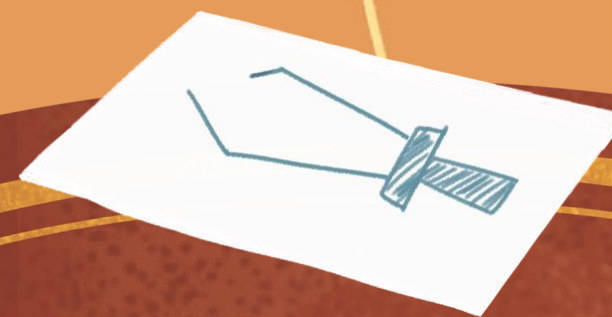




Toys Sales

Report by group E



Agenda

Project Description

Project Objectives

Methodology

Key Findings

Recommendations

Conclusion



Project Description

Toys Co. is a fictitious retail chain company in Mexico that wants to analyze its sales data from January 2022 to September 2023 to identify trends, optimize inventory, and improve decision-making.

The project aims to uncover insights such as top-performing products, seasonal trends, store performance, and forecast sales for the next two months to support strategic planning.



Project Objectives

Using SMART criteria (Specific, Measurable, Achievable, Relevant, Time-bound) to refine objectives:

- Analyze sales trends to identify seasonal patterns and optimize promotional strategies.
- Identify the top 10 products by sales revenue and profit to prioritize marketing and inventory efforts.
- Compare location performance by evaluating revenue contributions across regions to improve strategies.
- Examine inventory levels to identify overstocked and high-demand items for better management.
- Review product categories to focus on high-performing segments and improve weaker ones.

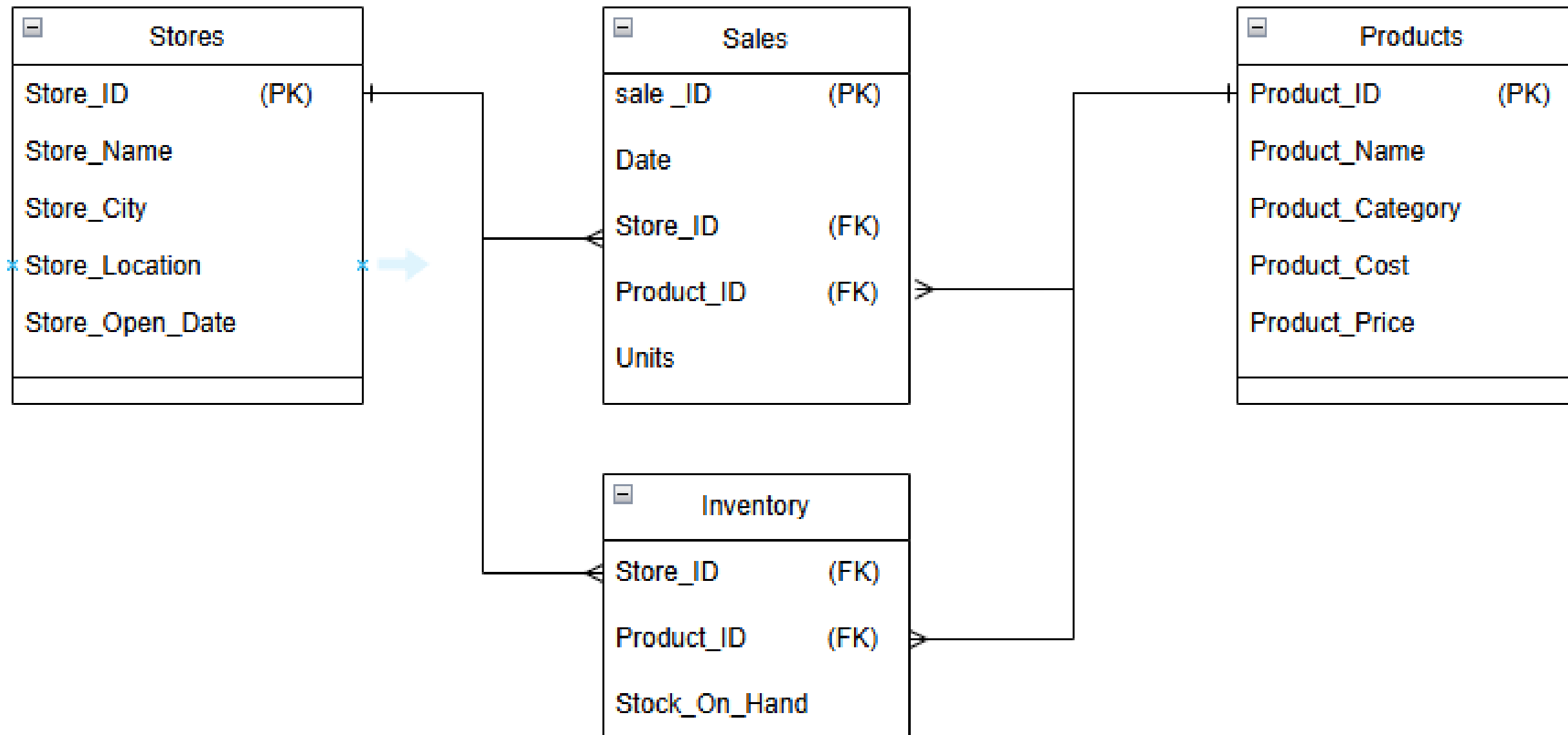


Methodology

- **Data Source:** [Maven Analytics Dataset](#)
- **Tools Used:** Python, SQL, and Tableau
- **Data Structure:** (Details are provided in the next two slides.)
- **Data Analysis Strategy:**
 1. Collect Data
 2. Clean and Prepare Data
 3. Exploratory Data Analysis (EDA)
 4. Generate Insights
 5. Report and Visualize



