Winter Consulting Capstone Project 2025
Consulting & Analytics Club, IIT Guwahati

VIEWER RETENTION ANALYSIS IN OTT PLATFORMS

DIAGNOSING EPISODE-LEVEL DROP-OFF PATTERNS AND ENGAGEMENT RISKS

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Problem Statement & Objective

Business Context

- The OTT platform experiences strong initial viewership at launch
- However, a significant proportion of viewers disengage during Season 1
- Early drop-off limits user lifetime value and complicates content renewal decisions

Analytics Objective

- Identify episode-level drivers of viewer drop-off using engagement data
- Recommend practical, data-backed interventions to improve early-season retention without compromising creative quality

Dataset & Methodology

Dataset

- Episode-level OTT engagement data across multiple series
- Each row represents a single episode
- Includes viewing behaviour, pacing, and cognitive load indicators

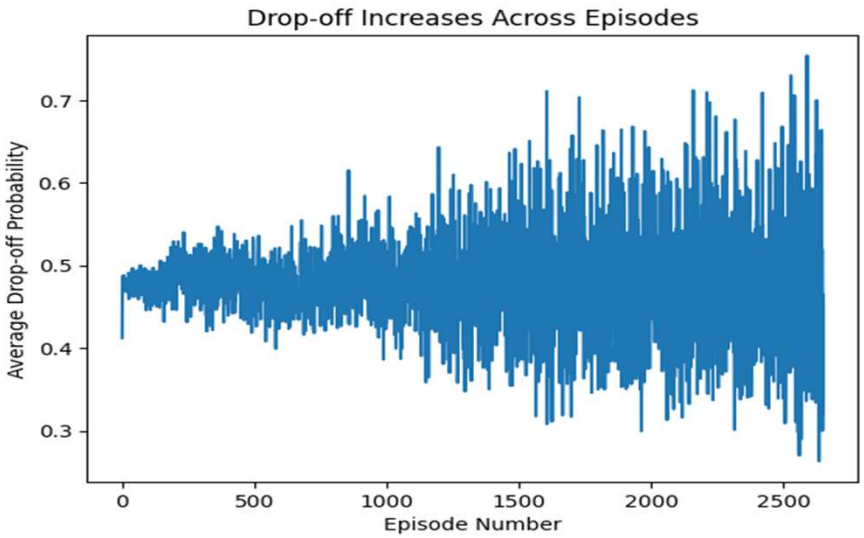
Methodology

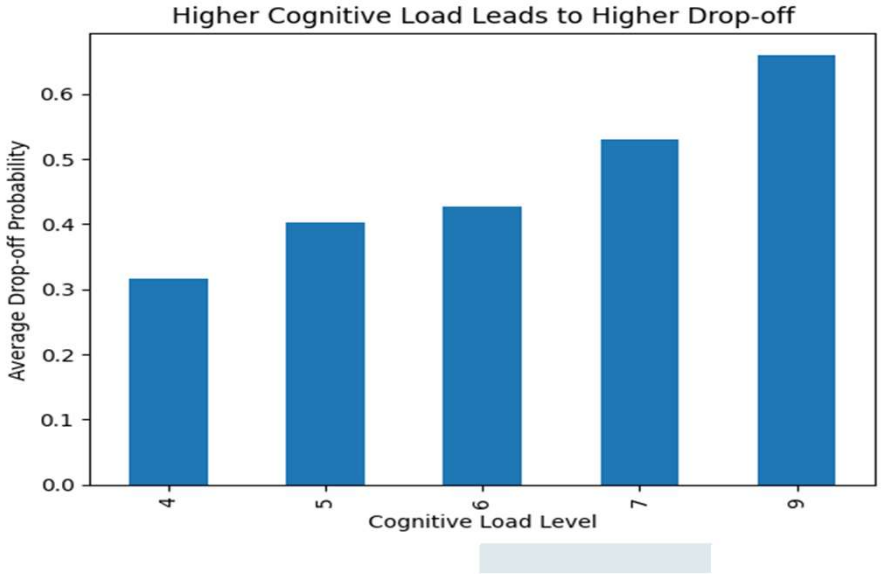
- Exploratory Data Analysis (EDA) to identify drop-off patterns
- Relationship analysis between episode attributes and retention risk
- Simple segmentation to enable targeted recommendations

