

Maven Sales Analysis



Overview

Maven Toys in an imaginary shop located in Mexico.
This shop sells various product categories.

1. Toys
2. Electronics
3. Arts & Crafts
4. Games
5. Sports & Outdoors

They want to analyze their sells data and want insights from the data to built strategies to improve their profit.



Data Cleaning

```
-- Data Cleaning
```

```
UPDATE dim_date
```

```
SET Date=STR_TO_DATE(Date, '%m/%d/%Y');
```

```
ALTER TABLE fact_sales
```

```
MODIFY COLUMN Date DATE;
```

```
UPDATE dim_products
```

```
SET product_cost=CAST(REPLACE(Product_Cost, '$', '') AS DECIMAL(10, 2));
```

```
UPDATE dim_products
```

```
SET product_price=CAST(REPLACE(Product_Price, '$', '') AS DECIMAL(10, 2));
```



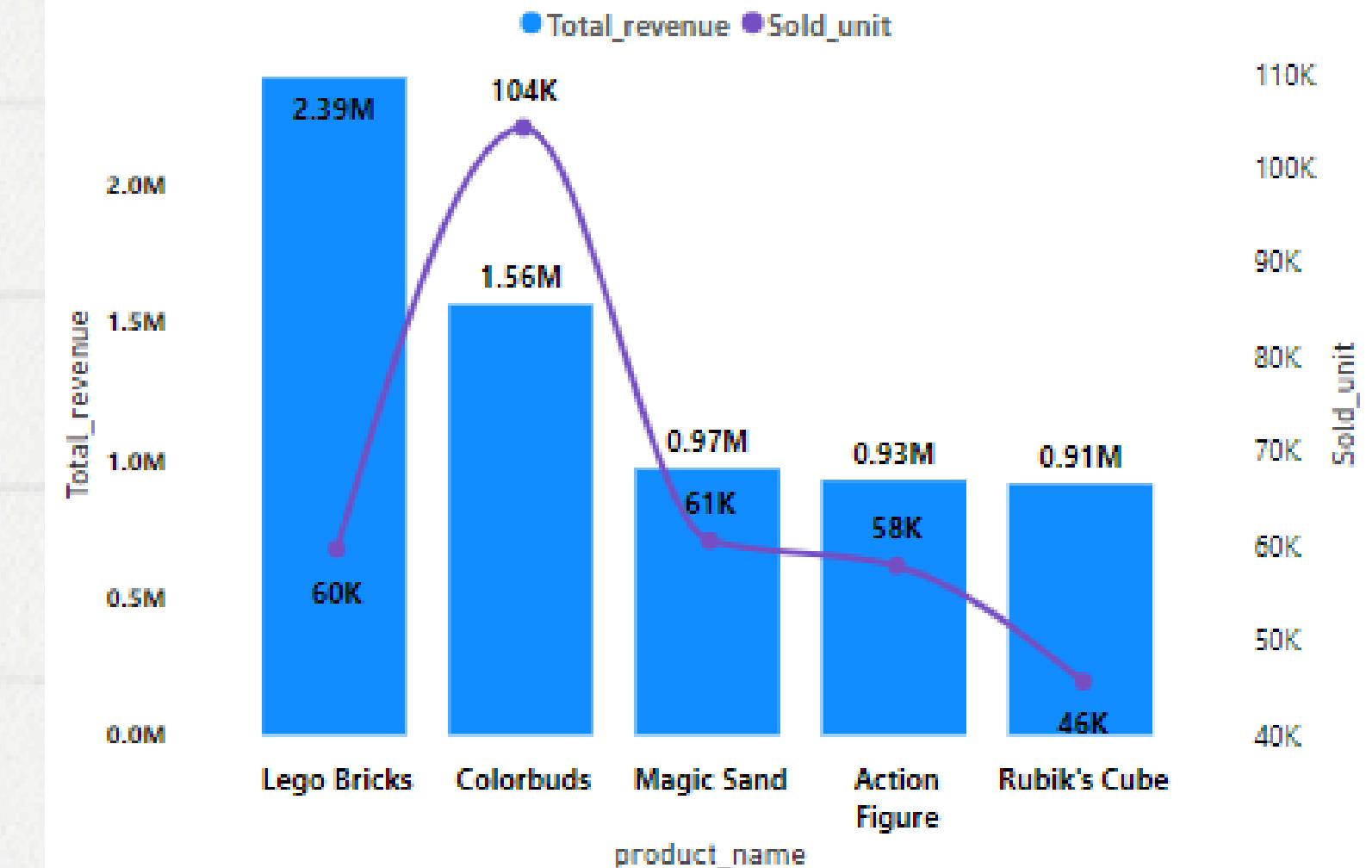
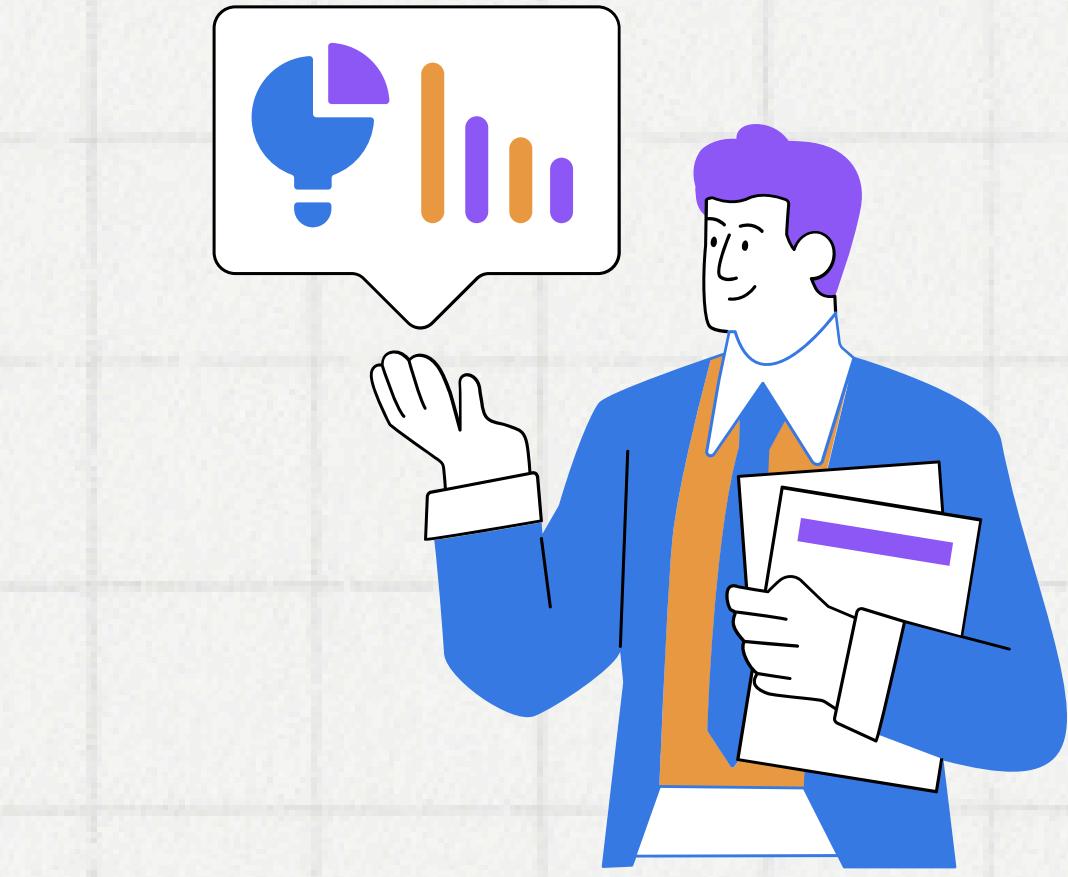
Data Analysis



