MAVEN TOY DATA ANALYSIS

PRIYANSHU PRAKASH

TABLE OF CONTENTS

OVERVIEW

The dataset consists of tables related to retail business operations, focusing on **stores**, **sales**, **products**, and **inventory.** Each table provides key details about different aspects of the business. The data is valuable for understanding sales performance, product availability, and inventory management across multiple stores.

DESCRIPTION OF DATASET

Source of the dataset: The dataset was provided by MENTORNESS.

- KEY VARIABLES AND THEIR DESCRIPTIONS:

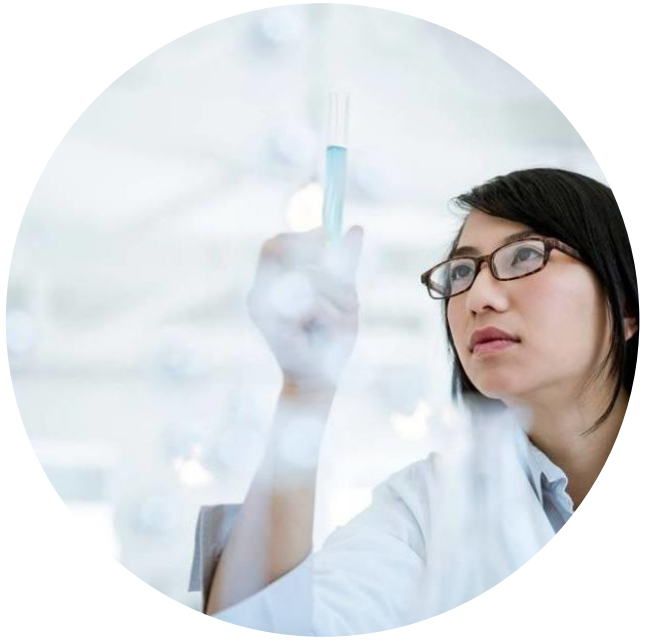
1. PRODUCTS:
    1. **Product_ID**: Unique identifier for each product.
    2. **Product_Name**: Name of the product.
    3. **Product_Category**: Category to which the product belongs.
    4. **Product_Cost**: Cost of the product.
    5. **Product_Price**: Selling price of the product.
2. STORES:
    1. **Store_ID**: Unique identifier for each store.
    2. **Store_Name**: Name of the store.
    3. **Store_City**: City where the store is located.
    4. **Store_Location**: Detailed address or location of the store.
    5. **Store_Open_Date**: The date on which the store opened.

DESCRIPTION OF DATASET

sales:
- Sale_ID: Unique identifier for each sale transaction.
- Date: Date when the sale occurred.
- Store_ID: Store where the sale took place.
- Product_ID: Product sold in the transaction.
- Units: Number of units sold.

inventory:

- Store_ID: Identifier of the store (linked to the stores table).
- Product_ID: Identifier of the product (linked to the products table).
- Stock_On_Hand: Number of units of the product currently in stock at the store.



SQL QUERIES AND RESULTS

- SALES PERFORMANCE
- PRODUCT ANALYSIS
- INVENTORY MANAGEMENT
- TIME-BASED SALES TRENDS
- GEOGRAPHICAL SALES DISTRIBUTION

1. SALES PERFORMANCE

WHAT IS THE TOTAL SALES REVENUE GENERATED BY EACH STORE?

```
SELECT st.store_name, SUM(p.product_price * s.units) AS total_Sales_revenue
FROM sales s
JOIN stores st ON s.store_id = st.store_id
JOIN products p ON s.product_id = p.product_id
GROUP BY st.store_name
ORDER BY total_sales_revenue DESC
```

store_name character varying (255)	total_sales_revenue numeric
Maven Toys Ciudad de Mexic...	554553.43
Maven Toys Guadalajara 3	449354.91
Maven Toys Ciudad de Mexic...	433556.21
Maven Toys Toluca 1	411157.32
Maven Toys Monterrey 2	372998.82
Maven Toys Guadalajara 4	348466.64
Maven Toys Hermosillo 3	344846.64
Maven Toys Xalapa 2	344307.04
Maven Toys Ciudad de Mexic...	337424.66
Maven Toys Saltillo 1	330408.90
Maven Toys Monterrey 4	325073.50
Maven Toys Ciudad de Mexic...	323957.71

