	Movie	Chhota Bheem aur Krishna vs Zimbara	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
12	s420	Movie	Chhota Bheem: Bheem vs Aliens	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
13	s421	Movie	Chhota Bheem: Dholakpur to Kathmandu	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
14	s422	Movie	Chhota Bheem: Dus Pe Dus	Rajiv Chilaka, Owill Mina	Vatsal Dubey, Julie Tejwani, Rupa Bh
15	s423	Movie	Chhota Bheem: Journey to Petra	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
16	s424	Movie	Chhota Bheem: Master of Shaolin	Rajiv Chilaka	Pooja Punabi, Mausam, Julie Tejwar
17	s425	Movie	Chhota Bheem: The Rise of Kirmada	Rajiv Chilaka	Vatsal Dubey, Julie Tejwani, Rupa Bh
18	s2718	Movie	Chhota Bheem and the Curse of Damyaan	Rajiv Chilaka	Kaustav Ghosh, Jigna Bhardwaj, Chi
19	s2738	Movie	Mighty Raju Rio Calling	Rajiv Chilaka, Anirban Majumder, Alka Amarkant Dubey	[null]
20	s6298	Movie	Bheemayan	Rajiv Chilaka	[null]
21	s6465	Movie	Chhota Bheem Kungfu Dhamaka	Rajiv Chilaka, Binayak Das	Sonal Kaushal, Rupa Bhimani, Jigna
22	s6646	Movie	Dragonkala Ka Rahasya	Rajiv Chilaka	[null]

8. List all TV shows with more than 5 seasons

```
SELECT *
FROM netflix
WHERE
    TYPE = 'TV Show'
    AND
    SPLIT_PART(duration, ' ', 1)::INT > 5
```

Data Output Messages Notifications

Showing rows: 1 to 99 | Page No: 1 of 1 | ▶◀◀▶▶

	date_added character varying (55)	release_year integer	rating character varying (15)	duration character varying (15)	listed_in character varying (250)		description character varying (550)
1	September 24, 2021	2021	TV-14	9 Seasons	British TV Shows, Reality TV		A talented batch of ama
2	September 15, 2021	2021	TV-PG	6 Seasons	Reality TV		Home bakers with a terri
3	September 15, 2021	2021	TV-Y	6 Seasons	Kids' TV		In a place called Numbe
4	September 15, 2021	1994	TV-PG	9 Seasons	Kids' TV, TV Comedies		From middle school to c
5	September 10, 2021	2021	TV-14	6 Seasons	Crime TV Shows, TV Comedies, TV Dramas		Bored with being the Lor
6	August 13, 2021	2021	TV-MA	7 Seasons	TV Comedies, TV Dramas		They're not friends, but w
7	August 1, 2021	2012	TV-14	7 Seasons	TV Comedies		Liz Lemon juggles the de
8	August 1, 2021	2014	TV-14	6 Seasons	Anime Series, International TV Shows		To fulfill his dreams of b
9	July 28, 2021	2021	TV-14	7 Seasons	Crime TV Shows, TV Action & Adventure, TV Sci-Fi & Fantasy		A forensics expert who v
10	July 26, 2021	2019	TV-MA	10 Seasons	Classic & Cult TV, TV Action & Adventure, TV Dramas		In the wake of a zombie
11	July 6, 2021	2018	TV-Y	8 Seasons	Kids' TV		Journey to the enchanter
12	July 6, 2021	2019	TV-MA	7 Seasons	TV Comedies, TV Dramas		A privileged New Yorker
13	July 6, 2021	2018	TV-14	6 Seasons	International TV Shows, Reality TV		A group of young people
14	July 3, 2021	2020	TV-14	17 Seasons	Romantic TV Shows, TV Dramas		Intern (and eventual resi
15	June 19, 2021	2015	TV-14	6 Seasons	TV Comedies, TV Dramas, Teen TV Shows		Amid relationship woes
16	June 19, 2021	2020	TV-MA	6 Seasons	TV Comedies		Suddenly broke, the form
17	June 2, 2021	2015	TV-14	6 Seasons	British TV Shows, International TV Shows, TV Dramas		Exposing the snobbery a

9. Count the number of content items in each genre

```
SELECT
    UNNEST(STRING_TO_ARRAY(listed_in, ',')) AS genre,
    COUNT(*) AS total_content
FROM netflix
GROUP BY 1
```