Top 5 Product based on revenue

```
WITH product_revenue AS (
    SELECT product_name, SUM(Units) AS sold_unit, ROUND(SUM(Product_price*Units),2) AS total_revenue
    FROM dim_products p
    JOIN fact_sales s
    ON p.Product_ID=s.Product_ID
    GROUP BY product_name),
top_products AS (
    SELECT product_name, sold_unit, total_revenue, DENSE_RANK() OVER(ORDER BY total_revenue DESC) AS rnk
    FROM product_revenue)
SELECT product_name, sold_unit, total_revenue
FROM top_products
WHERE rnk<=5;
```

- **Lego Bricks, Colorbuds, Magic Sands, Action Figure, Rubick Cubes** these the **top 5 products** out of 35 products that generates highest revenue.
- Though **Colorbuds** generates second highest revenue but quantity sold is highest for colorbuds.

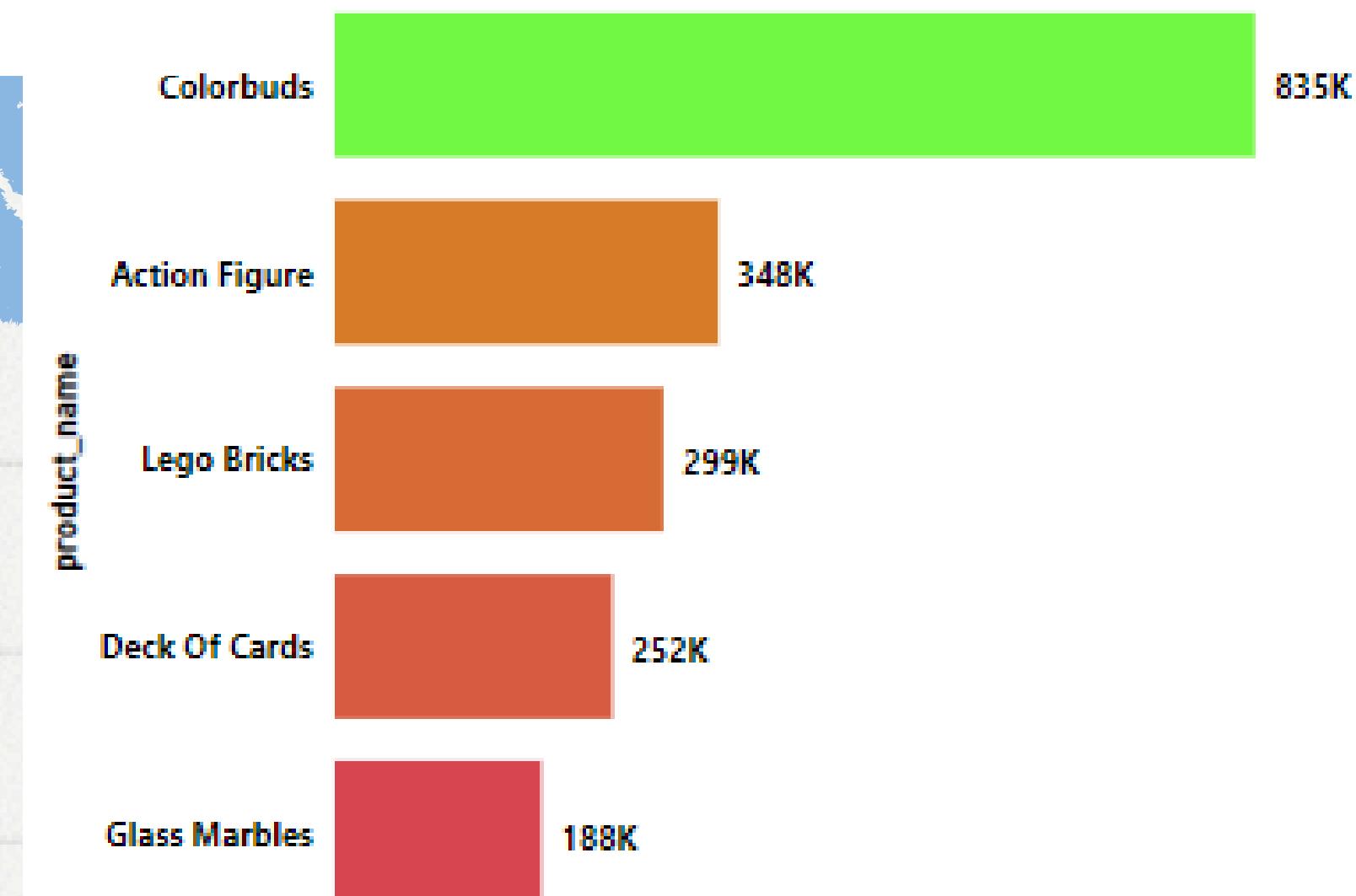


Top 5 Product based on gross Profit

```
WITH products AS (
    SELECT product_name,ROUND(SUM((Product_price-product_cost)*Units),2) AS gross_profit
    FROM dim_products p
    JOIN fact_sales s
    ON p.Product_ID=s.Product_ID
    GROUP BY product_name),
top_products AS (
    SELECT product_name,gross_profit,DENSE_RANK() OVER(ORDER BY gross_profit DESC) AS rnk
    FROM products)
SELECT product_name,gross_profit
FROM top_products
WHERE rnk<=5;
```

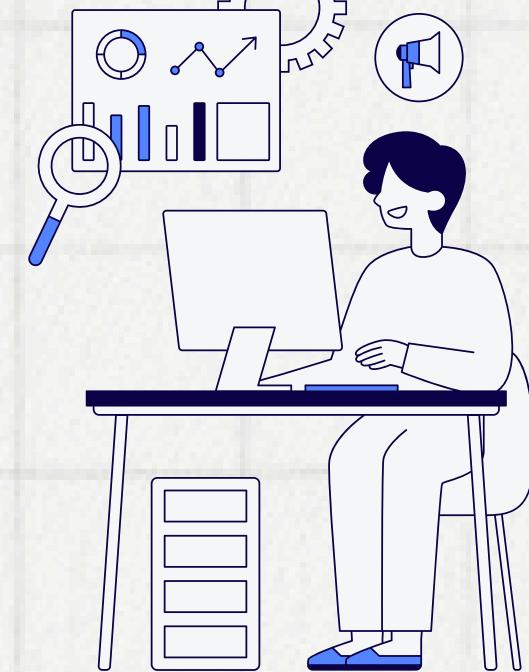


- **Lego Bricks, Colorbuds, Deck of Cards, Action Figure, Glass Marbles** these are the **top 5 products based on gross profit.**
- These 5 products generates **48% of total gross profit.**