HOW DO MONTHLY SALES TRENDS VARY ACROSS DIFFERENT STORES?

```
SELECT st.store_name, EXTRACT(MONTH FROM s.date) AS month,
       SUM(s.units) AS unit_sold, SUM(s.units * p.product_price) AS total_revenue
FROM sales s
JOIN stores st ON s.store_id = st.store_id
JOIN products p ON s.product_id = p.product_id
GROUP BY st.store_name, month
ORDER BY month, st.store_name
```

store_name character varying (255)	month numeric	unit_sold bigint	total_revenue numeric
Maven Toys Aguascalientes 1	1	1899	22898.01
Maven Toys Campeche 1	1	2004	25321.96
Maven Toys Campeche 2	1	1514	19758.86
Maven Toys Chetumal 1	1	1498	21915.02
Maven Toys Chihuahua 1	1	1749	24349.51
Maven Toys Chihuahua 2	1	2097	24995.03
Maven Toys Chilpancingo 1	1	1605	20613.95
Maven Toys Ciudad de Mexic...	1	3178	46516.22
Maven Toys Ciudad de Mexic...	1	3572	49199.28
Maven Toys Ciudad de Mexic...	1	2332	28328.68
Maven Toys Ciudad de Mexic...	1	1375	20329.25
Maven Toys Ciudad Victoria 1	1	1647	23454.53
Maven Toys Cuernavaca 1	1	1619	22039.81
Maven Toys Culiacan 1	1	1425	17963.75
Maven Toys Durango 1	1	1269	17378.31
Maven Toys Guadalajara 1	1	1785	22402.15
Maven Toys Guadalajara 2	1	2283	30787.17
Maven Toys Guadalajara 3	1	2419	35905.81
Maven Toys Guadalajara 4	1	2288	33613.12
Maven Toys Guanajuato 1	1	2416	32660.84

WHICH STORES HAVE THE HIGHEST AND LOWEST SALES PERFORMANCE?

```
(
SELECT st.store_id, st.store_name, SUM(s.units) AS unit_sold, SUM(s.units * p.product_price) AS total_revenue
FROM sales s
JOIN stores st ON s.store_id = st.store_id
JOIN products p ON s.product_id = p.product_id
GROUP BY st.store_id, st.store_name
ORDER BY total_revenue DESC
LIMIT 1
)
UNION ALL
(
SELECT st.store_id, st.store_name, SUM(s.units) AS unit_sold, SUM(s.units * p.product_price) AS total_revenue
FROM sales s
JOIN stores st ON s.store_id = st.store_id
JOIN products p ON s.product_id = p.product_id
GROUP BY st.store_id, st.store_name
ORDER BY total_revenue ASC
LIMIT 1
)
```

	store_id integer	store_name character varying (255)	unit_sold bigint	total_revenue numeric
1	31	Maven Toys Ciudad de Mexico 2	42757	554553.43
2	26	Maven Toys Campeche 2	16277	206055.23

WHAT PERCENTAGE OF TOTAL SALES DOES EACH STORE CONTRIBUTE?

```
WITH store_sales AS (
SELECT st.store_id, st.store_name, SUM(s.units * p.product_price) AS total_revenue
FROM sales s
JOIN products p ON s.product_id = p.product_id
JOIN stores st ON s.store_id = st.store_id
GROUP BY st.store_id, st.store_name
),
total_sales AS (
SELECT SUM(total_revenue) AS overall_revenue
FROM store_sales
)

SELECT ss.store_id, ss.store_name, ss.total_revenue, ts.overall_revenue,
       ROUND((total_revenue/overall_revenue)*100, 2) AS percent_contributed
FROM store_sales ss, total_sales ts
ORDER BY percent_contributed DESC
```

