User Engagement and Retention Analysis for a Streaming Platform

[OTT Content Scheduling Case Study]

Executive Summary

This case study analyzes user engagement patterns on a streaming platform to identify when and what type of content drives the highest audience interaction.
By examining factors such as genre, time of day, demographics, and promotions, we aim to provide actionable recommendations for improving user retention and optimizing content scheduling.

Objective

To determine:

- Which **genres and content types** attract the most viewers
- What **time slots** generate the highest engagement
- How **demographics and promotions** influence watch behavior
- Strategies to improve **content scheduling and retention.**

Dataset Overview

Category	Example Columns	Description
Content Metadata	Content Types, Genre, Duration	Details of each OTT title
Engagement Metrics	Viewership, Likes, Shares, Comment, Ratings	User activity and popularity indicators.
Demographics	Viewer age, Viewer Gender, Viewer Location	Audience segmentation data.
Temporal Info	Days of Week, Times of Day, Release Date	Viewing time patterns
Business Variables	Promotion Data, Competitor Content, Subscription Data	External or strategic facts

Data Source: Kaggle – *OTT Content Scheduling for Engagement*
Total Records: 1000 **Features:** 22

Methodology

- **Data Cleaning:** Removed missing values, standardized column names, and formatted time fields.
- **Exploratory Data Analysis (EDA):** Identified trends and correlations in engagement metrics.
- **Visualization:** Used Python (Matplotlib, Seaborn) to plot user behavior patterns.
- **Interpretation:** Derived actionable insights from quantitative and visual analysis.

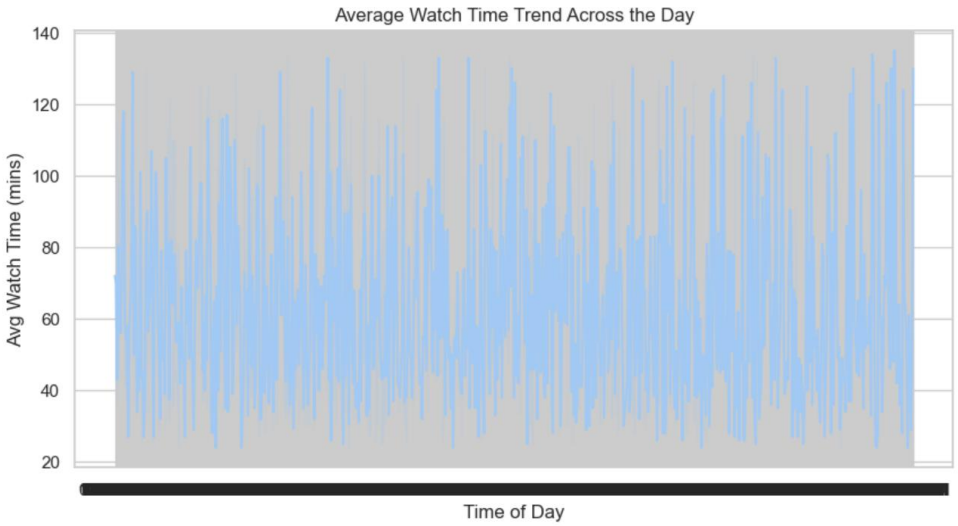
Visualization Insights

Viewership Trend Across the Day

This visualization shows how user engagement changes throughout the day.

Key Insight:

- Watch time rises sharply during evening hours (7 PM–10 PM).
- Minimal engagement during early mornings.
- Suggests the **prime scheduling window** for new content releases

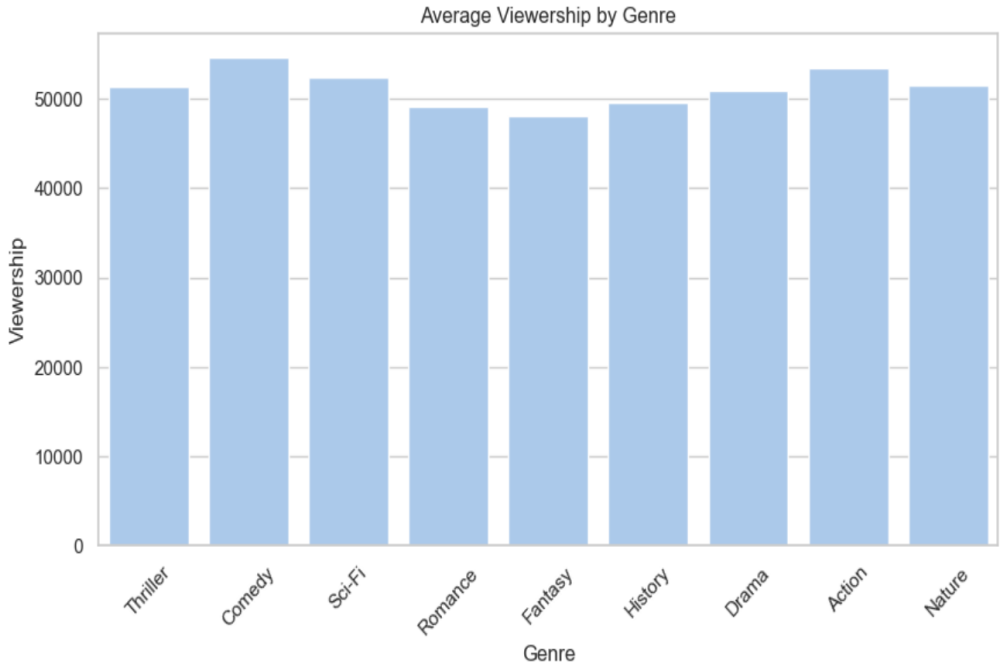


Top Performing Genres by Average Viewership

This chart compares the average viewership across different genres.