Data Structure



Data Structure

- The dataset consists of four tables, as outlined in the ERD:
 1. **Stores Table:**
 - 5 columns: (Store_ID, Store_Name, Store_City, Store_Location, Store_Open_Date)
 - 50 rows
 2. **Sales Table:**
 - 5 columns: (Sale_ID, Date, Store_ID, Product_ID, Units)
 - 829,262 rows
 3. **Inventory Table:**
 - 3 columns: (Store_ID, Product_ID, Stock_On_Hand)
 - 1,593 rows
 4. **Products Table:**
 - 5 columns: (Product_ID, Product_Name, Product_Category, Product_Cost, Product_Price)
 - 35 rows

Data Cleaning & Preprocessing

We utilized several functions to clean and prepare the dataset, including:

- **isna()**: Identified missing values.
- **fillna()**: Filled in the missing values.
- **rename()**: Altered axes labels.
- **drop_duplicates()**: Removed duplicate rows and fixed column data types.
- **to_datetime()**: Converted the date column from object type to date format.
- **replace()**: Replaced \$ in the price column and converted it to float numbers.
- **Boxplot** and **quantile** were used to detect outliers.
- Added **Revenue** and **Profit** columns to the sales table for further analysis.



Key Observations

1. Declining Sales and Profit: Sales decreased by 6.7% (from \$7.5M to \$7.0M), and profit decreased by 18.2% (from \$2.2M to \$1.8M).

2. Category Insights:

- Toys remained the top sales category, contributing \$2.3M in 2023, despite a \$0.5M decline.
- Art & Crafts doubled its sales to \$1.8M, rising from the smallest to the second-largest category.

3. Regional Dominance: Downtown locations consistently outperformed, contributing 56% of total sales in 2022 and increasing to 57% of total sales in 2023.



Key Findings

Year-Over-Year Performance

Sales:

2022: \$7.5M

2023: \$7.0M (-6.7%)

Profit:

2022: \$2.2M

2023: \$1.8M (-18.2%)

Units Sold:

2022: 549.5K

2023: 541.1K (-1.5%)

Orders:

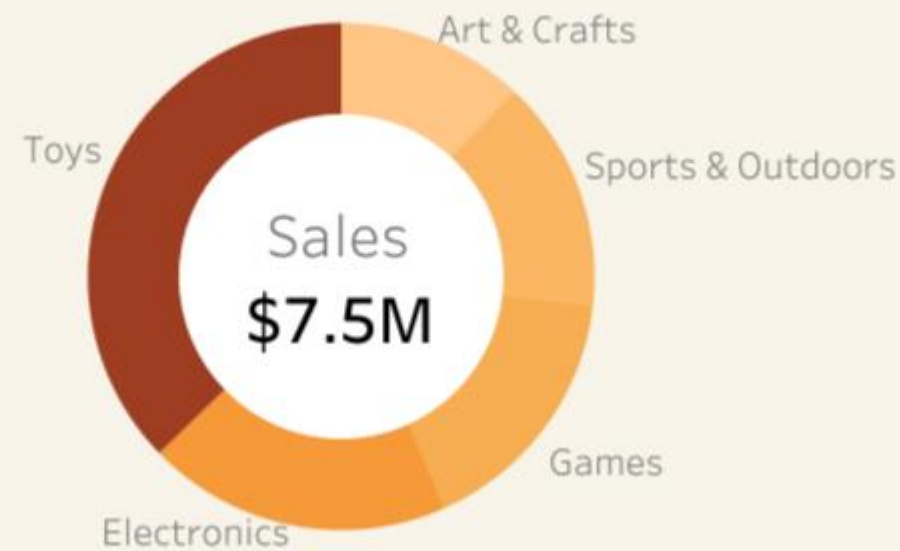
2022: 420.8K

2023: 408.4K (-2.9%)

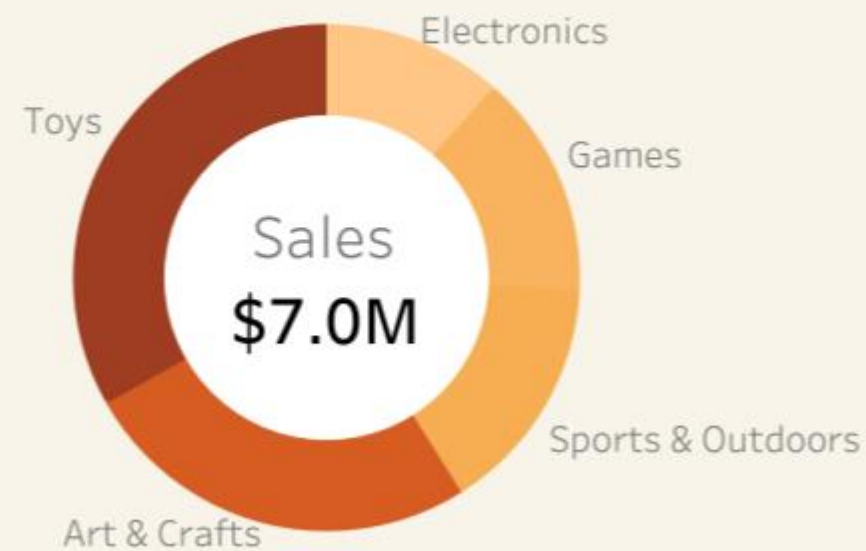


Key Findings

Sales | By Product Category



Sales | By Product Category



Sales by Category

2022:

- Toys: \$2.8M (37.3%)
- Art & Crafts: \$0.9M (12%)

2023:

- Toys: \$2.3M (32.9%)
- Art & Crafts: \$1.8M (25.7%)

Insight:

Toys remained the top sales category with a \$0.5M decline, while Art & Crafts doubled its sales to become the second-largest contributor.



