

Streaming Platform Content Analysis Using SQL

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Abstract

This project presents a comparative analysis of content catalogs from four major streaming platforms (Netflix, Hulu, Disney+, and HBO) using SQL-based exploration of publicly available metadata. The analysis evaluates differences in content volume, composition, quality, and engagement characteristics by examining title counts, content type distributions, release trends, audience ratings, and runtime patterns. Critically acclaimed content was defined using a combined threshold of high IMDB scores and vote counts to ensure both quality and audience validation. The results reveal distinct platform strategies: Netflix emphasizes scale and binge-oriented content, HBO prioritizes quality-driven, prestige releases, Disney+ focuses on curated, family-oriented programming with shorter runtimes, and Hulu maintains a hybrid model balancing episodic and feature-length content. Overall, the findings demonstrate how streaming platforms differentiate themselves through strategic content decisions that influence viewer engagement and retention.

1. Data Source & Methodology

Data Sources

This project uses publicly available datasets from Kaggle containing metadata for titles available on four major streaming platforms: Netflix, Hulu, Disney+, and HBO. Each dataset includes information such as title type (movie or TV show), release year, runtime, genres, production countries, and audience reception metrics from IMDB and TMDB.

The datasets were stored as CSV files and imported into SQLite using DB Browser for SQLite. Each platform's data was initially stored in a separate table and later combined using `UNION ALL` queries to enable cross-platform comparisons.

Data Preparation

Before analysis, the following steps were taken:

- Ensured consistent columns naming across platform tables.
- Added a platform identifier to each table to preserve source information after combining datasets.
- Verified that numerical fields such as runtime IMDB score, and IMDB votes were suitable for aggregation.

Analytical Approach

The analysis focuses on comparing platforms across four main dimensions:

1. Content Volume & Composition
 - Total number of titles per platform
 - Distribution between movies and TV shows
 - Changes in content output over the last few years
2. Content Quality
 - Average IMDB scores by platform
 - Identification of critically acclaimed titles
3. Audience Credibility Metrics
 - IMDB vote counts used to validate score reliability
4. Engagement Characteristic
 - Average runtime by platform and content type
 - Implications for binge behavior and viewer retention

To identify critically acclaimed content, titles were classified using the following criteria:

- **IMDB score ≥ 8.0**
- **IMDB votes $\geq 10,000$**

This definition balances perceived quality with sufficient audience validation and avoids bias from niche titles with inflated ratings.

Tools Used

- SQL (SQLite) for querying and aggregation
- DB Browser for SQLite for data exploration and result validation

With the data structured and validated, the next section examines how content volume and composition differ across platforms, revealing distinct production strategies.

2. Content Volume & Mix

Total Content Volume by Platform

Table 1. Total Titles by Platform

Platform	Total Titles
Disney +	1535
HBO	3294
Hulu	2398
Netflix	5850

The analysis shows substantial differences in the size of content catalogs across platforms. **Netflix maintains the largest catalog**, significantly outperforming Hulu, Disney+, and HBO in total number of titles. This reflects Netflix's long-term strategy of aggressive content investment and global-scale production. While Disney+ focuses on a smaller, curated catalog, this could be due to the fact that platform only got introduced in 2019 and is in last place in the streaming race.

Movies vs TV Shows Distribution

Table 2. Movies vs Shows by Platform

Platform	Show Type	Count
Disney +	Movie	1120
Disney +	Show	415
HBO	Movie	2538
HBO	Show	756
Hulu	Movie	1068
Hulu	Show	1330
Netflix	Movie	3744
Netflix	Show	2106

Each platform balances its library differently to cater to specific viewing habits, whether that's "binge-watching" series or "event-style" movie nights. Breaking down content by type reveals meaningful strategic differences:

Netflix: The Volume Leader

Netflix maintains the largest overall catalog by a wide margin. Its strategy centers on a **healthy mix** of both movies and TV shows to support "binge-oriented" behavior.

Disney+: The Movie-Centric Archive

Disney+ leans heavily into **feature films**, a trend driven by its deep archive of animated classics and family-oriented franchises.

Hulu: The Episodic Hybrid

Hulu shows a relatively balanced distribution between movies and TV shows, aligning with its role as a hybrid platform combining on-demand content and episodic television.

HBO: Quality over Quantity

Since its 2020 integration of the WarnerMedia library, HBO (Max) has prioritized **high-impact movies** over sheer volume. While it has fewer titles overall than Netflix or Hulu, its strategy focuses on prestige and scale, reinforcing a brand identity built on high-quality feature releases rather than a massive rotation of smaller series.

Content Output Trends (2020–2022)

An analysis of release years over the last five years shows that **2021 represents a peak year for content output across all platforms**, with a noticeable decline in 2022.

- **Netflix** consistently released more content than other platforms each year, particularly in movies, indicating sustained investment even as overall output declined after 2021.
- **Hulu's** output peaked in 2020–2021, followed by a sharp decline in 2022, coinciding with increased competition from studio-owned streaming services reclaiming their content.
- **HBO** experienced a significant surge in 2021, driven in part by its decision to release its theatrical film slate simultaneously on HBO Max and in theaters during the pandemic.
- **Disney+** saw reduced output in 2022, likely reflecting a strategic shift toward spacing releases to avoid franchise fatigue and re-emphasize theatrical exclusivity.

Key Insight

While Netflix leads in sheer volume, each platform exhibits a distinct production strategy: Netflix prioritizes scale, HBO emphasizes high-impact releases, Disney+ curates brand-driven content, and Hulu balances between movies and episodic television.

Building on differences in volume and structure, the next section evaluates whether higher output translates into higher content quality and critical reception.

