

SQL DATA ANALYSIS PROJECT USING SUPERSTORE SALES DATASET

A.SALES PERFORMANCE ANALYSIS

1.TOTAL SALES

```
SELECT
    FORMAT(SUM(SALES), 'N2') AS TOTAL_SALES
FROM ORDERS;
```

	TOTAL_SALES
1	2,297,200.86

2.TOTAL PROFIT

```
SELECT
    FORMAT(SUM(PROFIT), 'N2') AS TOTAL_PROFIT
FROM ORDERS;
```

	TOTAL_PROFIT
1	286,397.02

3.PROFIT MARGIN(%)

```
SELECT
    ROUND(SUM(PROFIT) / SUM(SALES) * 100, 2) AS PROFIT_MARGIN
FROM ORDERS;
```

	PROFIT_MARGIN
1	12.47

4.RETURN RATE

```
SELECT
    100.0 * COUNT(R.ORDER_ID) / COUNT(O.ORDER_ID) AS RETURN_RATE
FROM ORDERS O
LEFT JOIN RETURNS R
    ON O.ORDER_ID = R.ORDER_ID;
```

	RETURN_RATE
1	8.004802881729

5.AVERAGE DISCOUNT

```
SELECT AVG(DISCOUNT) * 100.0 AS AVERAGE_DISCOUNT
FROM ORDERS;
```

	AVERAGE_DISCOUNT
1	15.620272163299

6. YEARLY SALES & PROFIT TREND

```
SELECT
    YEAR (ORDER_DATE) AS YEAR,
    FORMAT (ROUND (SUM (SALES), 2), 'N2') AS TOTAL_SALES,
    FORMAT (ROUND (SUM (PROFIT), 2), 'N2') AS TOTAL_PROFIT
FROM ORDERS
GROUP BY YEAR (ORDER_DATE)
ORDER BY YEAR;
```

	YEAR	TOTAL_SALES	TOTAL_PROFIT
1	2014	484,247.50	49,543.97
2	2015	470,532.51	61,618.60
3	2016	609,205.60	81,795.17
4	2017	733,215.26	93,439.27

7. MONTHLY SALES & PROFIT TREND

```
SELECT
    MONTH (ORDER_DATE) AS MONTH,
    FORMAT (ROUND (SUM (SALES), 2), 'N2') AS TOTAL_SALES,
    FORMAT (ROUND (SUM (PROFIT), 2), 'N2') AS TOTAL_PROFIT
FROM ORDERS
GROUP BY MONTH (ORDER_DATE)
ORDER BY MONTH;
```

	MONTH	TOTAL_SALES	TOTAL_PROFIT
1	1	94,924.84	9,134.45
2	2	59,751.25	10,294.61
3	3	205,005.49	28,594.69
4	4	137,762.13	11,587.44
5	5	155,028.81	22,411.31
6	6	152,718.68	21,285.80
7	7	147,238.10	13,832.66
8	8	159,044.06	21,776.94
9	9	307,649.95	36,857.48
10	10	200,322.98	31,784.04
11	11	352,461.07	35,468.43
12	12	325,293.50	43,369.19

8. SALES BY CATEGORY & SUB-CATEGORY

```
SELECT
    CATEGORY,
    SUBCATEGORY,
    ROUND (SUM (SALES), 2) AS TOTAL_SALES
FROM ORDERS
GROUP BY CATEGORY, SUBCATEGORY
ORDER BY TOTAL_SALES DESC;
```

	CATEGORY	SUBCATEGORY	TOTAL_SALES
1	Technology	Phones	330007.05
2	Furniture	Chairs	328449.1
3	Office Supplies	Storage	223843.61
4	Furniture	Tables	206965.53
5	Office Supplies	Binders	203412.73
6	Technology	Machines	189238.63
7	Technology	Accessories	167380.32
8	Technology	Copiers	149528.03
9	Furniture	Bookcases	114880
10	Office Supplies	Appliances	107532.16
11	Furniture	Furnishings	91705.16
12	Office Supplies	Paper	78479.21
13	Office Supplies	Supplies	46673.54
14	Office Supplies	Art	27118.79
15	Office Supplies	Envelopes	16476.4
16	Office Supplies	Labels	12486.31
17	Office Supplies	Fasteners	3024.28