Key Findings

Profit by Category

2022:

- Electronics: \$674.4K (Top Contributor)
- Art & Crafts: \$272.9K (Second Lowest Contributor)

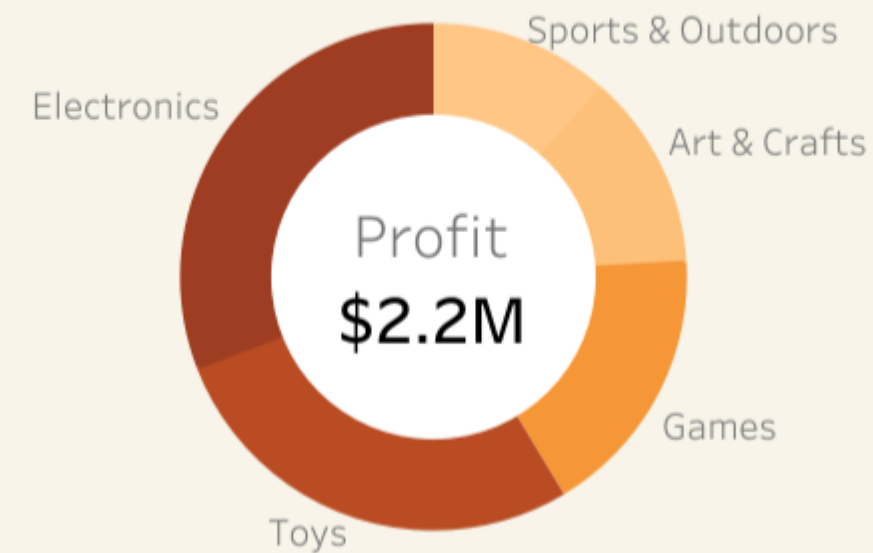
2023:

- Art & Crafts: \$480.4K (Top Contributor)
- Electronics: \$327.0K (Significant Decline)

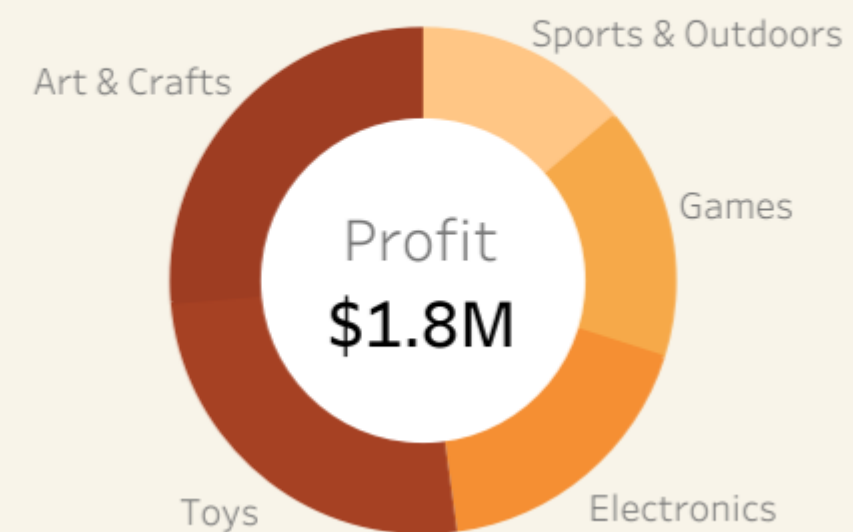
Insight:

Art & Crafts overtook Electronics as the top profit contributor in 2023, reflecting a shift in consumer demand.

