RETAIL SALES SQL ANALYSIS

/* CREATING DATABASE */

```
CREATE DATABASE retail_sales_project;
```

/* USING THE DATABASE */

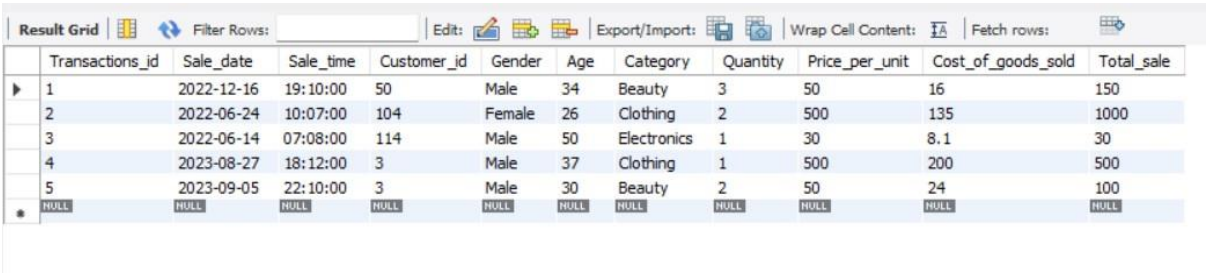
```
USE retail_sales_project;
```

/* CREATING TABLE This table stores retail transaction details including customer, product, pricing, and sales information */

```
CREATE TABLE IF NOT EXISTS Retail_sales (
 Transactions_id INT PRIMARY KEY NOT NULL,
Sale_date DATE,
Sale_time TIME,
Customer_id INT,
Gender CHAR(10),
Age INT,
Category VARCHAR(50),
Quantity INT,
Price_per_unit FLOAT,
Cost_of_goods_sold FLOAT,
Total_sale FLOAT );
```

/* PREVIEWING DATA */

```
SELECT * FROM Retail_sales LIMIT 5;
```

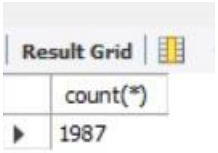


Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: | Fetch rows:

Transactions_id	Sale_date	Sale_time	Customer_id	Gender	Age	Category	Quantity	Price_per_unit	Cost_of_goods_sold	Total_sale
1	2022-12-16	19:10:00	50	Male	34	Beauty	3	50	16	150
2	2022-06-24	10:07:00	104	Female	26	Clothing	2	500	135	1000
3	2022-06-14	07:08:00	114	Male	50	Electronics	1	30	8.1	30
4	2023-08-27	18:12:00	3	Male	37	Clothing	1	500	200	500
5	2023-09-05	22:10:00	3	Male	30	Beauty	2	50	24	100
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

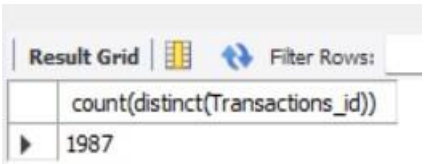
/* TOTAL NUMBER OF RECORDS */

```
SELECT COUNT(*) FROM Retail_sales;
```



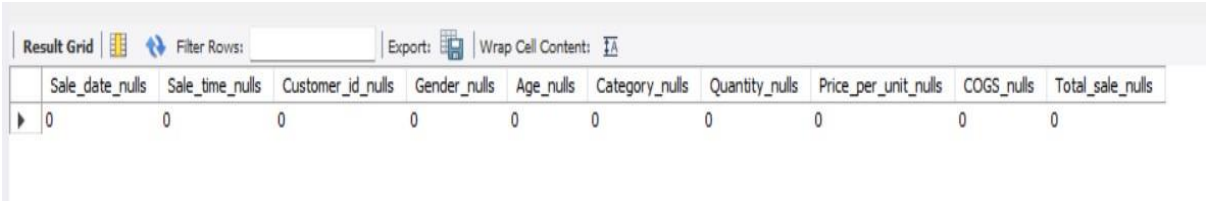
/* COUNT OF UNIQUE TRANSACTIONS */

```
SELECT COUNT(DISTINCT Transactions_id) FROM Retail_sales;
```



/* NULL VALUE CHECK FOR ALL COLUMNS */

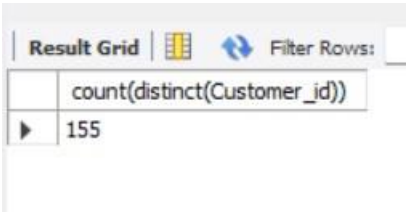
```
SELECT
SUM(CASE WHEN Sale_date IS NULL THEN 1 ELSE 0 END) AS
Sale_date_nulls,
SUM(CASE WHEN Sale_time IS NULL THEN 1 ELSE 0 END) AS
Sale_time_nulls,
SUM(CASE WHEN Customer_id IS NULL THEN 1 ELSE 0 END) AS
Customer_id_nulls,
SUM(CASE WHEN Gender IS NULL THEN 1 ELSE 0 END) AS
Gender_nulls,
SUM(CASE WHEN Age IS NULL THEN 1 ELSE 0 END) AS Age_nulls,
SUM(CASE WHEN Category IS NULL THEN 1 ELSE 0 END) AS
Category_nulls,
SUM(CASE WHEN Quantity IS NULL THEN 1 ELSE 0 END) AS
Quantity_nulls,
SUM(CASE WHEN Price_per_unit IS NULL THEN 1 ELSE 0 END) AS
Price_per_unit_nulls,
SUM(CASE WHEN Cost_of_goods_sold IS NULL THEN 1 ELSE 0 END)
AS COGS_nulls,
SUM(CASE WHEN Total_sale IS NULL THEN 1 ELSE 0 END) AS
Total_sale_nulls FROM Retail_sales;
```



