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| Movie Rental Analysis |
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| March 27  SAKILA DVD RENTAL STORE DATA DATA ANALYSIS REPORT  By Hemant Goswami |

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INTRODUCTION

The Sakila DVD rental store have facing issues in revenue and rents, we have to create a comprehensive Power BI dashboard using the Sakila DVD Rental Store Database, providing valuable insights into the rental store business. The analysis will focus on customer behavior, film inventory management, staff performance, and store operations.   
  
Goal: The goal is to enable data-driven decision-making and improve overall business performance. The Power BI dashboard will offer insights into customer segmentation, sales trends, film performance, staff productivity, and store revenue. The primary aim is to optimize film inventory, enhance customer satisfaction, improve staff performance, and streamline store operations.

DATA EXPLORATION

Dataset Description: The dataset described is a comprehensive database that appears to represent a video rental store or movie rental service. It comprises multiple tables, each representing different entities and their relationships. Taking a closer look at the key components of the dataset:

Table Explanation

Actor Table: The actor table lists information for all the actors, including first name and last name of actors.

Address Table: The address table contains address information for customers, staff, and stores.

Category Table: The category table lists the categories that can be assigned to films.

City Table: The city table contains a list of cities. Country Table: The country table contains a list of countries or regions.

Customer Table: The customer table contains a list of all customers. Film Table: The film table lists all the films that may be in stock in the store.

Film actor Table: MOVIE RENTAL ANALYSIS PAGE 5 The film actor table is used to support many-to-many relationships between films and actors.

Film category Table: The film category table is used to support many-to-many relationships between films and categories.

Inventory Table: A row in the inventory table represents a copy of a given film in a given store.

Language Table: The language table lists all possible values for the film language and original language.

Payment Table: The payment table records every payment made by the customer, including information such as the amount and rent paid.

Rental Table: The rental table contains a row for each rental of each inventory item, which contains information about who rented what, when it rented it, and when it was returned.

Staff Table: The staff table lists all staff information, including email addresses, login information, and pictures. Store Table: The store table lists all stores in the system.

Data Modelling

Data Modelling involves designing the structure of your database to represent the entities and relationships in your DVD rental store.

1. Identify Entities: Identify the main entities in your DVD rental store. This might include films, customers, rentals, inventory, etc.
2. Define Relationships: Determine how these entities are related to each other. For example, a rental is associated with a customer and a film.
3. Create Entity-Relationship Diagram (ERD): Develop an ERD that illustrates the entities, their attributes, and the relationships between them.

Data Cleaning

Data cleaning is the process of detecting and correcting errors or inconsistencies in your dataset to improve its quality and reliability.

1. Identify Missing Values: Check for missing values in your dataset and decide how to handle them (e.g., imputation or removal).
2. Remove Duplicates: Identify and remove duplicate records from your dataset.
3. Standardize Data: Standardize formats (e.g., dates, addresses) to ensure consistency.
4. Handle Outliers: Identify outliers and decide how to handle them (e.g., removal or transformation).

Data Visualization

Data visualization involves creating graphical representations of your data to uncover patterns, trends, and insights.

1. Exploratory Data Analysis (EDA): Use visualizations such as histograms, scatter plots, and box plots to explore the distribution and relationships between variables.
2. Dashboard Creation: Create interactive dashboards using tools like Power BI, SQL to present key insights from your analysis.
3. Time Series Analysis: If applicable, visualize trends over time using line charts or heat maps to understand patterns in rental data over different periods.
4. Customer Segmentation: Use clustering techniques to segment customers based on their rental behaviour and visualize the segments using pie charts or bar graphs.
5. Geospatial Analysis: If your dataset includes location information, use maps to visualize rental patterns across different regions or stores.
6. Feedback and Iteration: Gather feedback from stakeholders and iterate on your visualizations to ensure they effectively communicate insights from your analysis.

Main Insights

1. Popular Films: Identify the most frequently rented films to understand customer preferences and tailor inventory accordingly.
2. Peak Rental Times: Determine peak rental times to optimize staffing and inventory management.
3. Customer Demographics: Analyse customer demographics such as age, gender, and location to target marketing efforts and tailor promotions.
4. Profitable Categories: Identify the most profitable film categories to focus on for inventory expansion and marketing campaigns.
5. Rental Trends: Explore rental trends over time to anticipate shifts in customer preferences and adjust inventory accordingly.
6. Geographic Patterns: Analyse rental patterns across different locations to identify regional preferences and tailor offerings accordingly.

Recommendations

1. Inventory Management: Optimize inventory management by stocking popular films and adjusting quantities based on rental trends.
2. Customer Engagement: Implement customer loyalty programs or personalized recommendations based on rental history to increase customer retention.
3. Marketing Strategies: Tailor marketing strategies based on customer demographics and preferences to increase engagement and drive rentals.
4. Online Rental Platform: Consider expanding into online rental platforms or streaming services to reach a broader audience and adapt to changing consumer behaviour.
5. Store Optimization: Evaluate store locations and consider consolidating or expanding based on rental patterns and profitability.
6. Customer Experience: Improve the customer experience by streamlining the rental process, offering convenient payment options, and providing excellent customer service.
7. Competitive Analysis: Conduct a competitive analysis to identify strengths and weaknesses relative to competitors and capitalize on opportunities for differentiation.
8. Promotional Campaigns: Launch targeted promotional campaigns for less popular film categories to increase rentals and attract new customers.
9. Data Analytics: Invest in data analytics tools and capabilities to continuously monitor rental trends, optimize operations, and make data-driven decisions.
10. Feedback Mechanisms: Implement feedback mechanisms to gather customer insights and incorporate feedback into decision-making processes for continuous improvement.