Profit | By Product Category



Profit | By Product Category

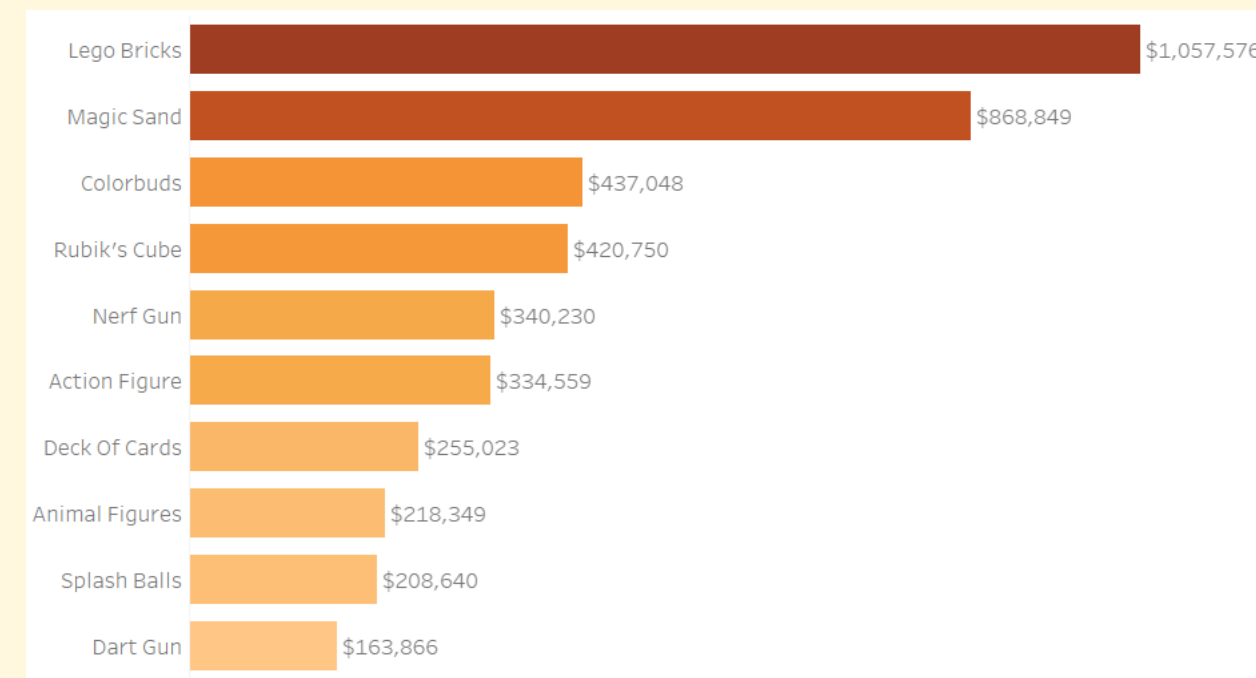
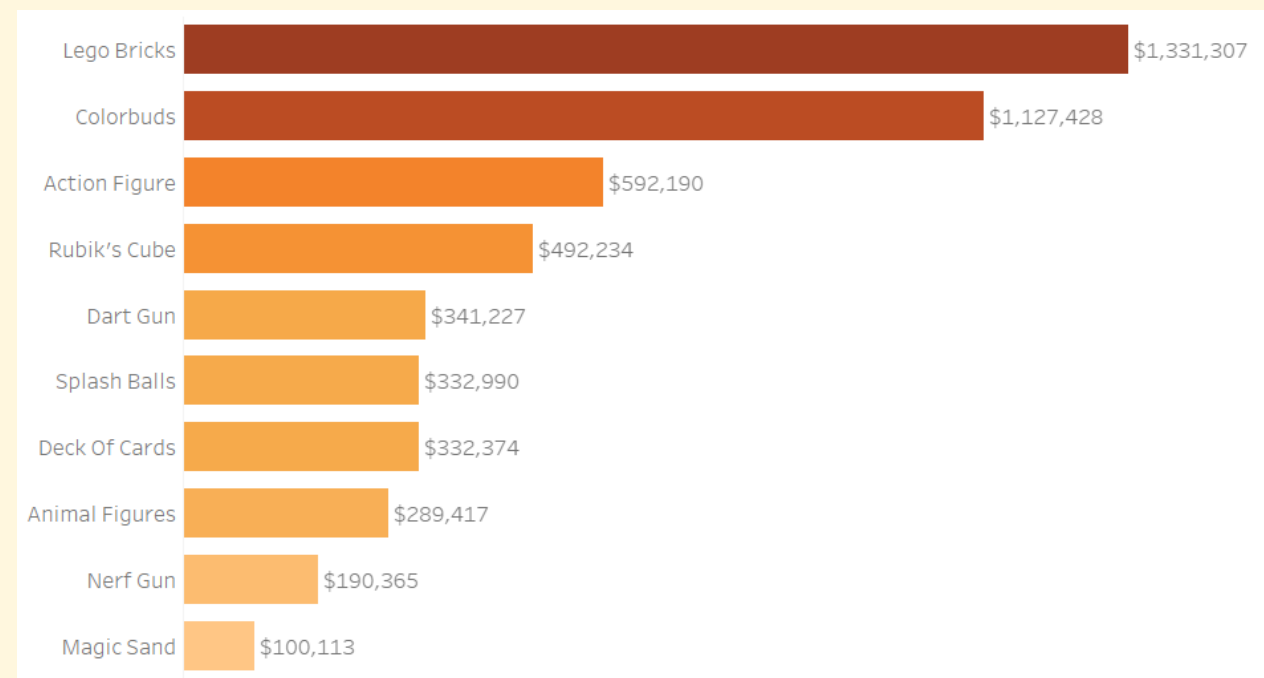


Key Findings

Top Products

By Sales:

- 2022: Lego Bricks (\$1,331.3K), Colorbuds (\$1,127.4K), Action Figures (\$592.2K)
- 2023: Lego Bricks (\$1,057.6K), Magic Sand (\$868.8K), Colorbuds (\$437.0K)