9.TOP 10 PRODUCTS BY SALES

```

SELECT TOP 10
    PRODUCT_NAME,
    ROUND(SUM(SALES), 2) AS TOTAL_SALES
FROM ORDERS
GROUP BY PRODUCT_NAME
ORDER BY TOTAL_SALES DESC;

```

	PRODUCT_NAME	TOTAL_SALES
1	Canon imageCLASS 2200 Advanced Copier	61599.82
2	Fellowes PB500 Electric Punch Plastic Comb Binding ...	27453.38
3	Cisco TelePresence System EX90 Videoconferencing ...	22638.48
4	HON 5400 Series Task Chairs for Big and Tall	21870.58
5	GBC DocuBind TL300 Electric Binding System	19823.48
6	GBC Ibimaster 500 Manual ProClick Binding System	19024.5
7	Hewlett Packard LaserJet 3310 Copier	18839.69
8	HP Designjet T520 Inkjet Large Format Printer - 24" C...	18374.9
9	GBC DocuBind P400 Electric Binding System	17965.07
10	High Speed Automatic Electric Letter Opener	17030.31

10.HIGH SALES BUT NEGATIVE PROFIT PRODUCTS

```

SELECT
    PRODUCT_NAME,
    ROUND(SUM(SALES), 2) AS TOTAL_SALES,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY PRODUCT_NAME
HAVING SUM(SALES) > 5000
    AND SUM(PROFIT) < 0
ORDER BY TOTAL_SALES DESC;

```

	PRODUCT_NAME	TOTAL_SALES	TOTAL_PROFIT
1	Cisco TelePresence System EX90 Videoconferencing ...	22638.48	-1811.08
2	GBC DocuBind P400 Electric Binding System	17965.07	-1878.17
3	High Speed Automatic Electric Letter Opener	17030.31	-262
4	Lexmark MX611dhe Monochrome Laser Printer	16829.9	-4589.97
5	Martin Yale Chadless Opener Electric Letter Opener	16656.2	-1299.18
6	Riverside Palais Royal Lawyers Bookcase, Royale Che...	15610.97	-669.54
7	Bretford Rectangular Conference Table Tops	12995.29	-327.23
8	Cubify CubeX 3D Printer Double Head Print	11099.96	-8879.97
9	Chromcraft Bull-Nose Wood Oval Conference Tables ...	9917.64	-2876.12
10	Bush Advantage Collection Racetrack Conference Ta...	9544.73	-1934.4
11	Tennsco Single-Tier Lockers	9158.3	-825.75
12	Chromcraft Round Conference Tables	8209.06	-189.98

B.REGIONAL & LOCATION ANALYSIS

1.SALES & PROFIT BY REGION

```
SELECT
    REGION,
    ROUND(SUM(SALES), 2) AS TOTAL_SALES,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY REGION
ORDER BY TOTAL_PROFIT DESC;
```

	REGION	TOTAL_SALES	TOTAL_PROFIT
1	West	725457.82	108418.45
2	East	678781.24	91522.78
3	South	391721.91	46749.43
4	Central	501239.89	39706.36

2.TOP 5 STATES BY PROFIT

```
SELECT TOP 5
    STATE,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY STATE
ORDER BY TOTAL_PROFIT DESC;
```

	STATE	TOTAL_PROFIT
1	California	76381.39
2	New York	74038.55
3	Washington	33402.65
4	Michigan	24463.19
5	Virginia	18597.95

3.BOTTOM 5 STATES (LOSS MAKING)

```
SELECT TOP 5
    STATE,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY STATE
ORDER BY TOTAL_PROFIT ASC;
```