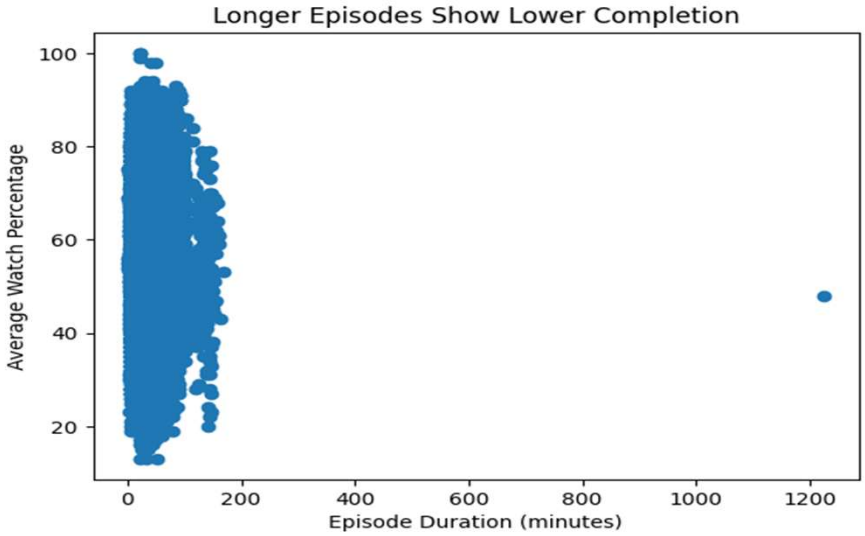
Episode-level aggregations and segmentation were performed using SQL-style grouping and filtering logic implemented in Python.

KEY INSIGHTS FROM EXPLORATORY DATA ANALYSIS

- Drop-off probability rises across episode progression, with early episodes driving the largest viewer losses
- Episodes with higher cognitive load show significantly higher drop-off
- Longer episode durations correlate with lower completion rates







Episode Segmentation Based on Retention Risk

Segmentation Logic

Episodes are segmented based on observed viewer behavior into:

- High Retention Risk
- Medium Retention Risk
- Low Retention Risk

Key Takeaway

Data analysis shows **material differences in completion and drop-off across segments**, indicating that viewer disengagement is driven by different factors and requires **targeted interventions rather than uniform changes**.

Segment Characteristics

High Risk:

- Low average watch percentage
- Higher cognitive load and interaction signals

Medium Risk:

- Moderate completion with mixed engagement signals

Low Risk:

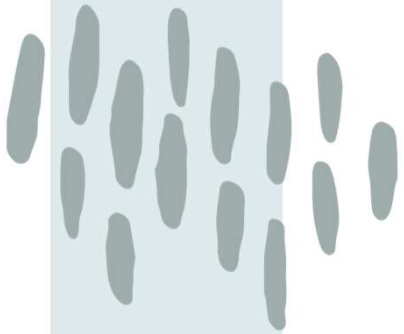
- High completion and stable viewer engagement

DATA-BACKED RECOMMENDATIONS TO IMPROVE VIEWER RETENTION

1. Reduce Cognitive Load in Early Episodes
   - Insight: Early episodes and high-risk segments show higher drop-off and lower completion
   - Action: Simplify pacing and narrative complexity in Episodes 1–3 to improve early engagement

2. Optimize Episode Duration
   - Insight: Longer episodes are associated with lower average watch completion
   - Action: Split or reorder high-duration episodes to reduce viewer fatigue and improve perceived progress

3. Support Viewer Continuity in High-Risk Episodes
   - Insight: High pause and rewind activity indicates viewer confusion
   - Action: Introduce short recaps or contextual prompts in cognitively demanding episodes



Prioritization and Risk Assessment

Recommendation	Impact	Feasibility
Episode reordering & duration optimization	High	Easy
Recap / contextual prompts	Medium	Easy
Deep content redesign	High	Low

Key Risks

- Over-simplification of content may reduce appeal for highly engaged viewers
- Creative teams may resist structural changes to episode design

Risk Mitigation

- Apply interventions selectively to **high-risk segments only**
- Validate changes using **controlled A/B testing** before full rollout

Success Metrics and Evaluation

Primary Metric

- **Episode Completion Rate**
  Measures the percentage of an episode watched on average and directly reflects viewer engagement.

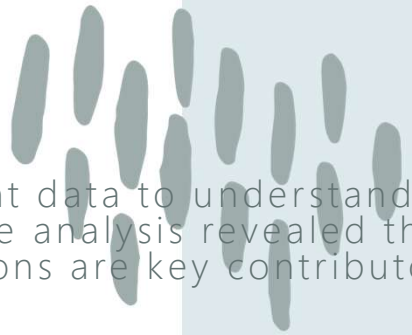
Supporting Metrics

- **Drop-off Probability before Episode 3**
  Captures early-season disengagement risk.
- **Average Watch Percentage per Episode**
  Indicates depth of engagement beyond initial clicks.

Success Definition

- Increase completion rates in early episodes
- Reduce viewer drop-off during Season 1 without negatively impacting overall engagement quality

CONCLUSION



This project analyzed episode-level engagement data to understand the underlying drivers of viewer drop-off in OTT platforms. The analysis revealed that early episodes, high cognitive load, and longer episode durations are key contributors to viewer disengagement during Season 1.

By segmenting episodes based on retention risk, the study highlights that drop-off drivers are not uniform and require targeted, segment-specific interventions rather than blanket changes. The recommended actions focus on reducing early cognitive load, optimizing episode structure, and supporting viewer continuity through lightweight product and content adjustments.

These interventions are practical, feasible, and aligned with real-world OTT platform constraints. If implemented and validated through controlled experimentation, they can meaningfully improve early-season retention and overall viewer engagement.

Key Takeaway

Early viewer retention is driven less by content quantity and more by episode design, pacing, and cognitive accessibility — especially in the first few episodes of a season.