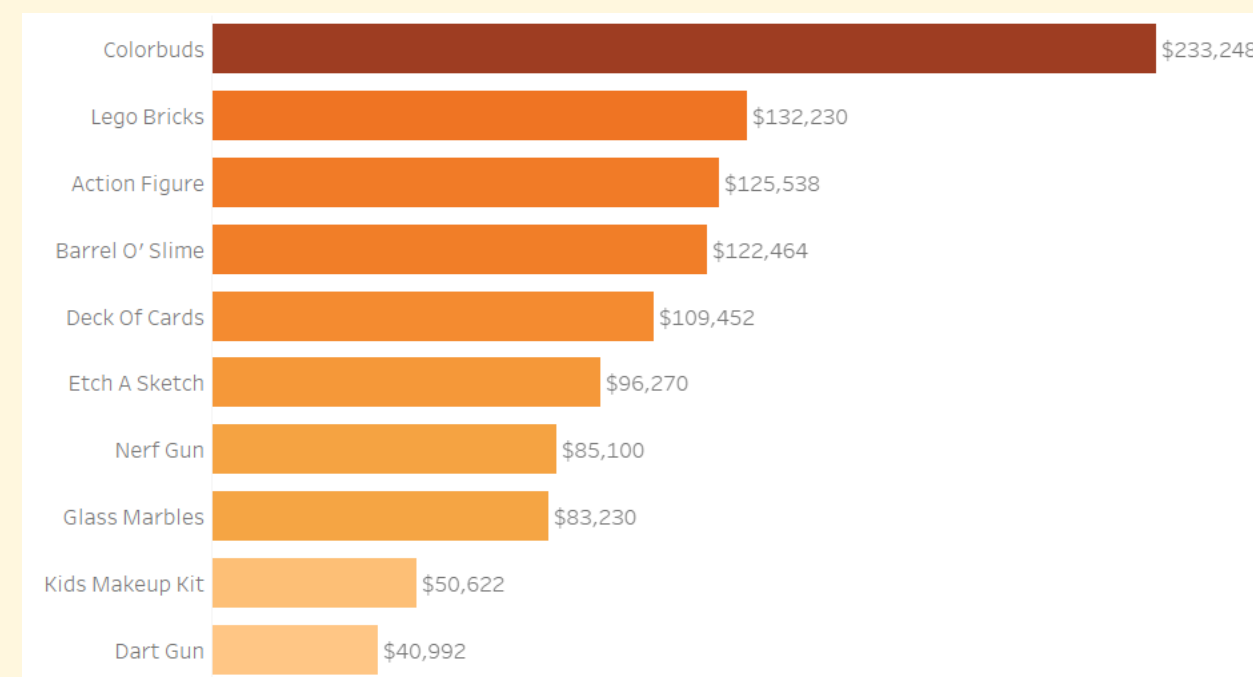
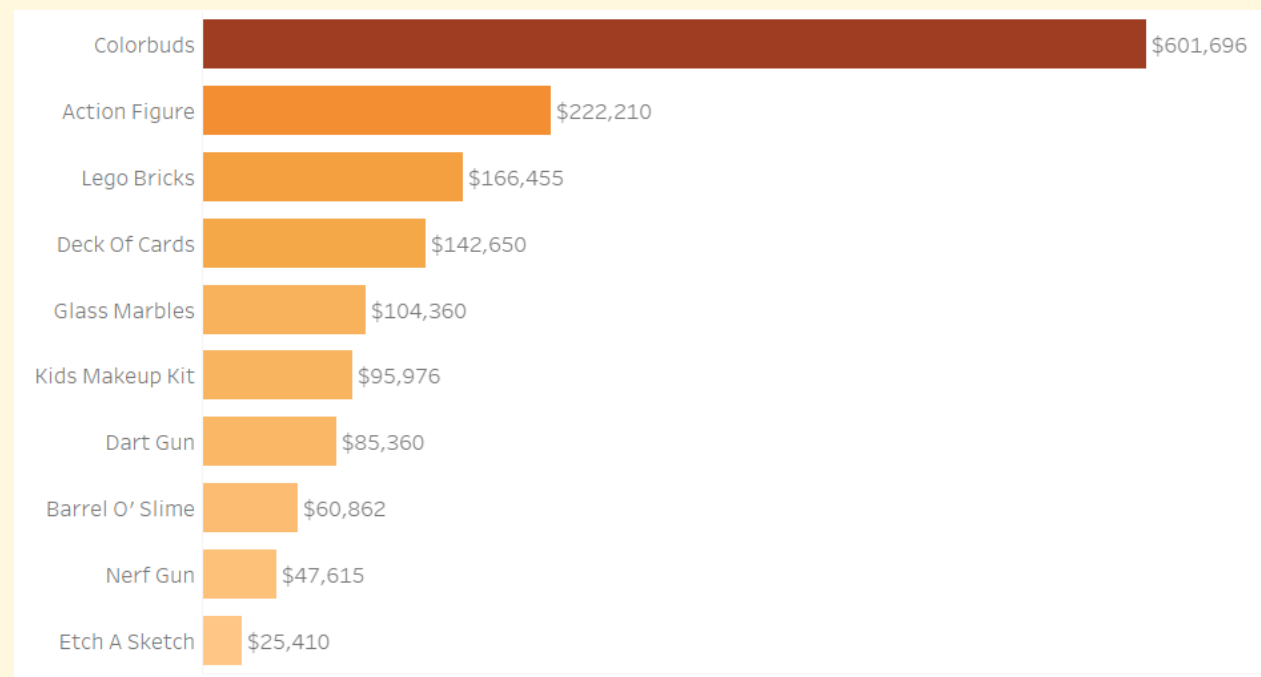