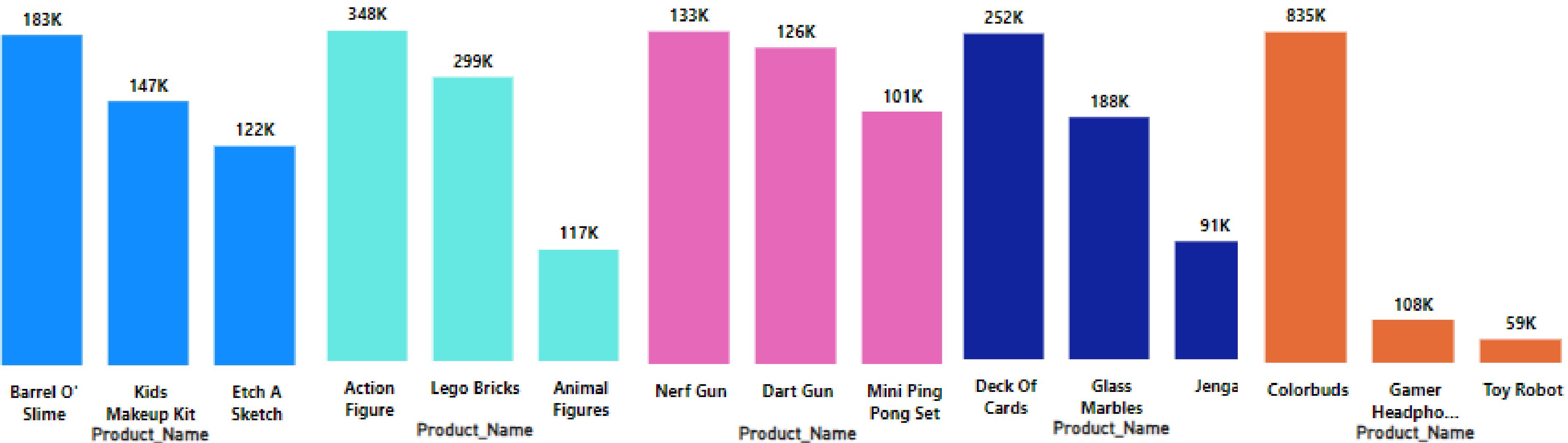


Top 3 Products of Each Category based on gross Profit

```
WITH products AS (
  SELECT Product_Category, Product_Name, ROUND(SUM((Product_price - product_cost)*Units),2) AS gross_profit
  FROM dim_products p
  JOIN fact_sales s
  ON p.Product_ID=s.Product_ID
  GROUP BY product_name, Product_Category),
top_products AS (
  SELECT Product_Category, Product_Name, gross_profit, DENSE_RANK() OVER(PARTITION BY Product_Category ORDER BY gross_profit DESC) AS rnk
  FROM products)
SELECT Product_Category, Product_Name, gross_profit
FROM top_products
WHERE rnk<=3;
```