Sale_date_nulls	Sale_time_nulls	Customer_id_nulls	Gender_nulls	Age_nulls	Category_nulls	Quantity_nulls	Price_per_unit_nulls	COGS_nulls	Total_sale_nulls
0	0	0	0	0	0	0	0	0	0

/* COUNT OF UNIQUE CUSTOMERS */

SELECT COUNT(DISTINCT Customer_id) FROM Retail_sales;



count(distinct(Customer_id))
155

/* COUNT OF UNIQUE PRODUCT CATEGORIES */

SELECT COUNT(DISTINCT Category) FROM Retail_sales;

count(distinct(Category))
3

/* SALES DATA FOR A SPECIFIC DATE */

SELECT * FROM Retail_sales WHERE Sale_date = '2022-11-05';

Transactions_id	Sale_date	Sale_time	Customer_id	Gender	Age	Category	Quantity	Price_per_unit	Cost_of_goods_sold	Total_sale
180	2022-11-05	10:47:00	117	Male	41	Clothing	3	300	129	900
214	2022-11-05	16:31:00	53	Male	20	Beauty	2	30	8.1	60
240	2022-11-05	11:49:00	95	Female	23	Beauty	1	300	123	300
856	2022-11-05	17:43:00	102	Male	54	Electronics	4	30	9.3	120
943	2022-11-05	19:29:00	90	Female	57	Clothing	4	300	318	1200
1137	2022-11-05	22:34:00	104	Male	46	Beauty	2	500	145	1000
1256	2022-11-05	09:58:00	29	Male	23	Clothing	2	500	190	1000
1265	2022-11-05	14:35:00	86	Male	55	Clothing	3	300	111	900
1587	2022-11-05	20:06:00	140	Female	40	Beauty	4	300	105	1200
1819	2022-11-05	20:44:00	83	Female	35	Beauty	2	50	13.5	100
1896	2022-11-05	20:19:00	87	Female	30	Electronics	2	25	30.75	50
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

/* FILTERING CLOTHING CATEGORY SALES FOR NOVEMBER 2022 */

SELECT * FROM Retail_sales
WHERE Category = 'Clothing' AND YEAR(Sale_date) = 2022 AND MONTH(Sale_date) = 11 AND Quantity >= 4;

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Transactions_id	Sale_date	Sale_time	Customer_id	Gender	Age	Category	Quantity	Price_per_unit	Cost_of_goods_sold	Total_sale
64	2022-11-15	06:34:00	7	Male	49	Clothing	4	25	8.5	100
146	2022-11-10	22:01:00	74	Male	38	Clothing	4	50	49	200
159	2022-11-10	21:30:00	42	Male	26	Clothing	4	50	23.5	200
284	2022-11-12	09:17:00	129	Male	43	Clothing	4	50	20.5	200
547	2022-11-14	07:36:00	3	Male	63	Clothing	4	500	250	2000
699	2022-11-21	22:21:00	129	Female	37	Clothing	4	30	16.2	120
735	2022-11-26	21:38:00	153	Female	64	Clothing	4	500	515	2000
943	2022-11-05	19:29:00	90	Female	57	Clothing	4	300	318	1200
965	2022-11-27	21:45:00	84	Male	22	Clothing	4	50	13	200
1259	2022-11-03	17:31:00	105	Female	45	Clothing	4	50	21	200
1296	2022-11-26	20:42:00	45	Female	22	Clothing	4	300	342	1200
1476	2022-11-11	22:27:00	130	Female	27	Clothing	4	500	555	2000
1484	2022-11-23	09:29:00	22	Female	19	Clothing	4	300	147	1200
1497	2022-11-19	21:44:00	109	Male	41	Clothing	4	30	32.4	120
1615	2022-11-17	13:43:00	82	Female	61	Clothing	4	25	13.5	100
1696	2022-11-21	17:59:00	24	Female	50	Clothing	4	50	55	200
1885	2022-11-09	07:32:00	148	Female	52	Clothing	4	30	10.8	120
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

/* TOTAL SALES BY CATEGORY */

```
SELECT Category, SUM(Total_sale) FROM Retail_sales GROUP BY
Category;
```

