DVD Rental Data Warehouse

IS 6480
Group 9 - Summer 2024
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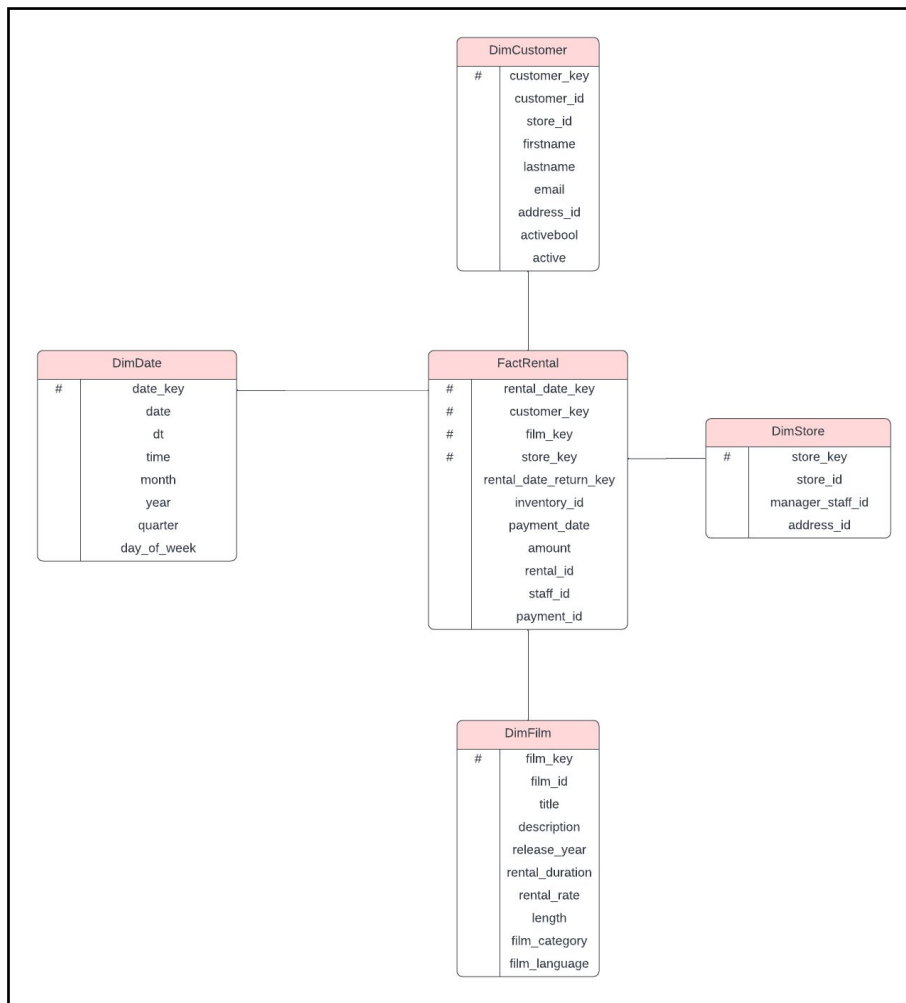21 July 2024