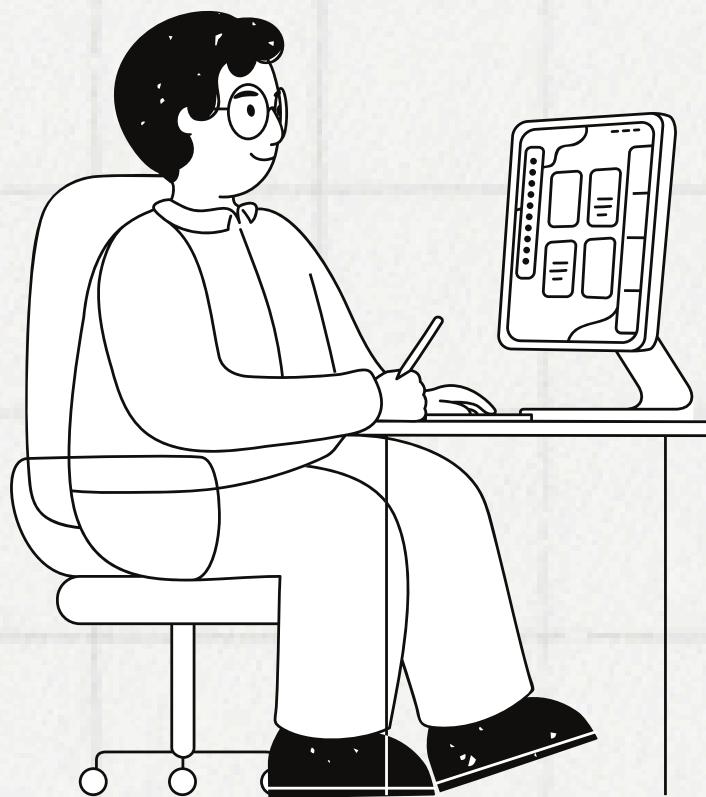


● Art & Crafts ● Electronics ● Games ● Sports & Outdoors ● Toys

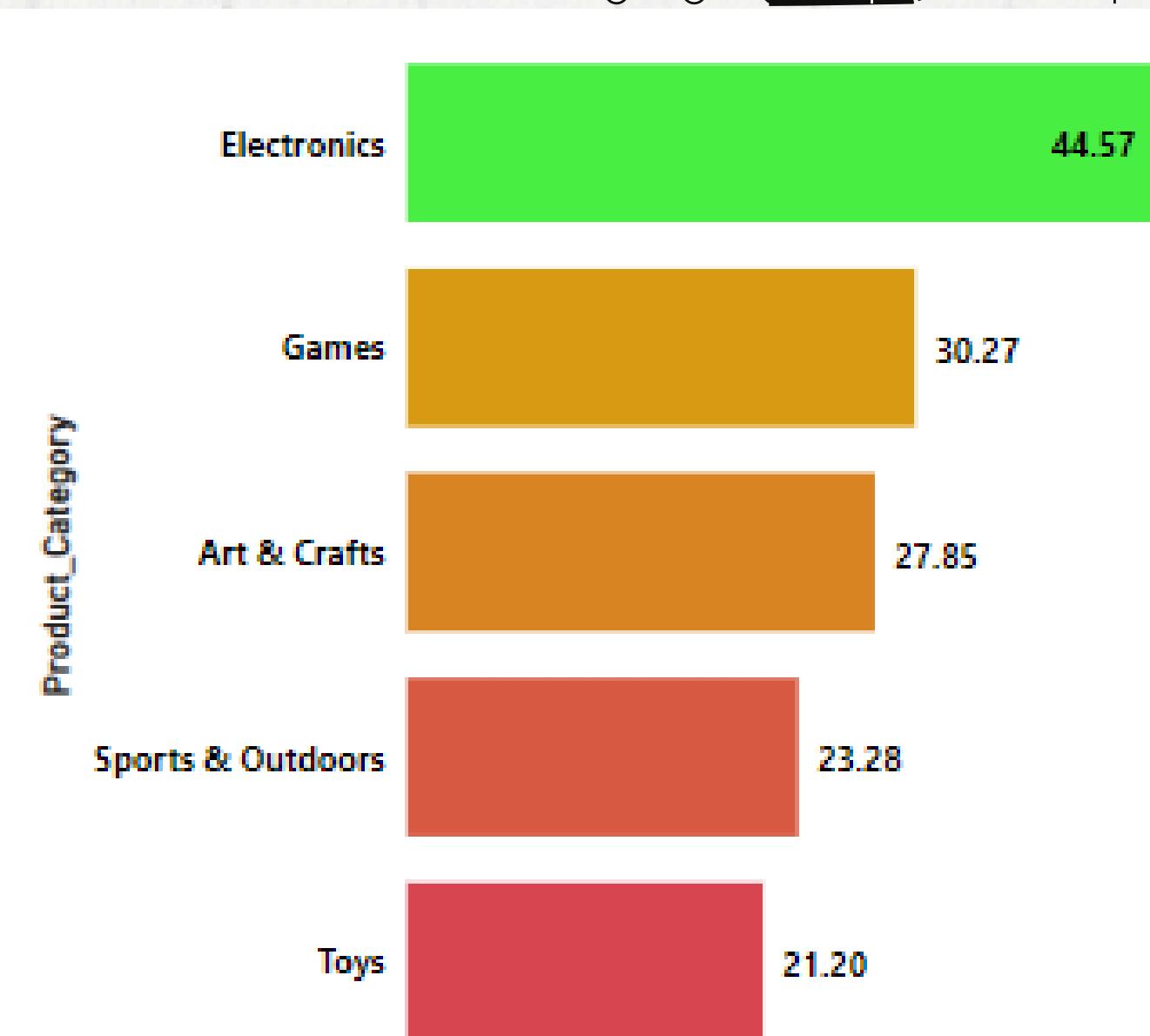


Product Category wise Gross Profit Margin

```
SELECT Product_Category,ROUND(SUM((Product_price-product_cost)*Units)*100/SUM(Product_Price*Units),2) AS profit_gross_margin  
FROM dim_products p  
JOIN fact_sales s  
ON p.Product_ID=s.Product_ID  
GROUP BY Product_Category;
```



- Electronics stands out with the highest gross profit margin, indicating this category is highly profitable and the company is efficient in managing its production costs relative to its sales.
- Games and Art & Crafts also show strong profitability with margins above 27%, suggesting good cost control and effective pricing strategies.

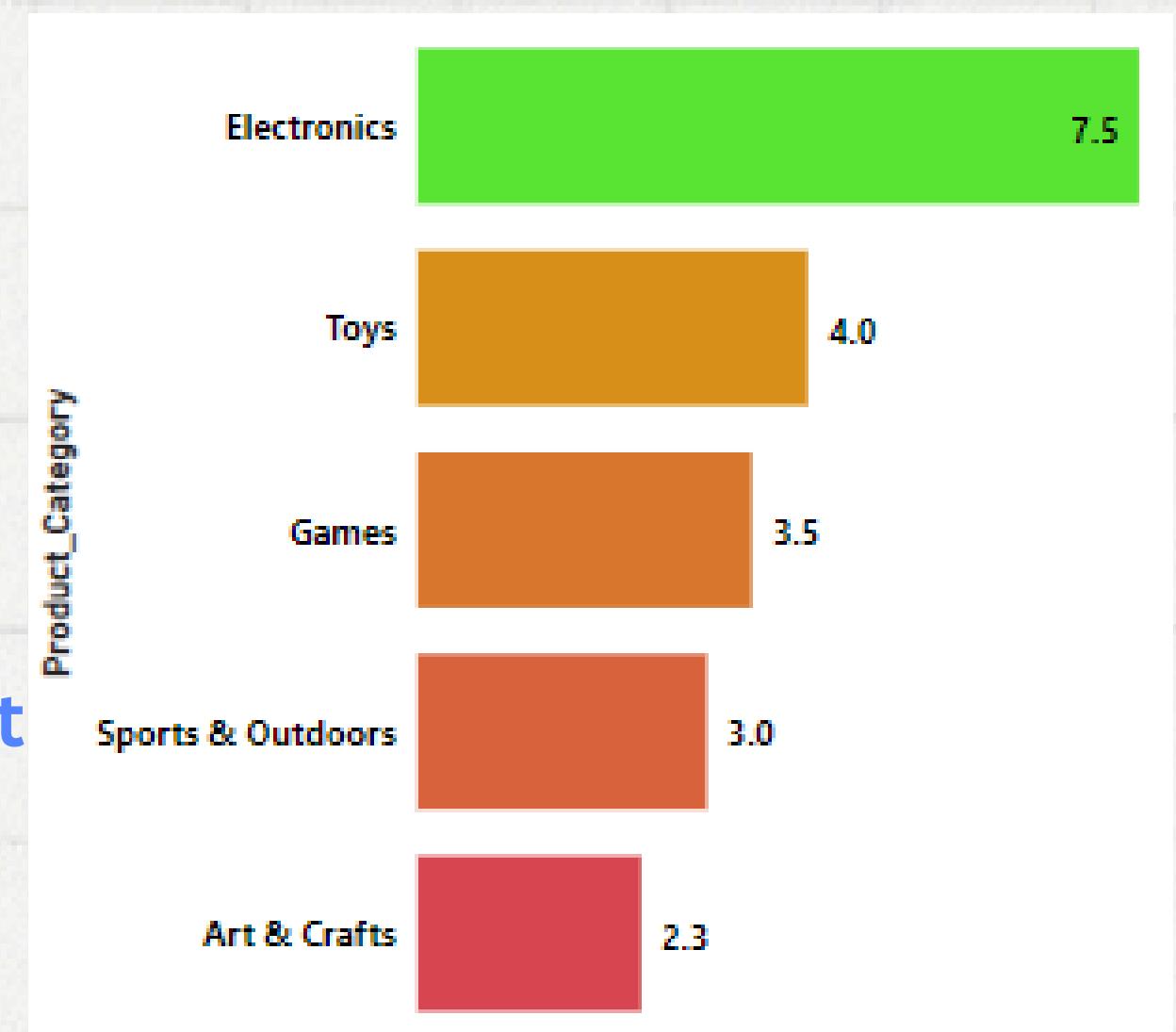


Product Category wise Gross Profit per unit sold

```
SELECT Product_Category,ROUND(SUM((Product_price-product_cost)*Units)/SUM(Units),2) AS profit_per_units  
FROM dim_products p  
JOIN fact_sales s  
ON p.Product_ID=s.Product_ID  
GROUP BY Product_Category  
ORDER BY profit_per_units DESC;
```

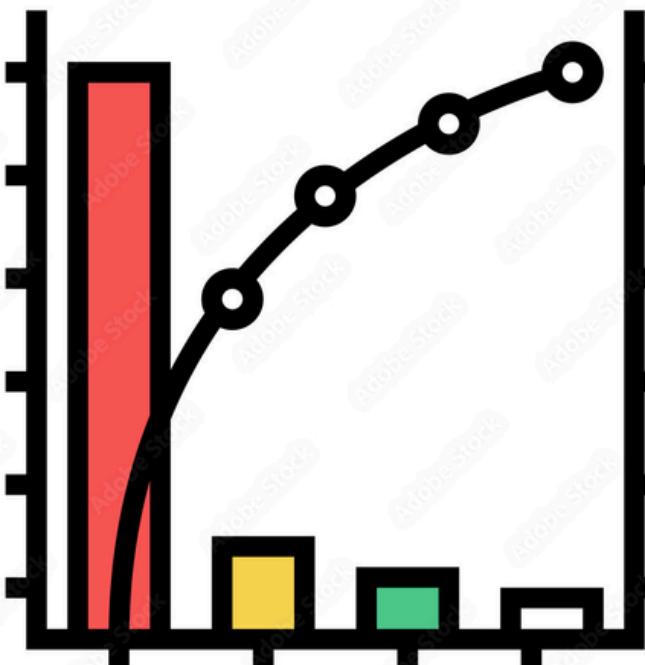


- **Electronics** is the standout category with both the highest profit per unit and gross profit margin, indicating it is the **most profitable category overall**.
- **Toys and Games** have moderate profit per unit figures, with Games having a higher gross profit margin, suggesting it is more cost-efficient than Toys.
- **Sports & Outdoors** and **Art & Crafts** have lower profit per unit, with Art & Crafts showing a better gross profit margin, indicating better cost control in that category.