Key Findings

Top Products

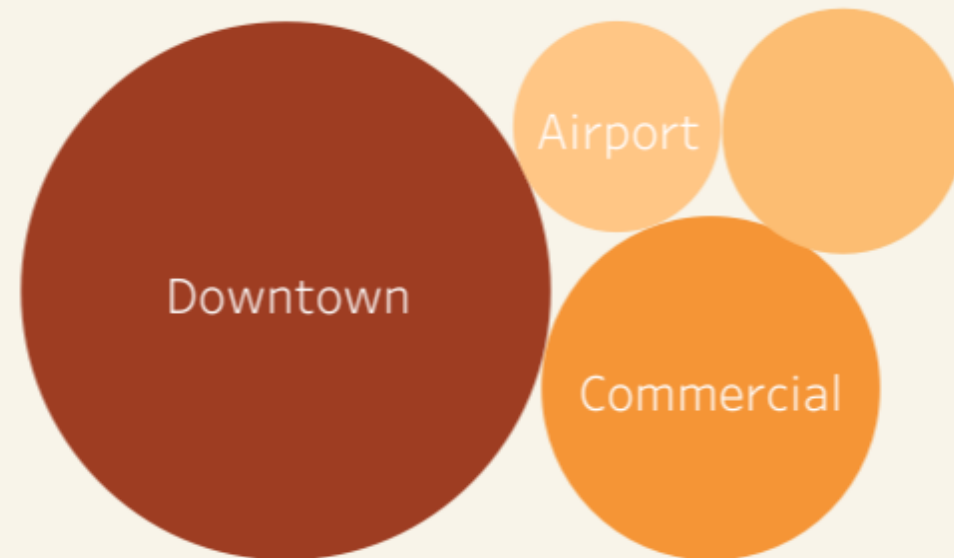
By Profit:

- 2022: Colorbuds (\$601.7K), Action Figures (\$222.2K), Lego Bricks (\$166.5K)
- 2023: Colorbuds (\$233.2K), Lego Bricks (\$132.2K), Action Figures (\$125.5K)

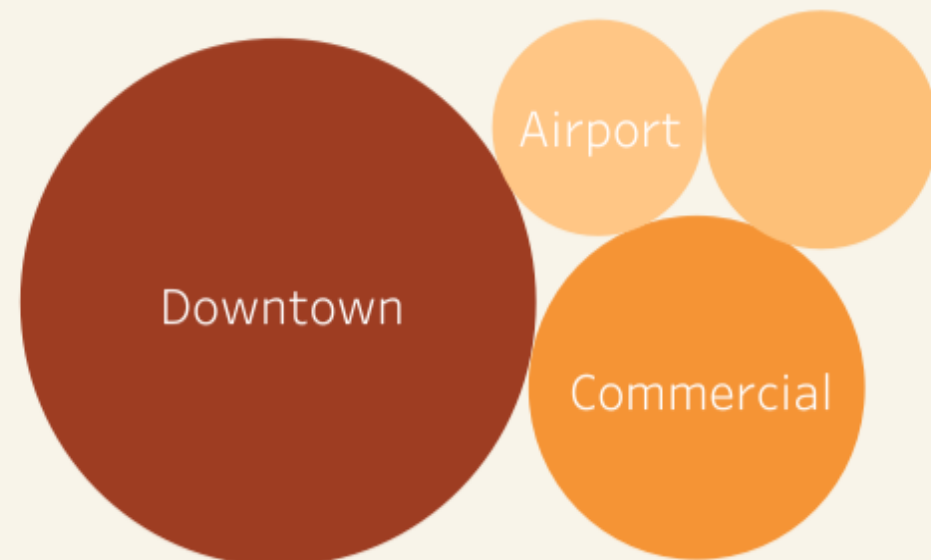


Key Findings

Sales | By Store Location



Profit | By Store Location



Store Location Performance

2022:

- Downtown: \$4.2M sales (56%) | \$1,217.9K profit (55%)
- Airport: \$0.7M sales (9%) | \$205.0K profit (9%)

2023:

- Downtown: \$4.0M sales (57%) | \$1,030.8K profit (57%)
- Airport: \$0.6M sales (9%) | \$173.0K profit (10%)

Insight: Downtown stores consistently dominated both years, accounting for over half of total sales and profit, though all locations saw slight declines.



Recommendations

High Priority

1. Focus on Growing Categories:

Action: Increase inventory and marketing efforts for Art & Crafts products to maintain their strong growth.

Impact: Adds an estimated \$0.5M in annual sales, making Art & Crafts an even stronger contributor to the business's success.

2. Electronics:

Action: Review and adjust the prices, introduce new products, and create marketing campaigns to improve Electronics performance.

Impact: Recovering just 10% of the profit lost in 2023 could bring in an extra \$65K, helping to strengthen overall business profits.