	store_id [PK] integer	store_name character varying (255)	total_revenue numeric	overall_revenue numeric	percent_contributed numeric
1	31	Maven Toys Ciudad de Mexic...	554553.43	14444572.35	3.84
2	30	Maven Toys Guadalajara 3	449354.91	14444572.35	3.11
3	9	Maven Toys Ciudad de Mexic...	433556.21	14444572.35	3.00
4	17	Maven Toys Toluca 1	411157.32	14444572.35	2.85
5	7	Maven Toys Monterrey 2	372998.82	14444572.35	2.58
6	46	Maven Toys Guadalajara 4	348466.64	14444572.35	2.41
7	42	Maven Toys Hermosillo 3	344846.64	14444572.35	2.39
8	39	Maven Toys Xalapa 2	344307.04	14444572.35	2.38
9	37	Maven Toys Ciudad de Mexic...	337424.66	14444572.35	2.34
10	4	Maven Toys Saltillo 1	330408.90	14444572.35	2.29
11	47	Maven Toys Monterrey 4	325073.50	14444572.35	2.25
12	45	Maven Toys Ciudad de Mexic...	323957.71	14444572.35	2.24
13	41	Maven Toys Hermosillo 2	323427.02	14444572.35	2.24
14	14	Maven Toys Guanajuato 1	313916.60	14444572.35	2.17
15	10	Maven Toys Campeche 1	311786.44	14444572.35	2.16
16	25	Maven Toys Ciudad Victoria 1	294803.99	14444572.35	2.04
17	6	Maven Toys Mexicali 1	294019.42	14444572.35	2.04
18	13	Maven Toys Mexicali 2	292156.43	14444572.35	2.02
19	33	Maven Toys Monterrey 3	285814.24	14444572.35	1.98
20	28	Maven Toys Puebla 2	282616.87	14444572.35	1.96

2. PRODUCT ANALYSIS

WHICH PRODUCTS ARE THE TOP-SELLING IN TERMS OF UNITS SOLD?

```sql
SELECT p.product_id, p.product_name, SUM(s.units) AS unit_sold
FROM products p
JOIN sales s ON p.product_id = s.product_id
GROUP BY p.product_id, p.product_name
ORDER BY unit_sold DESC
LIMIT 3
```

product_id [PK] integer	product_name character varying (255)	unit_sold bigint
6	Colorbuds	104368
25	PlayDoh Can	103128
3	Barrel O' Slime	91663

What is the average cost of products in each category?

```sql
SELECT product_category, ROUND(AVG(product_cost), 2) AS avg_cost
FROM products
GROUP BY product_category
ORDER BY avg_cost DESC
```

product_category character varying (100)	avg_cost numeric
Electronics	14.32
Toys	11.66
Sports & Outdoors	10.28
Art & Crafts	8.99
Games	8.37

WHAT IS THE PROFIT MARGIN FOR EACH PRODUCT?

```
SELECT product_id, product_name, (product_price - product_cost) AS profit,
      ROUND(((product_price - product_cost)/product_price) *100, 2) AS profit_margin
FROM products
```

product_id [PK] integer	product_name character varying (255)	profit numeric	profit_margin numeric
1	Action Figure	6.00	37.52
2	Animal Figures	3.00	23.09
3	Barrel O' Slime	2.00	50.13
4	Chutes & Ladders	3.00	23.09
5	Classic Dominoes	2.00	20.02
6	Colorbuds	8.00	53.37
7	Dart Gun	4.00	25.02
8	Deck Of Cards	3.00	42.92
9	Dino Egg	1.00	9.10

WHAT IS THE SALES PERFORMANCE BY PRODUCT CATEGORY?

```
SELECT p.product_category, SUM(s.units) AS unit_sold, SUM(s.Units * p.Product_Price) AS Total_Revenue
FROM products p
JOIN sales s ON p.product_id = s.product_id
GROUP BY p.product_category
ORDER BY unit_sold DESC
```

product_category character varying (100)	unit_sold bigint	total_revenue numeric
Art & Crafts	325574	2705364.26
Toys	267200	5093241.00
Games	194673	2226836.27
Sports & Outdoors	169043	2172359.57
Electronics	134075	2246771.25