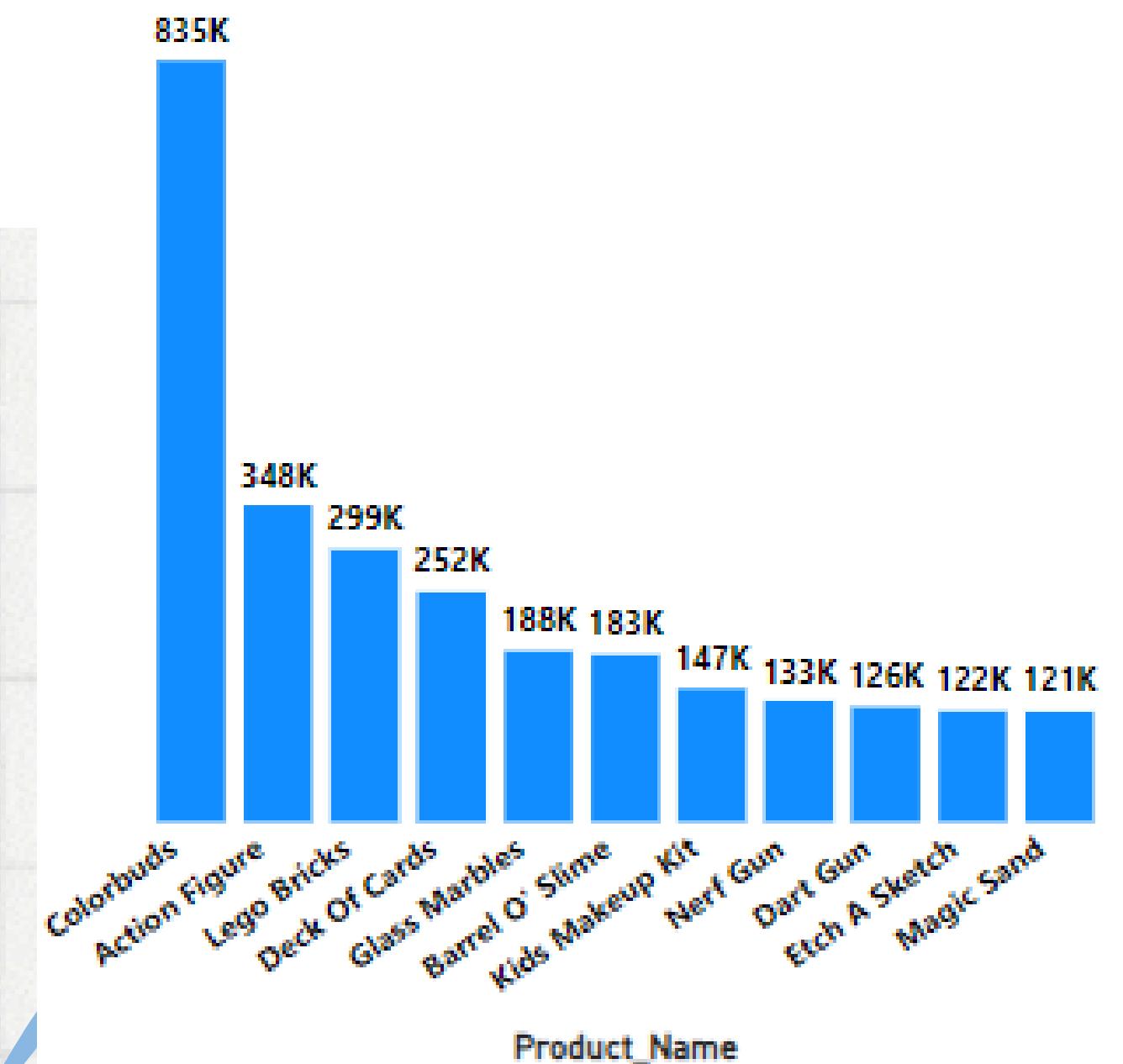


Products That generates 70% of total gross profit

```
WITH x AS (
    SELECT p.Product_ID, Product_Name, ROUND(SUM((Product_price - product_cost)*Units),2) AS gross_profit
    FROM dim_products p
    JOIN fact_sales s
    ON p.Product_ID=s.Product_ID
    GROUP BY p.Product_ID, Product_Name),
y AS (
    SELECT Product_ID, Product_Name, gross_profit, SUM(gross_profit) OVER() AS total_gross_profit,
    SUM(gross_profit) OVER(ORDER BY gross_profit DESC ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW) AS running_sum
    FROM x)
SELECT Product_ID, Product_Name, gross_profit, 0.7*total_gross_profit AS 70_percentage_of_gross_profit, running_sum
FROM y
WHERE running_sum<0.7*total_gross_profit;
```