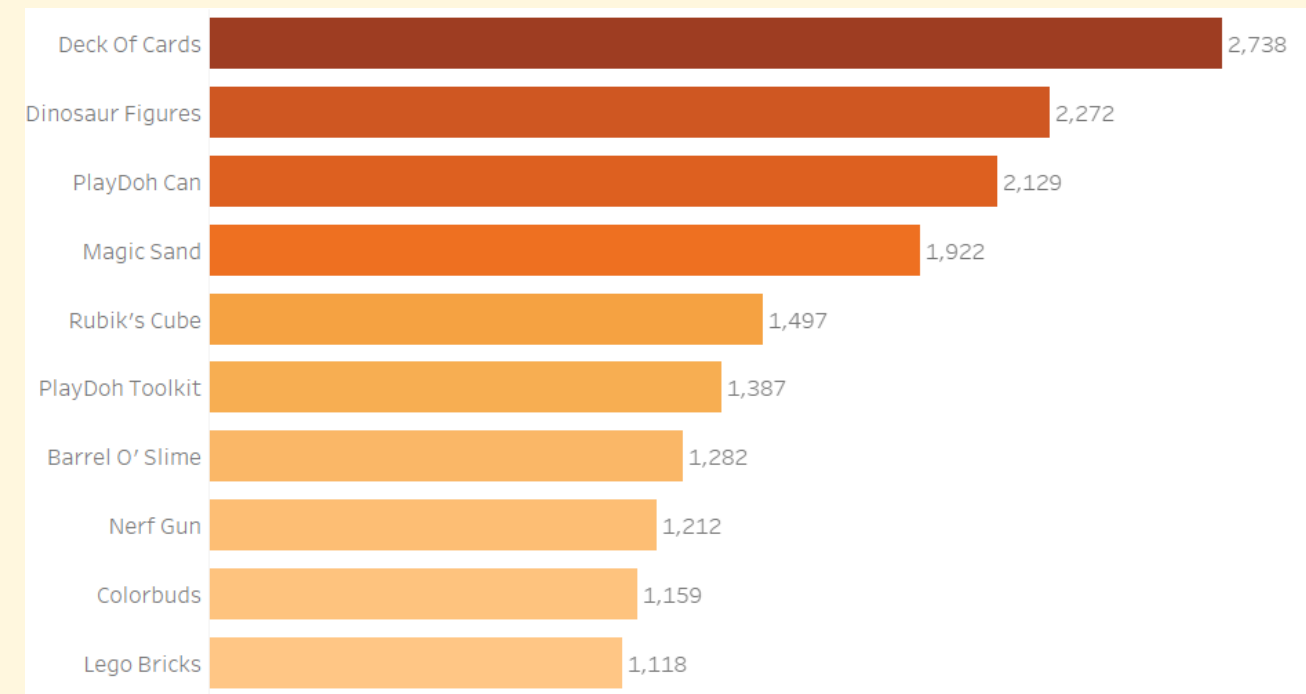
Recommendations

High Priority

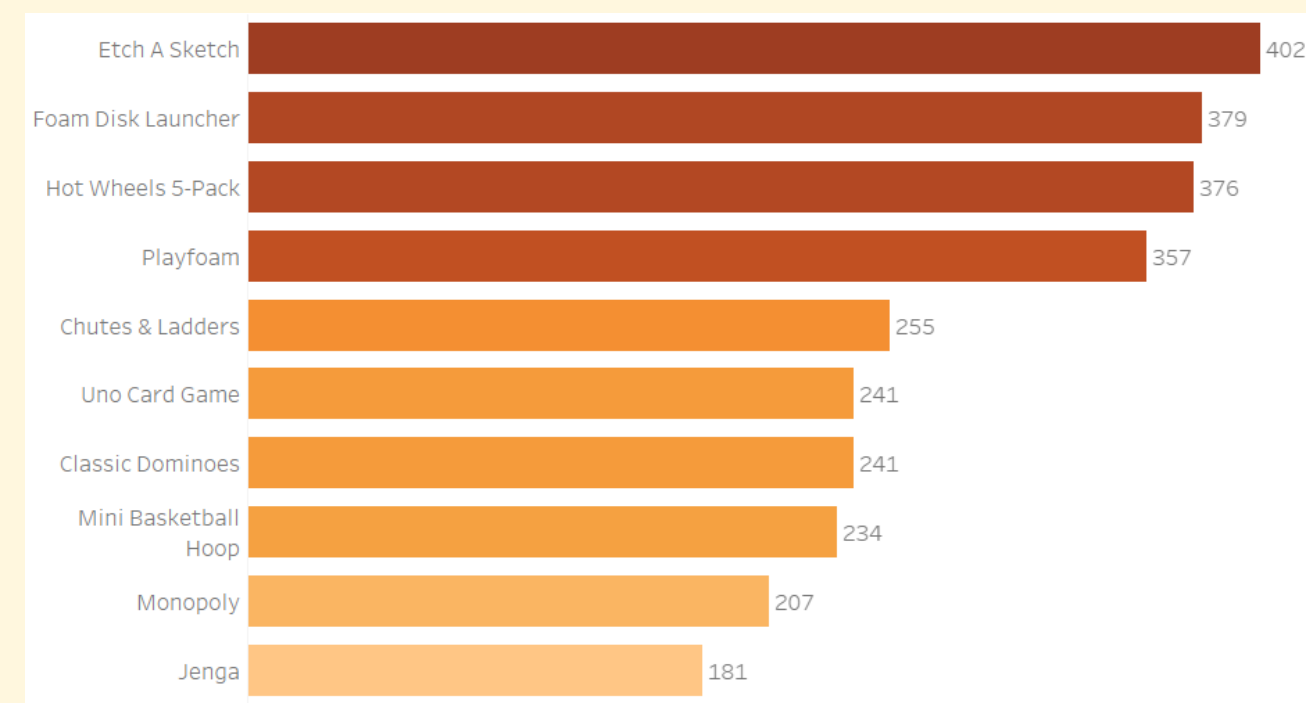
3. Inventory:

Action: Align inventory levels with demand by reducing overstock for slow-moving items (e.g., Deck of Cards) and ensuring sufficient stock for high-demand products like Colorbuds, Lego Bricks, and Action Figures.