	STATE	TOTAL_PROFIT
1	Texas	-25729.36
2	Ohio	-16971.38
3	Pennsylvania	-15559.96
4	Illinois	-12607.89
5	North Carolina	-7490.91

4. REGIONS WITH HIGH DISCOUNTS BUT LOW PROFIT

```
SELECT
    REGION,
    ROUND(AVG(DISCOUNT), 2) AS AVG_DISCOUNT,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY REGION
ORDER BY AVG_DISCOUNT DESC;
```

	REGION	AVG_DISCOUNT	TOTAL_PROFIT
1	Central	0.24	39706.36
2	East	0.15	91522.78
3	South	0.15	46749.43
4	West	0.11	108418.45

C.CUSTOMER ANALYSIS

1.AVERAGE ORDER VALUE (AOV)

```
SELECT
    ROUND(SUM(SALES) / COUNT(DISTINCT ORDER_ID), 2) AS
AVG_ORDER_VALUE
FROM ORDERS;
```

	AVG_ORDER_VALUE
1	458.61

2.SALES & PROFIT BY SEGMENT

```
SELECT
    SEGMENT,
```

```

        ROUND(SUM(SALES), 2) AS TOTAL_SALES,
        ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY SEGMENT
ORDER BY TOTAL_PROFIT DESC;

```

	SEGMENT	TOTAL_SALES	TOTAL_PROFIT
1	Consumer	1161401.34	134119.21
2	Corporate	706146.37	91979.13
3	Home Office	429653.15	60298.68

3.TOP 10 CUSTOMERS BY PROFIT

```

SELECT TOP 10
    CUSTOMER_NAME,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY CUSTOMER_NAME
ORDER BY TOTAL_PROFIT DESC;

```

	CUSTOMER_NAME	TOTAL_PROFIT
1	Tamara Chand	8981.32
2	Raymond Buch	6976.1
3	Sanjit Chand	5757.41
4	Hunter Lopez	5622.43
5	Adrian Barton	5444.81
6	Tom Ashbrook	4703.79
7	Christopher Martinez	3899.89
8	Keith Dawkins	3038.63
9	Andy Reiter	2884.62
10	Daniel Raglin	2869.08

4.CUSTOMERS WITH HIGH SALES BUT LOSS

```

SELECT
    CUSTOMER_NAME,
    ROUND(SUM(SALES), 2) AS TOTAL_SALES,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY CUSTOMER_NAME
HAVING SUM(SALES) > 3000
    AND SUM(PROFIT) < 0;

```

	CUSTOMER_NAME	TOTAL_SALES	TOTAL_PROFIT
1	Sean Miller	25043.05	-1980.74
2	Natalie Fritzler	8322.83	-1695.97
3	Tanja Norvell	3130.22	-692.05
4	Christopher Schild	3651.86	-342.8
5	Aaron Smayling	3050.69	-253.57
6	Shahid Shariari	3056.81	-1010.97
7	Tracy Hopkins	4234.1	-571.97
8	Rose O'Brian	3815.48	-1262.57
9	Henry Goldwyn	3247.64	-2797.96
10	Maribeth Dona	3766.38	-241.95
11	Cindy Stewart	5690.06	-6626.39
12	Alex Avila	5563.56	-362.88
13	Grant Thornton	9351.21	-4108.66
14	Tom Prescott	5329	-1087.39

D.PRODUCT & CATEGORY PROFITABILITY

1.LOSS MAKING SUB CATEGORIES

```
SELECT
    SUBCATEGORY,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY SUBCATEGORY
HAVING SUM(PROFIT) < 0
ORDER BY TOTAL_PROFIT;
```

	SUBCATEGORY	TOTAL_PROFIT
1	Tables	-17725.48
2	Bookcases	-3472.56
3	Supplies	-1189.1