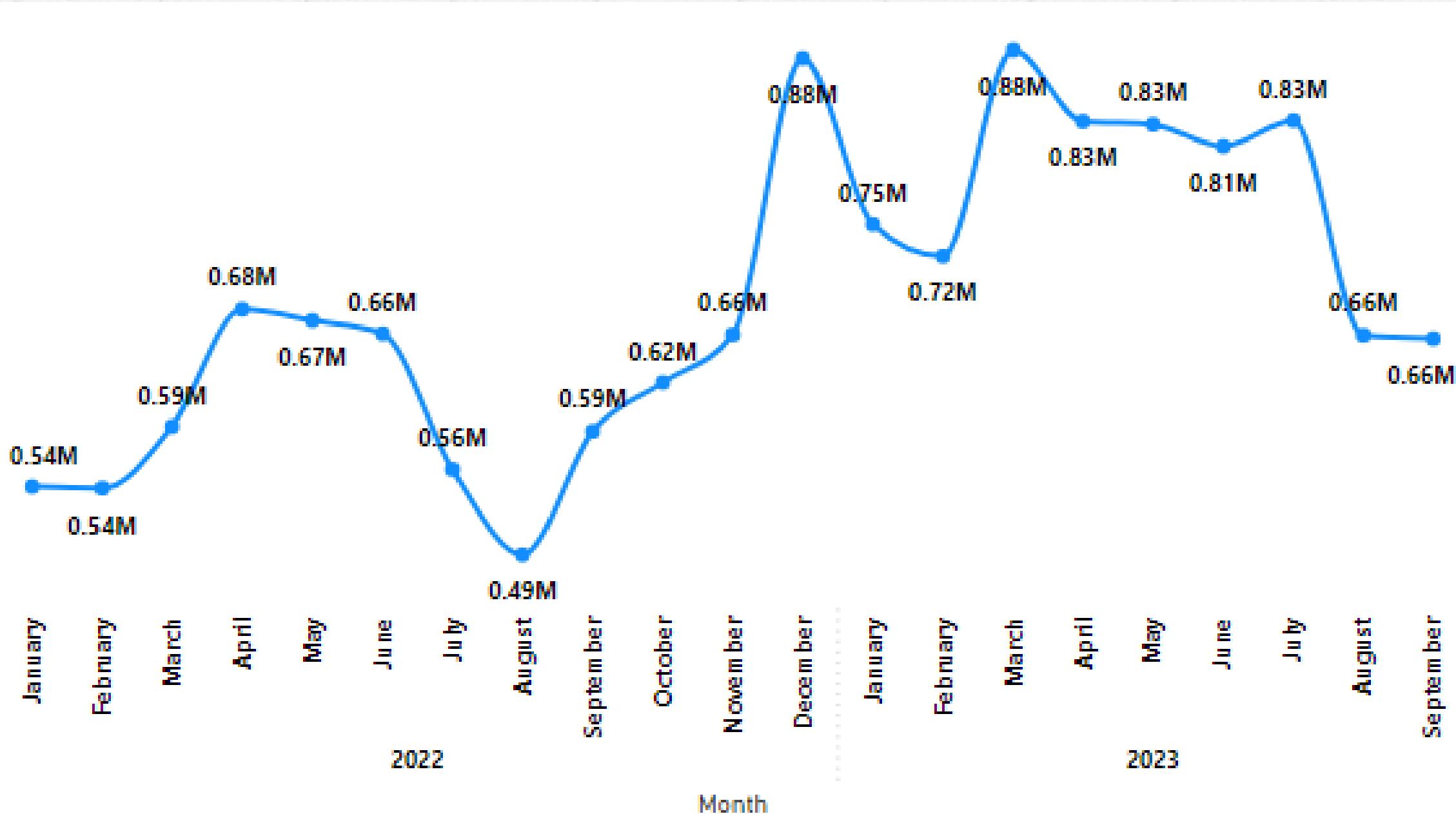


- These 11 products out of 35 products shown in the chart generates 70% of total profits. This shows these products are the most important product of this company.



Monthly Revenue Trend

```
SELECT DATE_FORMAT(Date, '%Y-%m') AS month, SUM(Units) AS units_sold, ROUND(SUM(product_price*Units), 2) AS total_revenue  
FROM dim_products p  
JOIN fact_sales s  
ON p.Product_ID=s.Product_ID  
GROUP BY month  
ORDER BY month;
```



- In **August 2022** revenue generation is **lowest(0.49M)** and in **December 2022** and **March 2023** revenue generation is **highest(0.88M)**.
- It is good sign that revenue generation increased from the lowest point of revenue generation

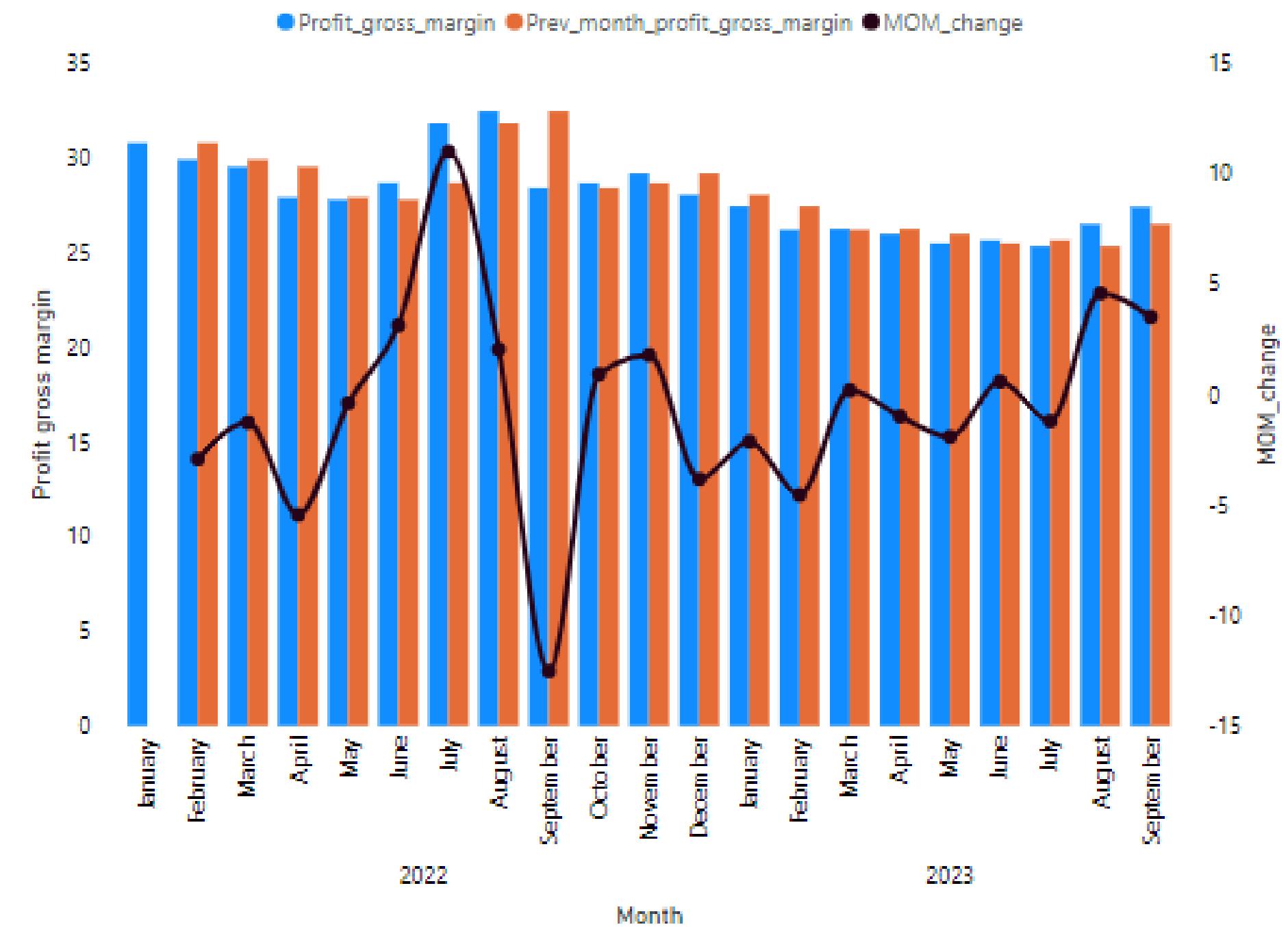
Monthly Gross Profit margin and Month over month Change

```

WITH x AS (
    SELECT DATE_FORMAT(Date, '%Y-%m') AS month, ROUND(SUM((Product_price-product_cost)*Units)*100/SUM(Product_Price*Units),2) AS profit_gross_margin
    FROM dim_products d
    JOIN fact_sales s
    ON d.Product_ID=s.Product_ID
    GROUP BY month),
y AS (
    SELECT month,profit_gross_margin,LAG(profit_gross_margin,1) OVER(ORDER BY month) AS prev_month_profit_gross_margin
    FROM x)
SELECT month,profit_gross_margin,prev_month_profit_gross_margin,ROUND(((profit_gross_margin/prev_month_profit_gross_margin)-1)*100,2) AS mom_change
FROM y;
  
```



- In **July 2022** month over month change for Gross profit margin is highest(**10.99%**) but in **September 2022** it became lowest(**-12.53%**).