Background

The company would like to gain insight into trends relating to rentals and the profile of its customers and their spending. We also want to see which employee is the most effective at the company so that a promotion program could be implemented. Each rental has a return timeframe, which if not met can affect profitability. We want to see how late rentals affect profits. In doing so, we want to understand where providing incentives such as a rewards program might improve sales, which employees should be considered for promotion, and what the impact of late DVD returns are on our business.
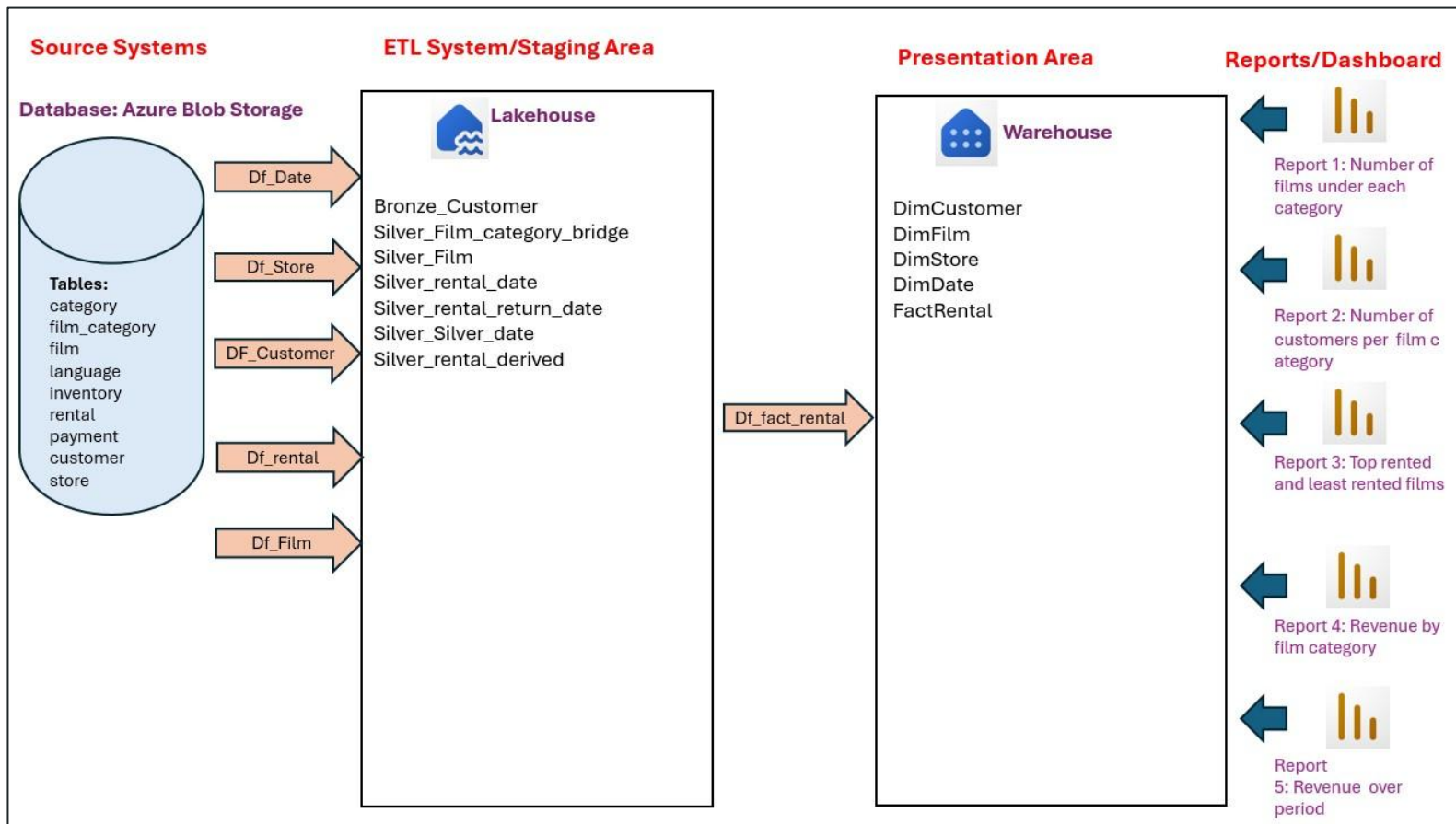
Requirements and Goals

Questions we want to answer:

Which film category has highest number of Films?
Which films have been most rented and least rented?
What film category are the customers more interested and least interested in?
What is the average age of customer interests according to film genre?
Analyze customer spending over time?
What is the average number of rentals at each store per year?
Which staff member processed the highest total payment amount in each store in each year?
What is the trend of the income that we have made over the time period?
Which film category has made highest Income and lowest Income?
What are the sales peak hours and days at particular store?
Analyze late returns. This insight can be used to calculate revenue impact.

Dimensional Model

DimCustomer

#	customer_key
	customer_id
	store_id
	firstname
	lastname
	email
	address_id
	activebool
	active

DimDate

#	date_key
	date
	dt
	time
	month
	year
	quarter
	day_of_week

FactRental

#	rental_date_key
#	customer_key
#	film_key
#	store_key
	rental_date_return_key
	inventory_id
	payment_date
	amount
	rental_id
	staff_id
	payment_id

DimStore

#	store_key
	store_id
	manager_staff_id
	address_id

DimFilm

#	film_key
	film_id
	title
	description
	release_year
	rental_duration
	rental_rate
	length
	film_category
	film_language