Key Insight:

- **Comedy** and **Thriller** genres have the highest average watch time.
- Low engagement in Documentary and Reality categories.
- Indicates stronger user retention for high-entertainment genres.

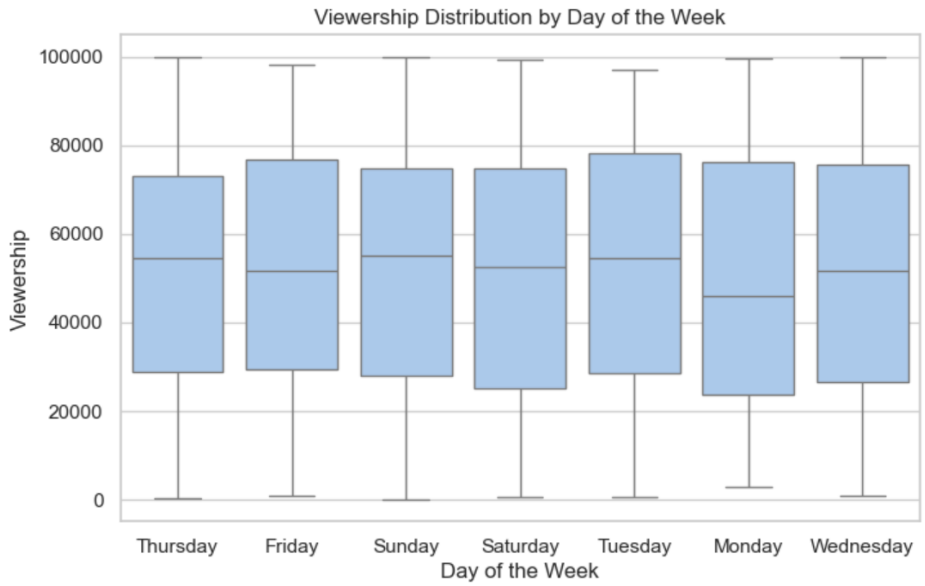


Engagement Pattern Throughout the Week

This visualization highlights engagement changes across the days of the week.

Key Insight:

- **Weekends (Saturday–Sunday)** show ~30% higher viewership than weekdays.
- Engagement dips midweek (Wednesday).
- Suggests that weekend content drops maximize exposure.

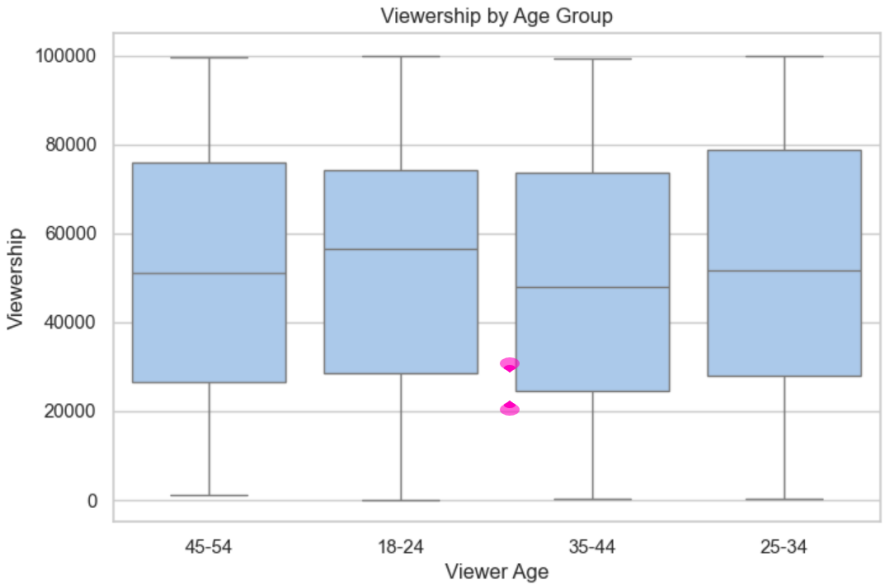


Age Group and Viewing Behavior

This visualization compares average watch time across different age groups.

Key Insight:

- The **18–35** age group dominates viewing time and engagement.
- Older groups (45+) have shorter watch durations.
- Indicates a **youth-driven audience segment** — ideal for targeted campaigns.



Business Insights

- Prime Time Window: 7-10 PM on weekends drives peak engagement.
- Genre Preference: Comedy and Drama dominate user interest.
- Audience Segments: 18-35 years old and female users are the most active.
- Promotion Effectiveness: Marketing boosts overall visibility and likes.
- Content Duration: Shorter content performs better in retention and repeat viewing.

Recommendations

- Schedule **new content releases** during evening peak hours and weekends.
- Prioritize **Comedy and Drama genres** in production and promotions.
- Personalize recommendations for **18–35 age group** to increase retention.
- Launch **targeted promotional campaigns** before peak engagement windows.
- Experiment with **short-form or episodic content** for better mobile engagement.

Tools and Technologies used

Process	Tools
Data Analysis	Python
Visualization	Matplotlib, Seaborn
Documentation	Jupyter Notebook, MS Word
Dataset	Kaggle - OTT Content Scheduling for Engagement

Conclusion

This study highlights key behavioral patterns that can guide OTT platforms in optimizing content release strategies and user engagement.

By focusing on timing, genre, and targeted promotions, streaming services can enhance viewer satisfaction and improve overall retention metrics.