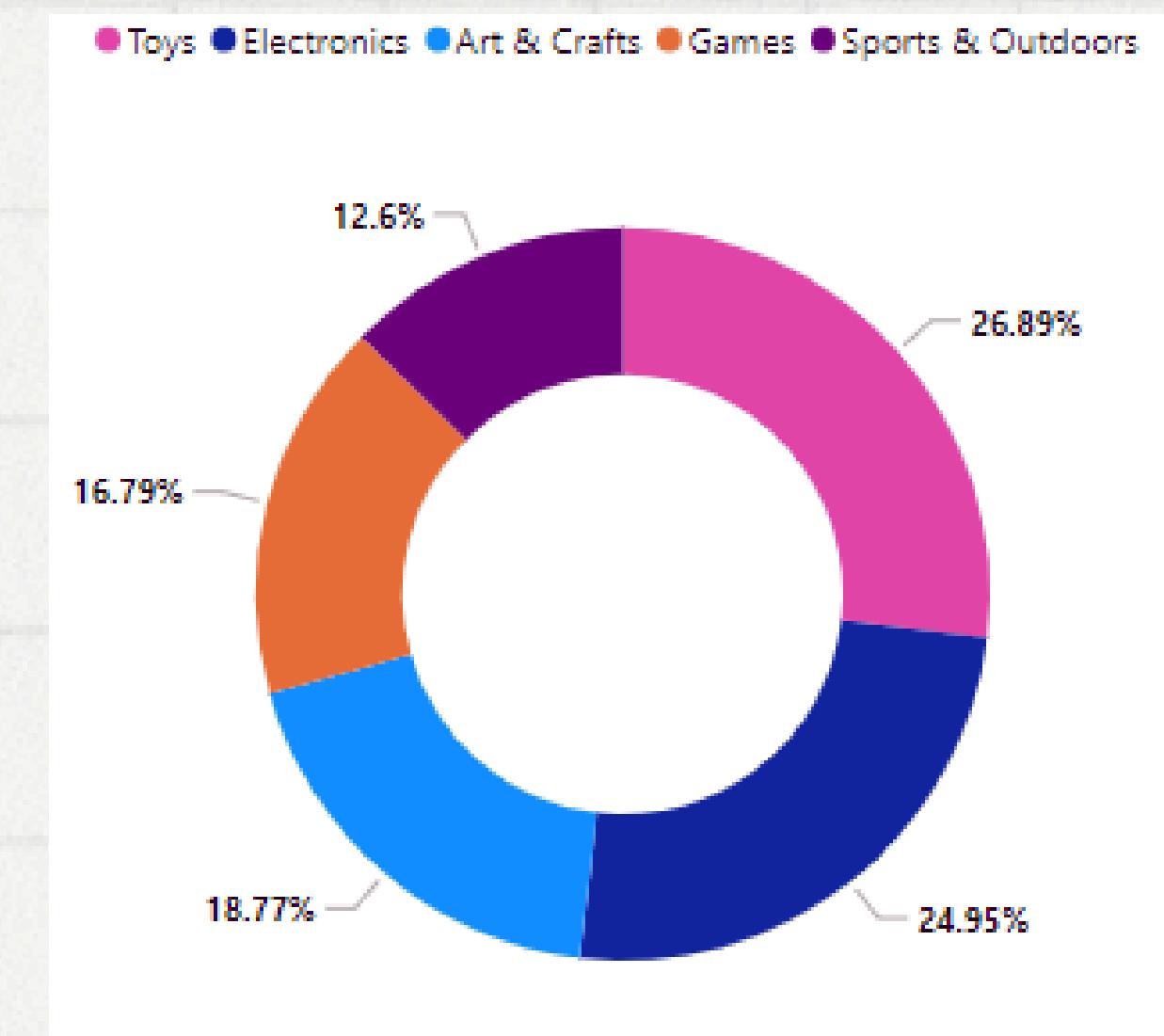


Product Category-wise Gross Profit contribution Percentage

```
WITH products AS (
  SELECT Product_Category,ROUND(SUM((Product_price-product_cost)*Units),2) AS gross_profit
  FROM dim_products p
  JOIN fact_sales s
  ON p.Product_ID=s.Product_ID
  GROUP BY Product_Category)
SELECT Product_Category,ROUND(gross_profit*100/SUM(gross_profit) OVER(),2) AS gross_profit_contribution_percentage
FROM products;
```



- From the donut chart we can see **Toys** contributes **highest** in gross profit generation among other categories(**26.89%**) followed by **Electronics**(**24.95%**).
- **Toys and Electronics** combinely contributes **>50%** of total gross profit.

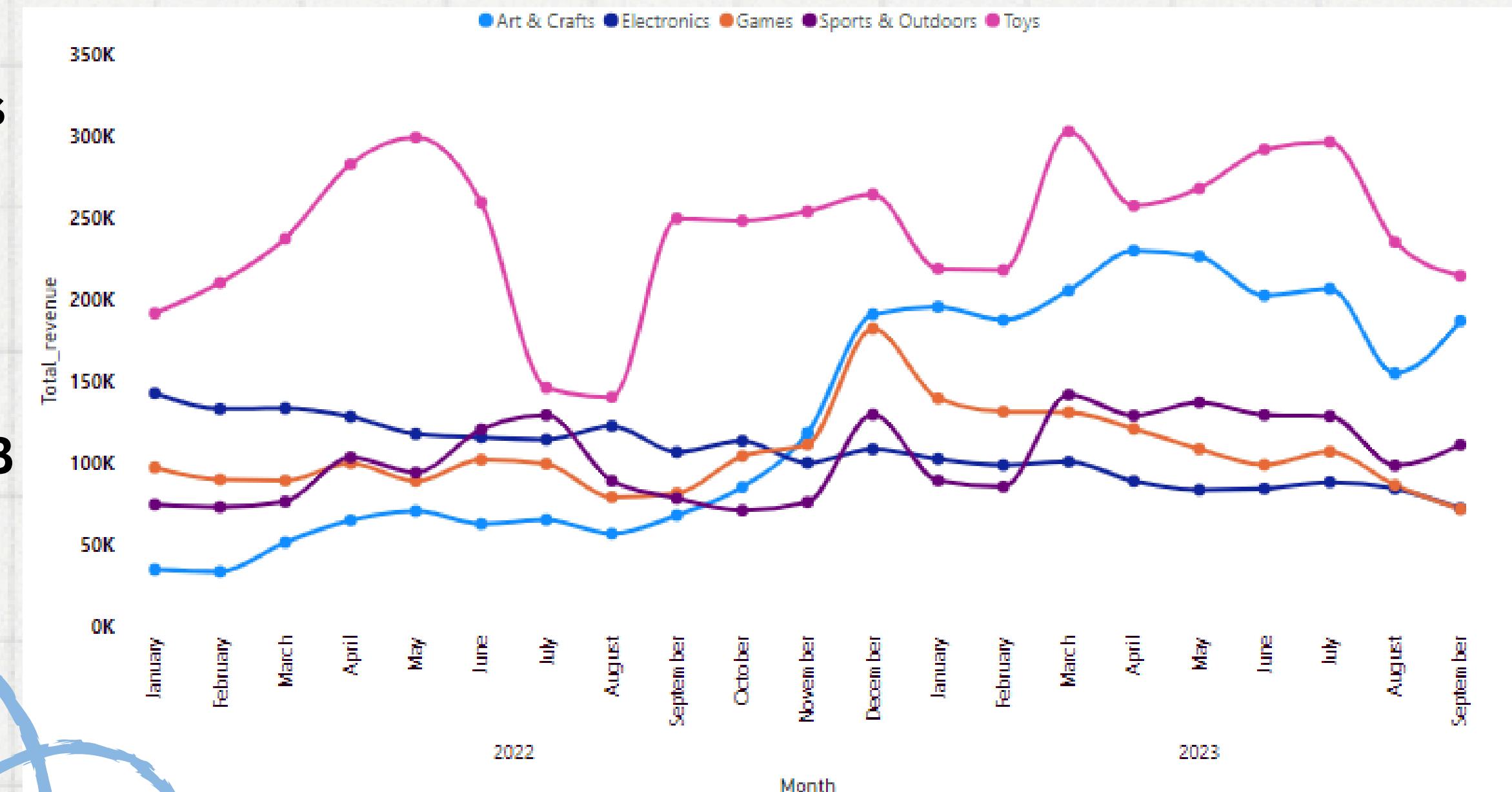


Monthly Revenue Trend for Each Category

```
SELECT DATE_FORMAT(Date, '%Y-%m') AS month, Product_Category, ROUND(SUM(Product_price*Units), 2) AS total_revenue  
FROM dim_products p  
JOIN fact_sales s  
ON p.Product_ID=s.Product_ID  
GROUP BY month, Product_Category;
```