Impact: Improves cash flow by freeing up funds tied in unsold stock and reduces storage costs by minimizing overstock of slow-moving items.



"Top 10 products in Inventory"



"Least 10 products in Inventory"



Recommendations

Medium Priority

Sales | By Store Location



Profit | By Store Location



4. Expand Downtown Advantage:

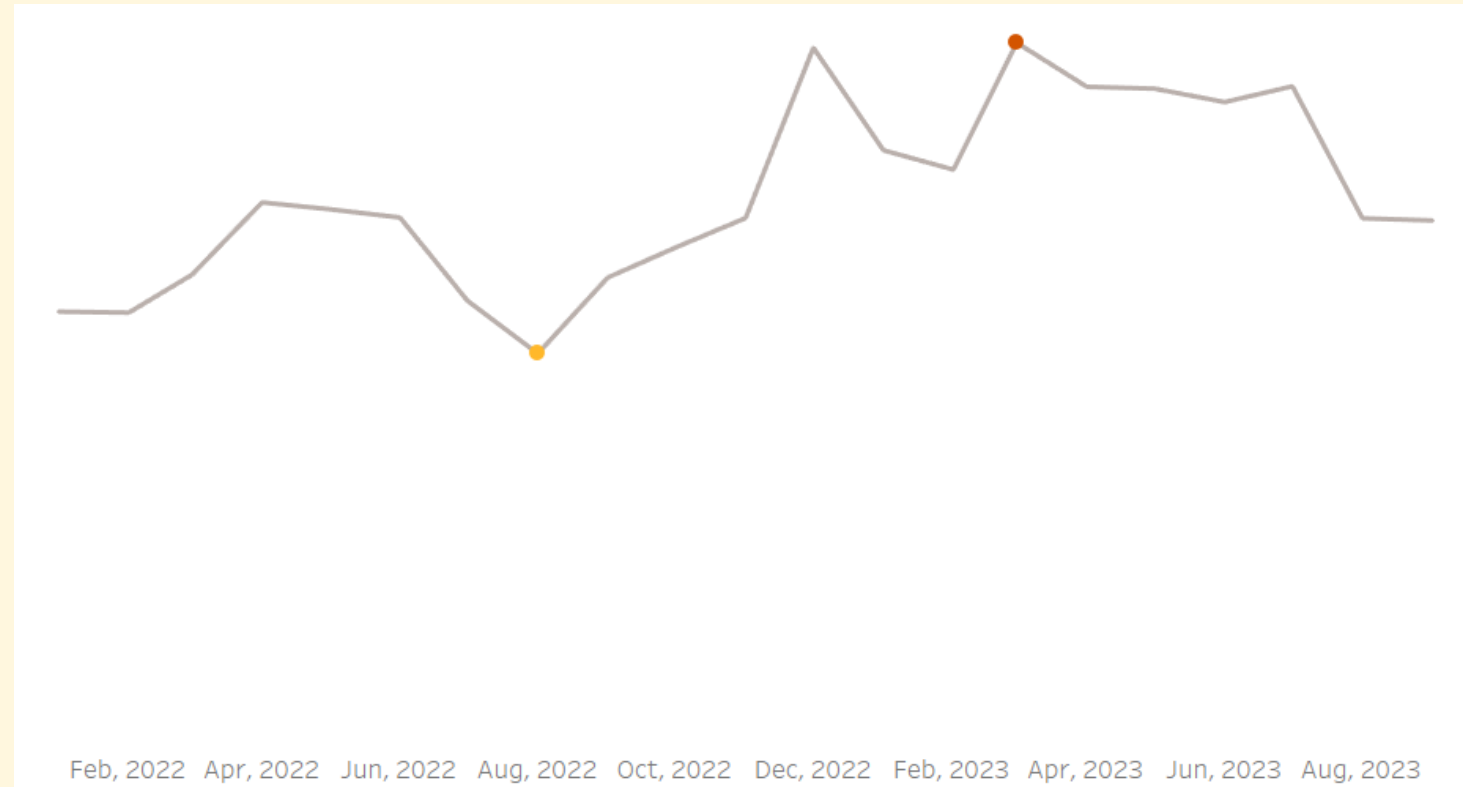
Action: Introduce loyalty programs and targeted promotions at Downtown stores to further capitalize on their dominance.

Impact: Enhancing customer retention could add \$0.3M to annual revenue.



Recommendations

Medium Priority



5. Leverage Seasonal Trends:

Action: Use historical data to plan seasonal promotions, especially for Toys and Art & Crafts during holidays.

Impact: Targeted campaigns during these peak periods could drive a 5% increase in seasonal sales, translating to an additional \$0.35M in revenue.



Recommendations

Low Priority

Sales | By Store Location



Profit | By Store Location



6. Investigate Underperforming Locations:

Action: Analyze customer feedback and operational challenges at Airport and Residential locations.

Impact: Identifying and addressing issues could stabilize these regions and prevent further declines.



Conclusion

The data reveals both challenges and opportunities:

High Priority: Targeting Art & Crafts growth, revitalizing Electronics, and optimizing inventory directly addresses the largest opportunities and challenges.

Medium Priority: Expanding Downtown advantages and leveraging seasonal trends builds on strong performance and captures peak demand periods.

Low Priority: Investigating underperforming locations stabilizes weaker areas without diverting focus from high-impact opportunities.



Thank You