Category	sum(Total_sale)
Beauty	286790
Clothing	309995
Electronics	311445

/* AVERAGE AGE OF BEAUTY CATEGORY CUSTOMERS */

```
SELECT AVG(Age) FROM Retail_sales WHERE Category = 'Beauty';
```

avg(age)
40.4157

/* HIGH VALUE TRANSACTIONS */

```
SELECT * FROM Retail_sales WHERE Total_sale > 1000;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Transactions_id	Sale_date	Sale_time	Customer_id	Gender	Age	Category	Quantity	Price_per_unit	Cost_of_goods_sold	Total_sale
46	2022-11-08	17:50:00	54	Female	20	Electronics	4	300	84	1200
47	2022-10-22	17:22:00	96	Female	40	Beauty	3	500	600	1500
54	2022-10-20	10:17:00	142	Female	38	Electronics	3	500	200	1500
58	2023-09-16	19:18:00	53	Male	18	Clothing	4	300	75	1200
65	2022-12-11	20:03:00	84	Male	51	Electronics	4	500	160	2000
67	2023-08-19	20:19:00	119	Female	48	Beauty	4	300	129	1200
72	2023-12-06	19:19:00	5	Female	20	Electronics	4	500	195	2000
74	2023-10-05	19:50:00	56	Female	18	Beauty	4	500	205	2000
78	2023-02-17	21:08:00	68	Female	47	Clothing	3	500	265	1500
89	2023-12-30	21:15:00	117	Female	55	Electronics	4	500	590	2000
93	2022-01-25	20:52:00	148	Female	35	Beauty	4	500	140	2000
99	2023-11-19	15:12:00	71	Female	50	Electronics	4	300	132	1200
107	2022-10-06	09:18:00	75	Female	21	Clothing	4	300	78	1200
109	2023-09-06	19:57:00	94	Female	34	Electronics	4	500	560	2000
111	2023-04-15	09:45:00	5	Female	34	Electronics	3	500	130	1500
112	2023-12-25	18:44:00	57	Male	37	Clothing	3	500	165	1500
115	2022-09-02	19:21:00	67	Male	51	Clothing	3	500	255	1500
118	2023-03-13	20:07:00	3	Female	30	Electronics	4	500	270	2000

/* TRANSACTION COUNT BY GENDER */

```
SELECT Gender, COUNT(Transactions_id) FROM Retail_sales GROUP
BY Gender;
```

Gender	count(Transactions_id)
Male	975
Female	1012

/* MONTHLY AVERAGE SALES RANKING */

```
SELECT year, month_name, avg_sale,
RANK() OVER (PARTITION BY year ORDER BY avg_sale DESC) AS
sales_rank
FROM ( SELECT YEAR(Sale_date) AS year, MONTHNAME(Sale_date)
AS month_name,
AVG(Total_sale) AS avg_sale FROM Retail_sales GROUP BY
YEAR(Sale_date),
MONTHNAME(Sale_date) ) AS new_data;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

year	month_name	avg_sale	sales_rank
2022	July	541.3414634146342	1
2022	March	521.2222222222222	2
2022	April	500.6140350877193	3
2022	September	485.1968503937008	4
2022	June	481.3953488372093	5
2022	May	480	6
2022	November	472.02054794520546	7
2022	October	467.13793103448273	8
2022	December	460.7692307692308	9
2022	January	397.10526315789474	10
2022	August	390.27777777777777	11
2022	February	366.1363636363636	12
2023	February	535.531914893617	1
2023	August	495.96491228070175	2
2023	December	490.3900709219858	3
2023	April	466.48936170212767	4
2023	September	462.73972602739724	5
2023	November	453.45238095238096	6
2023	May	450.1666666666667	7
2023	June	438.48214285714283	8
2023	July	427.67857142857144	9
2023	October	399.17241379310343	10
2023	January	396.5	11
2023	March	394.8076923076923	12

/* TOP 5 CUSTOMERS BY TOTAL SALES */

```
SELECT Customer_id, SUM(Total_sale) AS total_sales FROM
Retail_sales
GROUP BY Customer_id ORDER BY total_sales DESC LIMIT 5;
```

Customer_id	total_sales
3	38440
1	30750
5	30405
2	25295
4	23580

/* DISTINCT CUSTOMER COUNT PER CATEGORY */

```
SELECT Category, COUNT(DISTINCT Customer_id) FROM Retail_sales
GROUP BY Category;
```

	Category	count(distinct(Customer_id))
▶	Beauty	141
	Clothing	149
	Electronics	144

/* TIME OF DAY ORDER ANALYSIS */

```
SELECT COUNT(*) AS No_of_orders,
CASE WHEN HOUR(Sale_time) <= 12 THEN 'Morning' WHEN
HOUR(Sale_time) > 12
AND HOUR(Sale_time) < 17 THEN 'Afternoon' ELSE 'Evening' END AS
order_details
FROM Retail_sales GROUP BY order_details;
```

	No_of_orders	order_details
▶	1275	Evening
	577	Morning
	135	Afternoon