Architecture

Dashboards and Insights

Number of Films under each Film Category

Film Category

| All | ⌄ |

Film Category	Number of Films
Sports	74
Foreign	73
Family	69
Documentary	68
Animation	66
Action	64
New	63
Drama	62
Games	61
Sci-Fi	61
Children	60
Comedy	58
Classics	57
Travel	57
Horror	56
Music	51
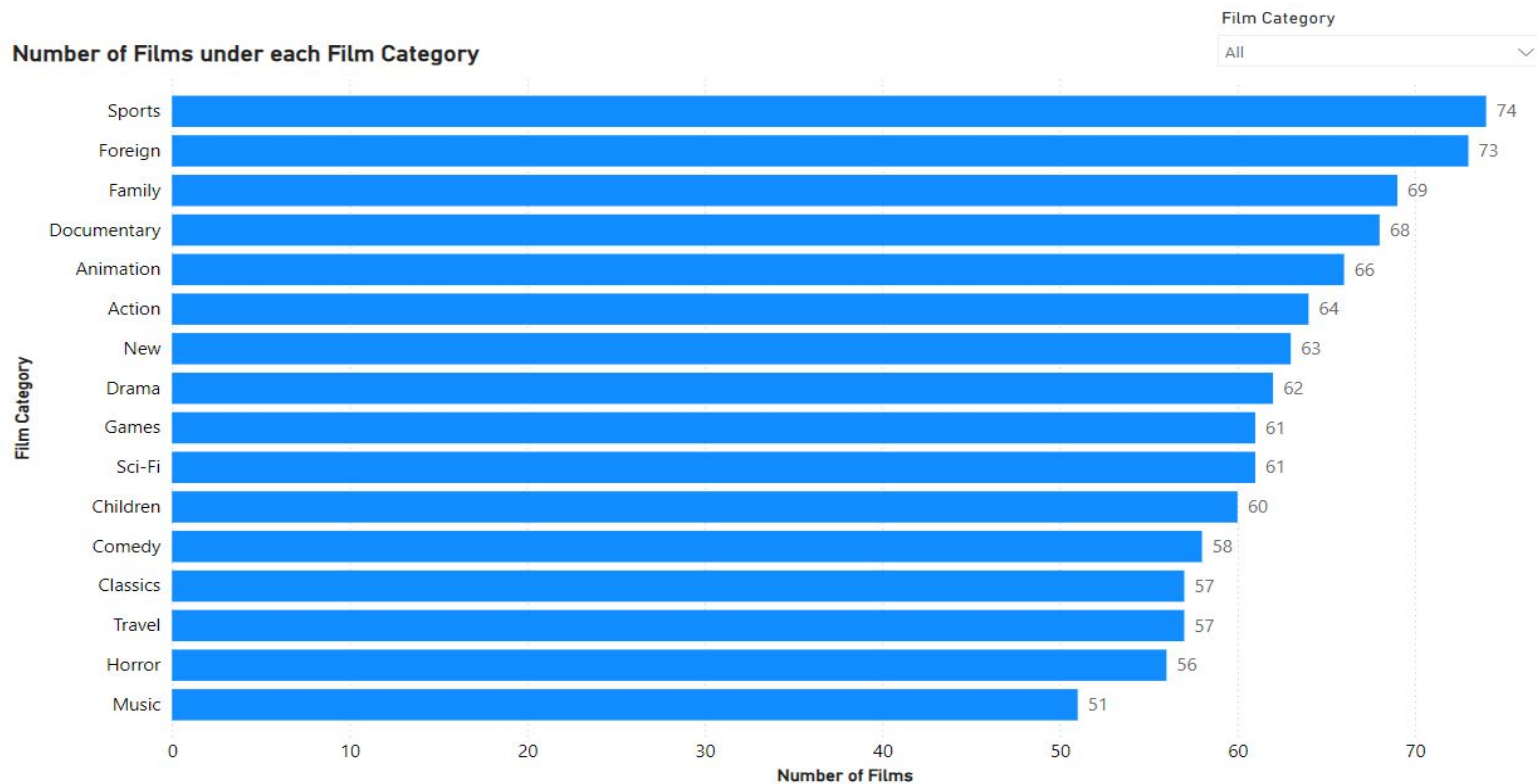
Number Customers rented the Films under each Film Category