- Toys generate the highest revenue all over the year as compared to other categories.
- In 2022 Arts & Crafts generates lowest revenue all over the year but in 2023 we can see it becomes 2nd highest category in revenue generation.

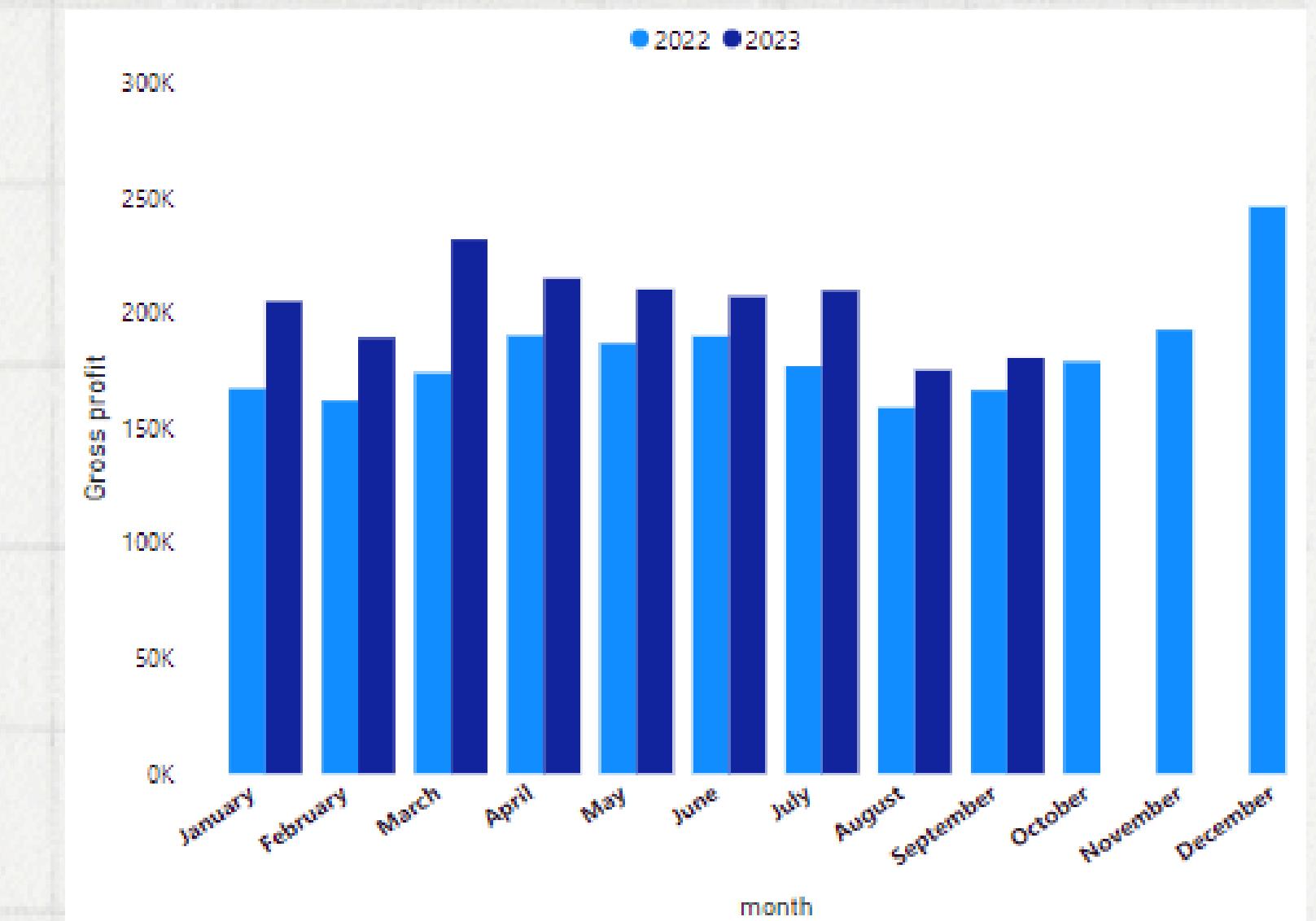


2022 VS 2023 Gross Profit Comparison

```
WITH monthly_profit AS (
  SELECT YEAR(Date) AS year, MONTH(Date) AS m_no, MONTHNAME(Date) AS month, ROUND(SUM((Product_price - product_cost)*Units),2) AS gross_profit
  FROM dim_products p
  JOIN fact_sales s
  ON p.Product_ID=s.Product_ID
  GROUP BY year, m_no, month)
  SELECT m_no, month,
  MAX(CASE WHEN year=2022 THEN gross_profit ELSE 0 END) AS 2022_gross_profit,
  MAX(CASE WHEN year=2023 THEN gross_profit ELSE 0 END) AS 2023_gross_profit
  FROM monthly_profit
  GROUP BY m_no, month
  ORDER BY m_no;
```



- It is good sign for the company that gross profit is more in each month of 2023 as compared to 2022.
- In March the difference between gross profit in 2023 and 2022 is highest.



Top & Bottom product of each Category based on gross profit

```
WITH products AS (
  SELECT Product_Category, Product_Name, ROUND(SUM((Product_Price - Product_Cost) * Units), 2) AS gross_profit
  FROM dim_products p
  JOIN fact_sales s
  ON p.Product_ID = s.Product_ID
  GROUP BY Product_Category, Product_Name),
top_bottom_products AS (
  SELECT Product_Category, Product_Name, RANK() OVER(PARTITION BY Product_Category ORDER BY gross_profit DESC) AS rnk1,
  RANK() OVER(PARTITION BY Product_Category ORDER BY gross_profit ASC) AS rnk2
  FROM products)
SELECT Product_Category,
  GROUP_CONCAT(CASE WHEN rnk1=1 THEN Product_Name ELSE NULL END) AS top_product,
  GROUP_CONCAT(CASE WHEN rnk2=1 THEN Product_Name ELSE NULL END) AS bottom_product
  FROM top_bottom_products
  GROUP BY Product_Category;
```



Product_Category	top_product	bottom_product
Art & Crafts	Barrel O' Slime	PlayDoh Toolkit
Electronics	Colorbuds	Toy Robot
Games	Deck Of Cards	Classic Dominoes
Sports & Outdoors	Nerf Gun	Supersoaker Water Gun
Toys	Action Figure	Teddy Bear



Thank you very much!