3. INVENTORY MANAGEMENT

WHAT ARE THE CURRENT INVENTORY LEVELS FOR EACH PRODUCT AT EACH STORE?

```
SELECT st.store_name, p.product_name, SUM(i.stock_on_hand) AS inventory_level
FROM inventory i
JOIN stores st ON i.store_id = st.store_id
JOIN products p ON i.product_id = p.product_id
GROUP BY st.store_name, p.product_name
ORDER BY st.store_name
```

store_name character varying (255)	product_name character varying (255)	inventory_level bigint
Maven Toys Aguascalientes 1	Action Figure	11
Maven Toys Aguascalientes 1	Animal Figures	25
Maven Toys Aguascalientes 1	Barrel O' Slime	13
Maven Toys Aguascalientes 1	Chutes & Ladders	1
Maven Toys Aguascalientes 1	Classic Dominoes	4
Maven Toys Aguascalientes 1	Colorbuds	46
Maven Toys Aguascalientes 1	Dart Gun	15
Maven Toys Aguascalientes 1	Deck Of Cards	53
Maven Toys Aguascalientes 1	Dino Egg	19

WHICH PRODUCTS ARE OUT OF STOCK IN EACH STORE?

```
SELECT st.store_name, p.product_name, i.stock_on_hand AS stocks_left
FROM inventory i
JOIN stores st ON i.store_id = st.store_id
JOIn products p ON i.product_id = p.product_id
WHERE i.stock_on_hand = 0
ORDER BY st.store_name
LIMIT 5
```

store_name character varying (255)	product_name character varying (255)	stocks_left integer
Maven Toys Aguascalientes 1	Playfoam	0
Maven Toys Aguascalientes 1	Mini Ping Pong Set	0
Maven Toys Aguascalientes 1	Hot Wheels 5-Pack	0
Maven Toys Aguascalientes 1	Foam Disk Launcher	0
Maven Toys Chihuahua 2	Foam Disk Launcher	0

HOW DO SALES COMPARE TO CURRENT STOCK LEVELS FOR EACH PRODUCT?

```
SELECT p.product_name, i.stock_on_hand, SUM(s.units * p.product_price) AS total_revenue
FROM products p
JOIN inventory i ON p.product_id = i.product_id
JOIN sales s On p.product_id = s.product_id
GROUP BY p.product_name, i.stock_on_hand
ORDER BY total_revenue DESC, i.stock_on_hand DESC
```

product_name character varying (255)	stock_on_hand integer	total_revenue numeric
Lego Bricks	34	7166647.89
Lego Bricks	11	7166647.89
Lego Bricks	9	7166647.89
Lego Bricks	27	4777765.26
Lego Bricks	26	4777765.26
Lego Bricks	21	4777765.26
Lego Bricks	20	4777765.26
Lego Bricks	18	4777765.26
Lego Bricks	17	4777765.26
Lego Bricks	12	4777765.26
Lego Bricks	10	4777765.26
Lego Bricks	8	4777765.26
Lego Bricks	7	4777765.26
Lego Bricks	6	4777765.26
Colorbuds	29	4693428.96
Colorbuds	27	4693428.96

4. TIME-BASED SALES TRENDS

HOW DO SALES VARY BY SPECIFIC DATES?

```sql
SELECT s.date, SUM(s.units) AS unit_sold, SUM(s.units * p.product_price) AS total_revenue
FROM sales s
JOIN products p ON s.product_id = p.product_id
GROUP BY s.date
ORDER BY total_revenue DESC
LIMIT 5
```

date date	unit_sold bigint	total_revenue numeric
2018-04-30	5095	66843.05
2018-03-10	3302	53025.98
2017-12-24	3586	50900.14
2018-01-06	3388	50269.12
2017-04-30	3307	47547.93

HOW DOES THE STORE OPEN DATE AFFECT SALES PERFORMANCE?

```sql
SELECT st.store_open_date, SUM(s.units) AS unit_sold, SUM(s.units * p.product_price) AS total_revenue
FROM sales s
JOIN products p ON s.product_id = p.product_id
JOIN stores st ON s.store_id = st.store_id
GROUP BY st.store_open_date
ORDER BY total_revenue DESC
LIMIT 5
```

store_open_date date	unit_sold bigint	total_revenue numeric
2012-05-04	42757	554553.43
2011-10-20	31609	449354.91
2004-10-15	33479	433556.21
2007-12-09	32668	411157.32
2003-12-25	28318	372998.82