3. Content Quality & Critical Reception

Average IMDB Scores by Platform

Across platforms, average IMDB scores were relatively close, ranging between **6.5** and **6.8**, indicating that most platforms produce content of comparable baseline quality.

However, small differences still reveal strategic distinctions:

- **HBO** achieved the highest average IMDB score, reinforcing its reputation for prestige and critically well-received content.
- **Hulu** and **Netflix** followed closely, suggesting that high-volume production does not necessarily reduce average quality.
- **Disney+** showed slightly lower average scores, likely reflecting its focus on family-oriented and animated content, which may receive different rating patterns from general audiences.

Critically Acclaimed Content by Platform

When narrowing the focus to high-impact titles, stronger differences emerge.

Using the defined criteria, the number of critically acclaimed titles per platform is as follows:

Table 3. Critically Acclaimed Count per Platform

Platform	Critical Acclaimed Title
HBO	260
Netflix	212
Hulu	190
Disney+	49

* Using titles with an IMDB score ≥ 8.0 and at least 10,000 votes as a definition of “critically acclaimed”

HBO produces the highest number of critically acclaimed titles despite having a smaller overall catalog. This supports HBO’s quality-first strategy, focusing on fewer but more critically successful releases. Netflix follows closely, indicating that large-scale production can still yield high-quality content. Hulu performs competitively given its smaller catalog, while Disney+ trails due to its more specialized, family-focused offerings.

Key Insight

HBO produces the most critically acclaimed content despite a smaller overall catalog, while Netflix balances scale with quality by delivering a high absolute number of well-received titles.

While critical reception captures perceived quality, audience engagement is also shaped by how content is structured. The next section examines runtime differences and their implications for viewer behavior.

4. Runtime & Viewer Engagement

Average Runtime by Platform and Content Type

To better understand viewer engagement patterns, average runtime was analyzed by **platform** and **content type** (movie vs TV show). Runtime length influences how viewers consume content, including session duration, binge behavior, and completion likelihood.

Table 4. Average runtime by Platform and Type

Platform	Type	Average Runtime (min)
Disney+	Movie	72.1
Disney+	Show	27.9
HBO	Movie	92.2
HBO	Show	36.2
Hulu	Movie	95.3
Hulu	Show	34.3
Netflix	Movie	98.2
Netflix	Show	38.9

Viewer Engagement Implications

Netflix

Netflix features the longest average runtimes for both movies and TV shows. This structure supports binge-oriented consumption, where viewers spend extended periods watching a single title or series. Longer episode runtimes suggest a focus on immersive storytelling and higher time-on-platform per session.

Hulu

Hulu's movie runtimes are comparable to Netflix, while its TV episodes are slightly shorter. This creates flexibility in viewing behavior, allowing users to alternate between quick episodic viewing and longer movie sessions. Such a structure supports frequent but shorter engagement sessions.

HBO

HBO occupies a middle ground, with moderate runtimes that align with premium, intentional viewing. Episodes are long enough to sustain narrative depth but short enough to encourage spaced viewing rather than continuous bingeing. This supports HBO's event-based and prestige content model.

Disney+

Disney+ has the shortest runtimes across both movies and TV shows. This low-commitment structure increases accessibility and completion rates, particularly for families and younger audiences. While total watch time per session may be lower, content is more likely to be fully consumed.

Key Insight

Platforms with longer runtimes tend to encourage binge-driven engagement and longer viewing sessions, while shorter runtimes support higher completion rates and more casual viewing behavior.

Together, differences in content volume, quality, and runtime reveal how each platform strategically balances scale, engagement, and brand identity.

5. Strategic Comparison & Conclusion

Platform Strategy Comparison

By combining insights from content volume, quality, and engagement characteristics, clear strategic differences emerge among the four streaming platforms.

- **Netflix** operates a scale-driven strategy, producing the largest volume of content with an emphasis on longer runtimes that support binge viewing. Despite its size, Netflix maintains a strong presence of critically acclaimed titles, demonstrating that high output does not necessarily come at the expense of quality.
- **HBO** follows a quality-first approach, releasing fewer titles overall but leading in the number of critically acclaimed releases. Its moderate runtimes and prestige-driven catalog encourage intentional viewing and reinforce HBO's brand identity as a premium content provider.
- **Disney+** prioritizes curated, family-oriented content with shorter runtimes and a smaller catalog. This strategy favors accessibility and high completion rates over binge intensity, aligning with its franchise-driven and brand-focused model.
- **Hulu** occupies a hybrid position, balancing movies and TV shows while offering flexible runtimes that accommodate both casual and extended viewing sessions. Its declining output after 2021 reflects broader industry shifts as content owners consolidated their catalogs onto proprietary platforms.

Key Takeaways

- Content volume alone does not determine platform strength; **strategic positioning and content quality play a critical role.**
- Platforms differentiate themselves through **runtime structure**, influencing viewer engagement and retention behavior.
- High-quality content can be achieved through both **scale (Netflix)** and **selectivity (HBO)**, while curated catalogs (Disney+) and hybrid models (Hulu) serve distinct audience needs.

Limitations & Future Work

This analysis relies on metadata rather than direct viewing metrics such as watch time or churn rates. Additionally, genres were treated as aggregated lists rather than individually normalized categories. Future work could incorporate:

- Genre-level normalization for deeper content comparisons
- Time-series analysis beyond five years
- Integration of external metrics such as awards or viewer retention data

Final Conclusion

This project demonstrates how SQL-driven analysis can be used to uncover meaningful differences in streaming platform strategies by examining content scale, quality, and structure. The findings highlight that successful streaming platforms tailor their content strategies to distinct audience engagement models rather than competing solely on volume.