Film Category	Number of Customers
Sports	1137
Foreign	1085
Family	1049
Documentary	1019
New	971
Sci-Fi	955
Animation	944
Comedy	923
Games	892
Drama	862
Classics	855
Action	852
Horror	813
Travel	789
Children	748
Music	698
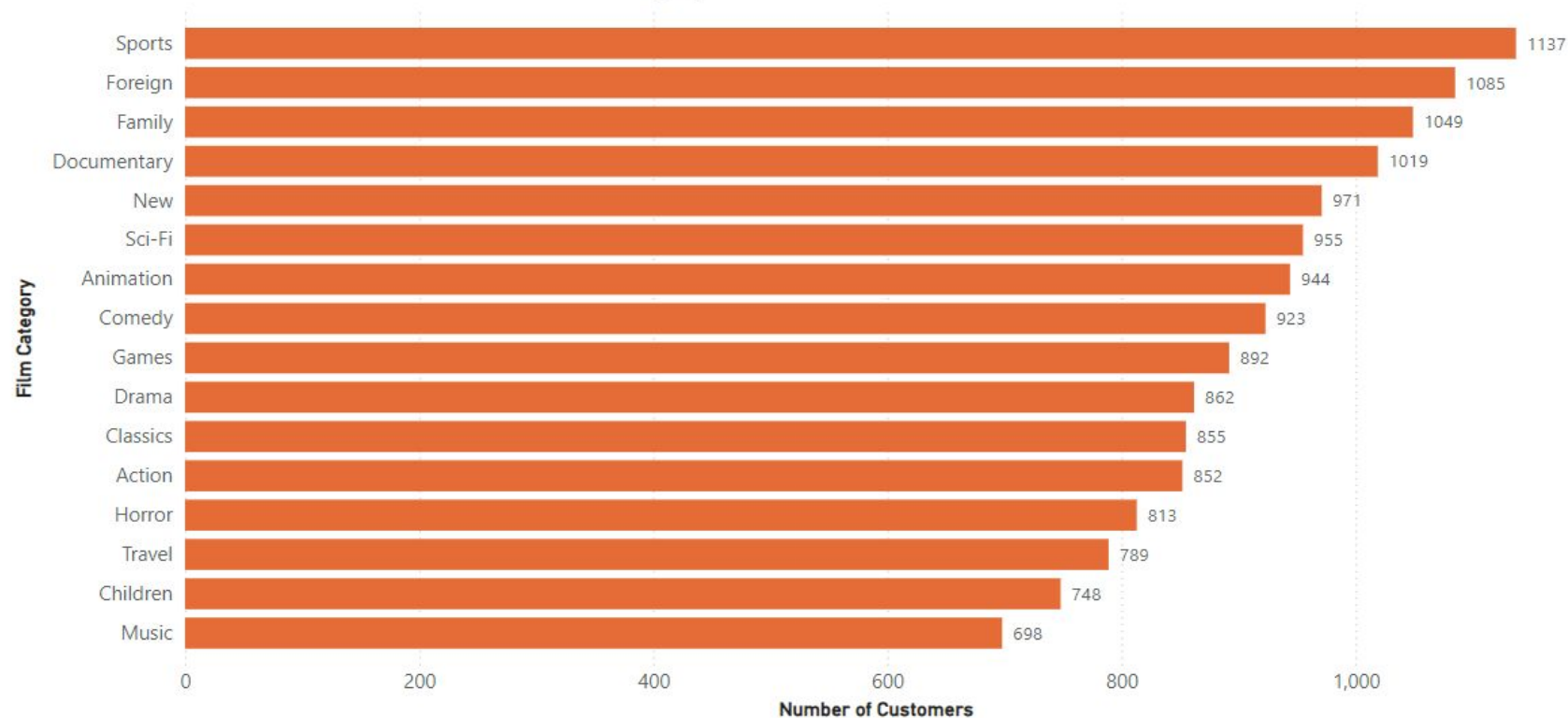
Top Rented Films

29	**New**	**Jungle Closer**
Number of Customers	Film Category	Film Title
29	**New**	**Voice Peach**
Number of Customers	Film Category	Film Title
29	**Sci-Fi**	**Nemo Campus**
Number of Customers	Film Category	Film Title

Least Rented Films

4	**New**	**Hours Rage**
Number of Customers	Film Category	Film Title
4	**New**	**Mine Titans**
Number of Customers	Film Category	Film Title
4	**Music**	**Scalawag Duck**
Number of Customers	Film Category	Film Title

Total Revenue by each Film Category

61.31K
Total Revenue

Film Category:

Category	Sum of Amount
Foreign	~4.7K
Family	~4.6K
Sports	~4.6K
Documentary	~4.5K
New	~4.4K
Animation	~4.3K
Sci-Fi	~4.0K
Classics	~3.9K
Comedy	~3.7K
Horror	~3.5K
Games	~3.4K
Action	~3.3K
Drama	~3.3K
Music	~3.2K
Children	~3.1K
Travel	~3.0K

Sum of Amount (0K — 5K)
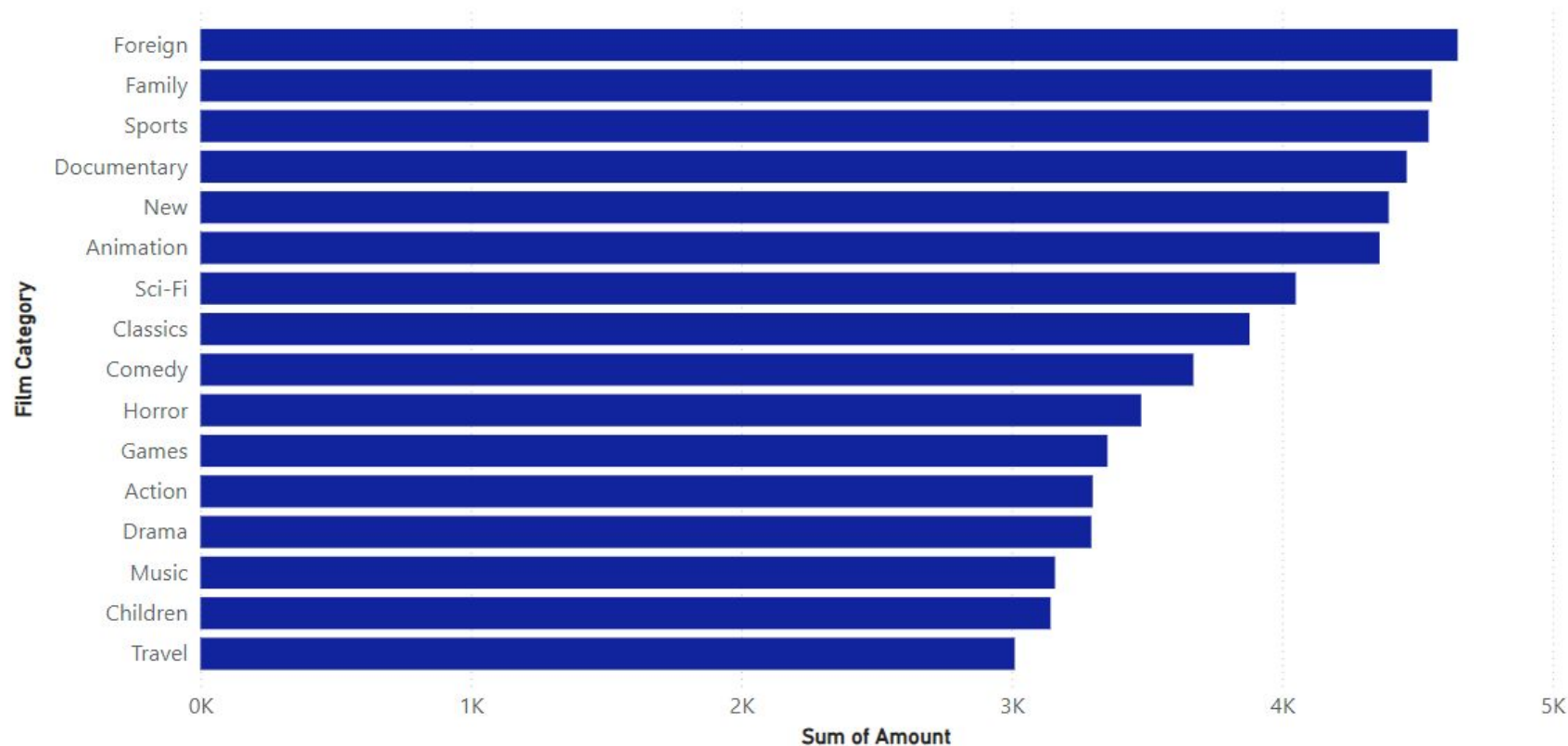
Income over the Period
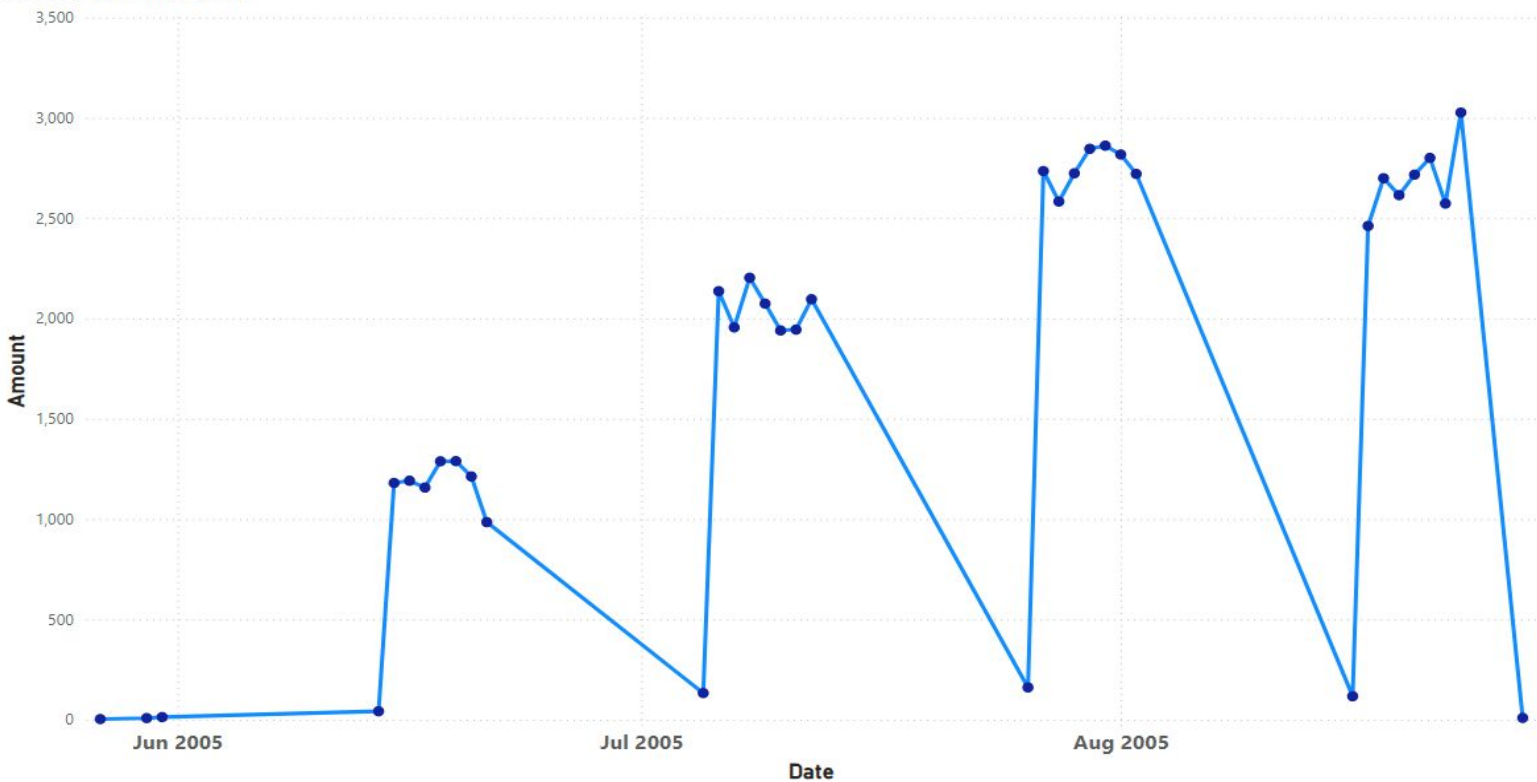
Future Additions

Customer Segmentation Analysis:

  i.   Segment customers based on rental behavior, spending patterns, and preferences.
  ii. Identify high-value customers and target them with personalized offers.

Rental Trends and Patterns:

  iii. Analyze daily, weekly, and monthly rental patterns.
  iv. Identify peak rental times and seasons.

Dimensional Model Updates:

1. **DimCustomer**:
   - Add columns for age, gender, and location.
2. **DimFilm**:
   - Add columns for rating, director, and actors.
3. **DimStore**:
   - Add detailed address attributes such as city, state, country, and size.
4. **FactRental**:
   - Include detailed payment information with attributes like payment_method and payment_status.

Thank You