2.HIGH DISCOUNT – LOW PROFIT PRODUCTS

```
SELECT
    PRODUCT_NAME,
    ROUND(AVG(DISCOUNT), 2) AS AVG_DISCOUNT,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY PRODUCT_NAME
HAVING AVG(DISCOUNT) > 0.3
AND SUM(PROFIT) < 0;
```


	PRODUCT_NAME	AVG_DISCOUNT	TOTAL_PROFIT
1	3D Systems Cube Printer, 2nd Generation, White	0.35	-468
2	Hon 30" x 60" Table with Locking Drawer	0.33	-177.35
3	Cisco 8961 IP Phone Charcoal	0.7	-164.95
4	Chromcraft Rectangular Conference Tables	0.32	-450.24
5	Brother MFC-9340CDW LED All-In-One Printer, Copi...	0.7	-319.19
6	Hoover Commercial Lightweight Upright Vacuum	0.5	-2.51
7	Chromcraft Bull-Nose Wood 48" x 96" Rectangular C...	0.33	-611.59
8	Acco 6 Outlet Guardian Basic Surge Suppressor	0.4	-3.66
9	Honeywell Enviracaire Portable Air Cleaner for up to 8...	0.45	-177.22
10	Insertable Tab Indexes For Data Binders	0.6	-4.83
11	Executive Impressions 14" Contract Wall Clock with ...	0.4	-1.78
12	Pressboard Covers with Storage Hooks, 9 1/2" x 11", ...	0.45	-11.88
13	Angle-D Ring Binders	0.53	-1.97

3. QUANTITY VS PROFIT

```
SELECT
    QUANTITY,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY QUANTITY
ORDER BY QUANTITY;
```

	QUANTITY	TOTAL_PROFIT
1	1	7440.48
2	2	38448.41
3	3	57015.52
4	4	44223.39
5	5	49516.59
6	6	10325.47
7	7	34286.97
8	8	10856.8
9	9	17687.89
10	10	2044.16
11	11	4293.37
12	12	1185.07
13	13	6348.9

4. PROFIT MARGIN BY DISCOUNT

```
SELECT
    DISCOUNT,
    ROUND((SUM(PROFIT) / SUM(SALES)) * 100, 2) AS
PROFIT_MARGIN_PCT
FROM ORDERS
GROUP BY DISCOUNT
ORDER BY DISCOUNT;
```

	DISCOUNT	PROFIT_MARGIN_PCT
1	0	29.51
2	0.1	16.61
3	0.15	5.15
4	0.2	11.82
5	0.3	-10.05
6	0.32	-16.5
7	0.4	-19.81
8	0.45	-45.45
9	0.5	-34.8
10	0.6	-89.46
11	0.7	-98.66
12	0.8	-180.03

E.ORDER & SHIPPING DATE ANALYSIS

1.AVERAGE SHIPPING TIME

```
SELECT
    ROUND(AVG(DATEDIFF(DAY, ORDER_DATE, SHIP_DATE)), 2) AS
    AVG_SHIPPING_DAYS
FROM ORDERS;
```

	AVG_SHIPPING_DAYS
1	3

2.ORDERS BY SHIPPING MODE

```
SELECT
    SHIP_MODE,
    COUNT(DISTINCT ORDER_ID) AS TOTAL_ORDERS
FROM ORDERS
GROUP BY SHIP_MODE;
```

	SHIP_MODE	TOTAL_ORDERS
1	First Class	787
2	Same Day	264
3	Second Class	964
4	Standard Class	2994

3.PROFIT BY SHIPPING MODE

```
SELECT
    SHIP_MODE,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT
FROM ORDERS
GROUP BY SHIP_MODE
```

ORDER BY TOTAL_PROFIT DESC;

	SHIP_MODE	TOTAL_PROFIT
Click to select all grid cells		88.79
2	Second Class	5 / 446.64
3	First Class	48969.84
4	Same Day	15891.76