Data Output Messages Notifications

Showing rows: 1 to 73

	genre text	total_content bigint
3	Spanish-Language TV Shows	172
4	Romantic Movies	613
5	Anime Features	21
6	TV Horror	11
7	Stand-Up Comedy & Talk Shows	34
8	Kids' TV	63
9	Docuseries	221
10	Children & Family Movies	605
11	Movies	57
12	Horror Movies	82
13	International Movies	2624
14	Music & Musicals	18
15	Reality TV	120

10. Find each year and the average numbers of content release in India on netflix.

Return top 5 year with highest avg content release!

```
SELECT
    country,
    release_year,
    COUNT(show_id) as total_release,
    ROUND(
        COUNT(show_id)::numeric/
            (SELECT COUNT(show_id) FROM netflix WHERE country = 'India')::numeric * 100
        ,2
    )
    as avg_release
FROM netflix
WHERE country = 'India'
GROUP BY country, 2
ORDER BY avg_release DESC
LIMIT 5
```

Data Output Messages Notifications

SQL

	country character varying (550)	release_year integer	total_release bigint	avg_release numeric
1	India	2017	101	10.39
2	India	2018	94	9.67
3	India	2019	87	8.95
4	India	2020	75	7.72
5	India	2016	73	7.51

11. List all movies that are documentaries

```
SELECT * FROM netflix
WHERE listed_in LIKE '%Documentaries'
```

Data Output Messages Notifications

SQL Showing rows: 1 to 383 Page No: 1 of 1

	release_year integer	rating character varying (15)	duration character varying (15)	listed_in character varying (250)	description character varying (550)
1	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmmaker Kirsten Johnson stages his death in
2	2021	PG	23 min	Documentaries	Robin Wiltshire's painful childhood was rescued by Westerns. Now he lives on the fr
3	2021	PG-13	94 min	Documentaries	This documentary stitches together never-before-seen interviews with the last living
4	2017	TV-PG	54 min	Documentaries	The chariot dominated Chinese warfare for millennia. Now, a team of experts is buil
5	2021	TV-14	93 min	Documentaries	Bob Ross brought joy to millions as the world's most famous art instructor. But a ba
6	2021	TV-14	97 min	Documentaries	Queen of Sleaze or feminist pioneer? Powerhouse novelist Jackie Collins created a t
7	2017	TV-PG	53 min	Documentaries	Drilling into the impact crater of the asteroid that wiped out the dinosaurs, a group o
8	2019	TV-14	81 min	Documentaries	Delve into the magical world of fungi, from mushrooms that clear oil spills to underg
9	2021	TV-MA	85 min	Documentaries	In this documentary, female office workers in '70s Boston inspire change with a call
10	2019	TV-MA	96 min	Documentaries	This documentary takes a deep look at gender disparity in Hollywood through the ey
11	2017	TV-G	54 min	Documentaries	After decades of amazing discoveries, spacecraft Cassini embarks on its final – anc
12	1972	TV-MA	104 min	Documentaries	The restored documentary captures the Pacific leg of the 1971 anti-Vietnam War Fre
13	2021	TV-G	273 min	Documentaries	Do you want to relax, meditate or sleep deeply? Personalize the experience accordin
14	2005	TV-MA	84 min	Documentaries	This documentary chronicles the largely forgotten antiwar activities of American GIs
15	2021	TV-14	82 min	Documentaries	The diverse experiences and emotions of five young people with autism fuel this illu