WHAT IS THE SALES GROWTH OVER TIME FOR THE ENTIRE COMPANY?

```
WITH growth_report AS (
SELECT EXTRACT(MONTH FROM s.date) AS month,
       EXTRACT(YEAR FROM s.date) AS year,
       SUM(s.units * p.product_price) AS total_revenue
FROM sales s
JOIN products p ON s.product_id = p.product_id
GROUP BY year, month
)
SELECT year, month, total_revenue,
       LAG(total_revenue) OVER (ORDER BY year, month) AS previous_month_revenue,
    ((total_revenue - LAG(total_revenue) OVER (ORDER BY year, month)) /
     LAG(total_revenue) OVER (ORDER BY year, month)) * 100 AS sales_growth_percentage
FROM growth_report
ORDER BY year DESC, month DESC
LIMIT 5
```

year numeric	month numeric	total_revenue numeric	previous_month_revenue numeric	sales_growth_percentage numeric
2018	9	658194.48	660877.07	-0.40591361416125392300
2018	8	660877.07	828348.86	-20.21754336693358882600
2018	7	828348.86	808299.25	2.48046871254674552800
2018	6	808299.25	825319.49	-2.06226076158700674800
2018	5	825319.49	827691.07	-0.28652961061909245900

5. GEOGRAPHICAL SALES DISTRIBUTION

HOW ARE SALES DISTRIBUTED ACROSS DIFFERENT CITIES?

```
SELECT st.store_city AS cities, SUM(s.units * p.product_price) AS total_revenue
FROM sales s
JOIN stores st ON s.store_id = st.store_id
JOIN products p ON s.product_id = p.product_id
GROUP BY st.store_city
ORDER BY total_revenue DESC
```

cities character varying (100)	total_revenue numeric
Cuidad de Mexico	1649492.01
Guadalajara	1322099.46
Monterrey	1261845.70
Hermosillo	903388.84
Guanajuato	869055.83
Puebla	808710.29
Toluca	633521.68
Xalapa	610119.77
Mexicali	586175.85
Saltillo	579514.97
Campeche	517841.67
Chihuahua	516713.04
Ciudad Victoria	294803.99
Santiago	277598.14
Morelia	273060.05
San Luis Potosi	263389.65
Chetumal	258919.35
Villahermosa	258210.66
Culiacan	251160.91
Chilpancingo	242539.73
Oaxaca	242154.36
Aguascalientes	239997.35
Pachuca	237676.15
Merida	232097.72
Zacatecas	229983.04
Tuxtla Gutierrez	229698.27
Durango	222318.78
Cuernavaca	221587.26
La Paz	210897.83

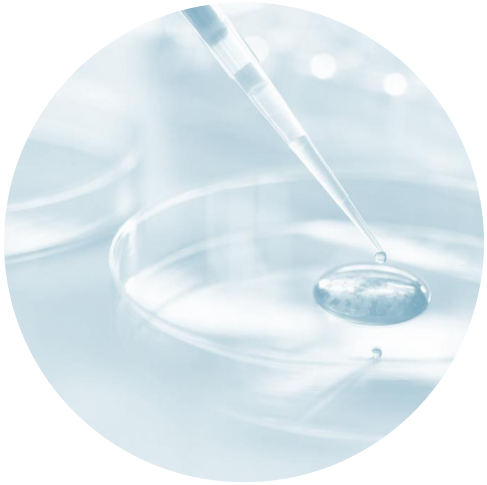
CONCLUSION

This dataset provides a comprehensive view of store operations, product sales, and inventory management. It allows for detailed analysis, such as identifying high-demand products, store performance comparisons, and optimizing stock levels across different locations.

RECOMMENDATION

- **Sales Trend Analysis**: Identify the top-performing products by comparing sales across stores and months.
- **Inventory Optimization**: Analyze stock levels against sales data to avoid stockouts and reduce overstocking.

- **STORE PERFORMANCE**: COMPARE STORE PERFORMANCE BASED ON SALES AND LOCATION TO MAKE INFORMED DECISIONS ABOUT FUTURE STORE EXPANSIONS OR MARKETING EFFORTS.



THANK YOU

PRIYANSHU PRAKASH