🎬 Silver Screen Movie Theater Efficiency Analysis

Business Intelligence Report
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1. Introduction

In 2025, our Entertainment Company acquired *Silver Screen*, a small movie theater chain operating three locations across New Jersey. As part of the post-acquisition analysis, the BI team was tasked with evaluating the operational efficiency and profitability of these theaters.

This report outlines the approach and findings of an in-depth data analysis that examined the **relationship between movie rental costs and ticket-based revenue** for each location. The objective was to produce a reliable, standardized model that aggregates monthly performance by movie and location, empowering strategic decisions based on actual financial returns.

2. Objective

The main goal of this analysis was to:

- Build a comprehensive table showing **monthly movie performance** per location.
- Evaluate how much each movie cost to rent versus how much revenue it generated.
- Identify patterns in **ticket sales**, **high-ROI titles**, and **location-based trends**.

The final table includes the following columns:

- `movie_id`
- `movie_title`
- `genre`

- `studio`
- `month`
- `location`
- `rental_cost`
- `tickets_sold`
- `revenue`

3. Methodology

Data Sources

The analysis was based on **five distinct data sources**:

- `movie_catalogue`: Movie metadata (title, genre, studio).
- `invoices`: Monthly rental costs per movie/location.
- `nj_001`: Raw transaction-level data (Location 1).
- `nj_002`: Daily aggregates of ticket sales (Location 2).
- `nj_003`: Mixed sales including snacks/tickets (Location 3).

Tools & Technologies

- **Snowflake**: Used to store and query data.
- **dbt (Data Build Tool)**: Applied for data modeling, testing, and transformation.
- **SQL**: Used extensively for all aggregation and transformation tasks.

Cleaning & Transformation Steps

- Replaced missing genres in `movie_catalogue` with `"Unknown"`.

- Aggregated transaction-level data (`nj_001`, `nj_003`) and daily sales (`nj_002`) into **monthly ticket sales and revenue**.
- Filtered `nj_003` to isolate ticket sales using `product_type = 'ticket'`.
- Extracted `movie_id` from embedded fields in JSON-style columns.
- Unified column names and formats across datasets.
- Joined movie details, rental costs, and monthly sales using **movie_id + month + location** keys.

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4. Analysis

Each theater location contributed uniquely to the final model:

📍 Location 1 (nj_001)

- Provided detailed transaction data with `timestamp`, `ticket_amount`, and `transaction_total`.
- Required aggregation by `month` and `movie_id`.

📍 Location 2 (nj_002)

- Data was already aggregated but at **daily level**.
- Further rolled up by `month` and `movie_id` to align with other datasets.

📍 Location 3 (nj_003)

- Mixed data requiring:
    - Filtering for `product_type = 'ticket'`
    - Extraction of `movie_id` from `details`
    - Monthly aggregation of `amount` as `revenue`, and counting tickets sold.

🎥 Rental Costs

- Pulled from `invoices` table.
- Matched by `movie_id`, `location`, and `month`.

5. Key Insights

- **Revenue Distribution**: Certain genres (e.g., action and family films) consistently generated higher revenue relative to rental cost.
- **Location Efficiency**:
    - Location 1 showed the highest volume of transactions but not necessarily the best revenue-to-cost ratio.
    - Location 3 had the most variation in product types sold and required more rigorous filtering.
- **Top Performing Movies**: Identified several high-performing titles with excellent cost-efficiency.
- **Cost Inefficiencies**: A few movies were repeatedly rented across locations but underperformed in sales.

6. Conclusion & Recommendations

This analysis successfully consolidated disparate datasets into a unified performance model. With this model in place, the company can:

- Evaluate the **ROI** of movie rentals across locations.
- Improve movie selection based on **location-specific preferences**.
- Make informed decisions about **contract negotiations with studios**.
- Identify **low-performing titles** for potential discontinuation.