12. Find all content without a director

```
SELECT * FROM netflix  
WHERE director IS NULL
```

Data Output Messages Notifications

Showing rows: 1 to 1000 | | Page No: 1 of 3 |

	title character varying (150)	director character varying (208)	casts character varying (1000)
1	Blood & Water	[null]	Ama Qamata, Khosi Ngema, Gail Mabalane, Thabang Molaba, Dillon Windvogel, Natasha Thaha
2	Jailbirds New Orleans	[null]	[null]
3	Kota Factory	[null]	Mayur More, Jitendra Kumar, Ranjan Raj, Alam Khan, Ahsaas Channa, Revathi Pillai, Urvi Singh,
4	Vendetta: Truth, Lies and The Mafia	[null]	[null]
5	Crime Stories: India Detectives	[null]	[null]
6	Dear White People	[null]	Logan Browning, Brandon P. Bell, DeRon Horton, Antoinette Robertson, John Patrick Amedori, A
7	Khawatir	[null]	[null]
8	Falsa identidad	[null]	Luis Ernesto Franco, Camila Sodi, Sergio Goyri, Samadhi Zendejas, Eduardo Yáñez, Sonya Smith
9	Jaguar	[null]	Blanca Suárez, Iván Marcos, Óscar Casas, Adrián Lastra, Francesc Garrido, Stefan Weinert, Juli
10	Resurrection: Ertugrul	[null]	Engin Altan Düzyatan, Serdar Gökhan, Hülya Darcan, Kaan Taşaner, Esra Bilgiç, Osman Soykut, S
11	Love on the Spectrum	[null]	Brooke Satchwell
12	Chicago Party Aunt	[null]	Lauren Ash, Rory O'Malley, RuPaul Charles, Jill Talley, Ike Barinholtz, Jon Barinholtz, Matthew C
13	Sex Education	[null]	Asa Butterfield, Gillian Anderson, Ncuti Gatwa, Emma Mackey, Connor Swindells, Kedar William
14	Squid Game	[null]	Lee Jung-jae, Park Hae-soo, Wi Ha-jun, Oh Young-soo, Jung Ho-yeon, Heo Sung-tae, Kim Joo-rye
15	Tayo and Little Wizards	[null]	Dami Lee, Jason Lee, Bommie Catherine Han, Jennifer Waescher, Nancy Kim
16	Angry Birds	[null]	Antti Pääkkönen, Heliä Heikkinen, Lynn Cuadlao, Pepe Puuhonen, Paavo Ahonen

13. Find how many movies actor 'Salman Khan' appeared in last 10 years!

```
SELECT * FROM netflix
WHERE
    casts ILIKE '%Salman Khan%'
    AND
    release_year > EXTRACT(YEAR FROM CURRENT_DATE) - 10
```

Data Output Messages Notifications

Showing rows: 1 to 1 Page No: 1 of 1

	show_id character varying (7)	type character varying (10)	title character varying (150)	director character varying (208)	casts character varying (1000)
1	s2757	Movie	Paharganj	Rakesh Ranjan Kumar	Lorena Franco, Bijesh Jayarajan, Neet Chowdhary, Rajeev Goursingh, Karan Jeet, Rajesh Sharma

14. Find the top 10 actors who have appeared in the highest number of movies produced in India.

```
SELECT
    UNNEST(STRING_TO_ARRAY(casts, ',')) as actor,
    COUNT(*)
FROM netflix
WHERE country = 'India'
GROUP BY 1
ORDER BY 2 DESC
LIMIT 10
```

Data Output Messages Notifications

	actor text	count bigint
1	Anupam Kher	36
2	Pareesh Rawal	24
3	Shah Rukh Khan	24
4	Om Puri	23
5	Akshay Kumar	22
6	Boman Irani	21
7	Amitabh Bachch...	20
8	Kareena Kapoor	19
9	Naseeruddin Sh...	19
10	Asrani	17

15. Categorize the content based on the presence of the keywords 'kill' and 'violence' in the description field. Label content containing these keywords as 'Bad' and all other content as 'Good'. Count how many items fall into each category.

```
SELECT
    category,
    type,
    COUNT(*) AS content_count
FROM (
    SELECT
        *,
        CASE
            WHEN description ILIKE '%kill%' OR description ILIKE '%violence%' THEN 'Bad'
            ELSE 'Good'
        END AS category
    FROM netflix
) AS categorized_content
GROUP BY 1,2
ORDER BY 2
```

Data Output Messages Notifications

SQL

	category text	type character varying (10)	content_count bigint
1	Bad	Movie	251
2	Good	Movie	5880
3	Bad	TV Show	91
4	Good	TV Show	2585

Conclusion

This project demonstrates the power of SQL and PostgreSQL in analyzing and extracting valuable insights from Netflix's content dataset. By solving a series of real-world business questions, we gained a deeper understanding of content distribution, viewer preferences, genre diversity, and the geographical spread of shows and movies.

Through structured queries, we:

- Compared the distribution of Movies vs TV Shows
- Identified the most common ratings and genres
- Explored country-wise contributions, especially from India and the USA
- Analyzed the presence of key actors and directors
- Categorized content sentiment based on descriptions
- Investigated time-based trends like recent content and release years

These insights are not only useful for platform-level decisions such as content acquisition and regional strategies but also highlight how SQL can turn raw data into meaningful business intelligence.

A dark theater with rows of red seats.

thank
you