F.WINDOW FUNCTIONS

1.RANK PRODUCTS BY PROFIT WITHIN CATEGORY

```
SELECT
    CATEGORY,
    PRODUCT_NAME,
    ROUND(SUM(PROFIT), 2) AS TOTAL_PROFIT,
    RANK() OVER (PARTITION BY CATEGORY ORDER BY SUM(PROFIT)
DESC) AS RANK_IN_CATEGORY
FROM ORDERS
GROUP BY CATEGORY, PRODUCT_NAME;
```

	CATEGORY	PRODUCT_NAME	TOTAL_PROFIT	RANK_IN_CATEGORY
1	Furniture	Hon Deluxe Fabric Upholstered Stacking Chairs, Rou...	1927.44	1
2	Furniture	Global Deluxe High-Back Manager's Chair	1558.59	2
3	Furniture	Hon Pagoda Stacking Chairs	1540.7	3
4	Furniture	Hon 4070 Series Pagoda Armless Upholstered Stack...	1388.63	4
5	Furniture	Office Star - Professional Matrix Back Chair with 2-to-...	1305.65	5
6	Furniture	Hon Olson Stacker Chairs	1292.13	6
7	Furniture	GE 48" Fluorescent Tube, Cool White Energy Saver, ...	1260.22	7
8	Furniture	Hon GuestStacker Chair	1233.08	8
9	Furniture	SAFCO Arco Folding Chair	1179.37	9
10	Furniture	Hon 4070 Series Pagoda Round Back Stacking Chairs	1052.81	10
11	Furniture	Lifetime Advantage Folding Chairs, 4/Cartron	972.64	11
12	Furniture	Global Troy Executive Leather Low-Back Tilter	951.86	12
13	Furniture	Global Commerce Series High-Back Swivel/Tilt Chairs	926.19	13
14	Furniture	Safco Contoured Stacking Chairs	870.16	14
15	Furniture	Global Leather and Oak Executive Chair, Black	854.78	15
16	Furniture	Hon Olson Stacker Stools	833.6	16
17	Furniture	Hon 4700 Series Mobuis Mid-Back Task Chairs with ...	832.99	17

2.MONTH-OVER-MONTH SALES GROWTH

```
WITH MONTHLY_SALES AS (
    SELECT
        YEAR(ORDER_DATE) AS ORDER_YEAR,
        MONTH(ORDER_DATE) AS ORDER_MONTH,
        SUM(SALES) AS TOTAL_SALES
```

```

FROM ORDERS
GROUP BY
    YEAR (ORDER_DATE) ,
    MONTH (ORDER_DATE)
)
SELECT
    ORDER_YEAR,
    ORDER_MONTH,
    TOTAL_SALES,
    TOTAL_SALES
    - LAG (TOTAL_SALES) OVER (
        ORDER BY ORDER_YEAR, ORDER_MONTH
    ) AS MOM_GROWTH
FROM MONTHLY_SALES
ORDER BY
    ORDER_YEAR,
    ORDER_MONTH;

```

	ORDER_YEAR	ORDER_MONTH	TOTAL_SALES	MOM_GROWTH
1	2014	1	14236.895	NULL
2	2014	2	4519.892	-9717.003
3	2014	3	55691.009	51171.117
4	2014	4	28295.345	-27395.6640000001
5	2014	5	23648.287	-4647.05799999998
6	2014	6	34595.1276	10946.8406
7	2014	7	33946.393	-648.734600000003
8	2014	8	27909.4685	-6036.92450000001
9	2014	9	81777.3508	53867.8823
10	2014	10	31453.393	-50323.9578
11	2014	11	78628.7167	47175.3237
12	2014	12	69545.6205	-9083.0962
13	2015	1	18174.0756	-51371.5449
14	2015	2	11951.411	-6222.66460000001
15	2015	3	38726.252	26774.841
16	2015	4	34195.2085	-4531.04349999996
17	2015	5	30131.6865	-4063.522
18	2015	6	24787.888	-5004.00450000001