



Project on
Grocery Store Management

ABOUT ME

- **NAME** : M. Anil Kumar
- **Background** : B-Tech (Electronics and communication of engineering)
- **Work Experience** : Fresher
- **Why you want to learn Data Analytics :**

I want to turn data into insights that can help businesses make smarter decisions.
I enjoy working with data, solving problems, and improving processes through analysis

- **Linkedin** : <https://www.linkedin.com/in/muddeti-anil-kumar-6658642b2/>
- **GitHub** : <https://github.com/anilkumar737>

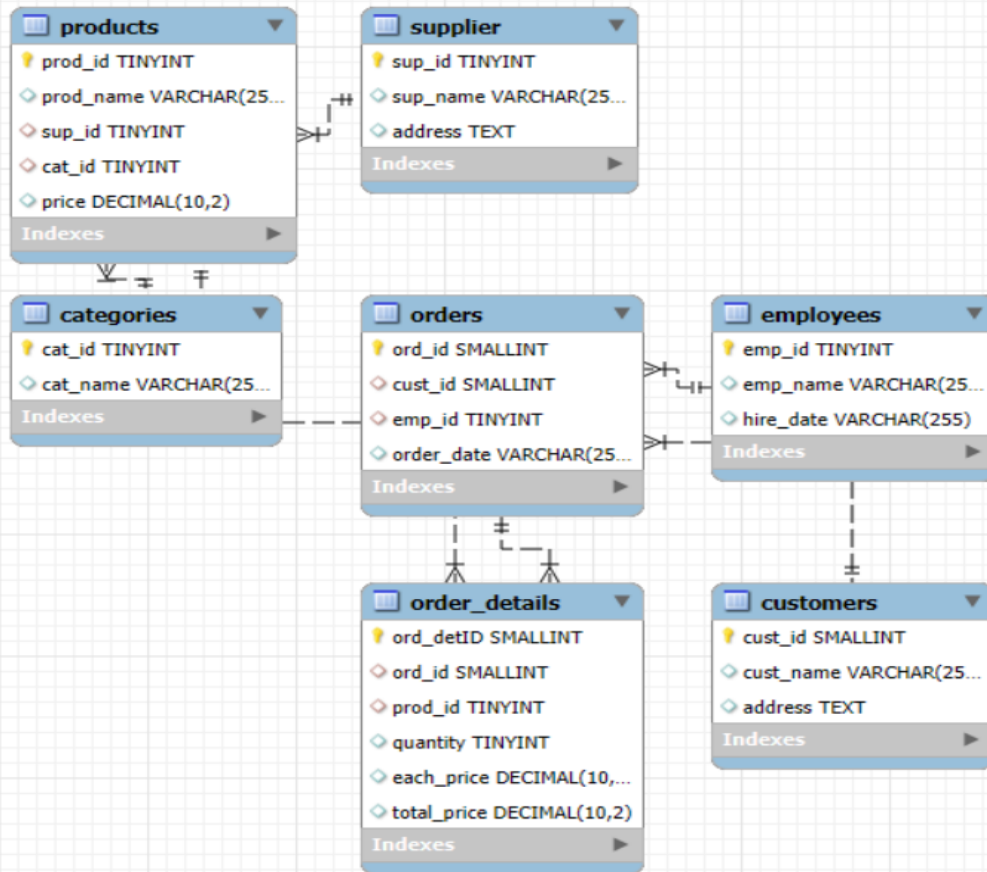


OBJECTIVE OF THE PROJECT

The objective of this project is to analyze grocery store data to monitor sales trends, optimize inventor levels, and understand customer purchasing behavior to improve business performance



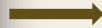
ER Diagram



TABLES

-- 1. Supplier Table

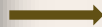
```
CREATE TABLE IF NOT EXISTS supplier (  
  sup_id TINYINT PRIMARY KEY,  
  sup_name VARCHAR(255),  
  address TEXT  
);  
select * from supplier;
```



ord_detID	ord_id	prod_id	quantity	each_price	total_price
1	109	23	3	140.62	421.87
2	144	12	1	441.95	441.95
3	82	13	4	166.26	665.06
4	224	18	2	219.36	438.73
5	256	3	4	386.18	1544.71
6	183	27	4	146.65	586.58
7	174	26	3	464.02	1392.07

-- 2. Categories Table

```
CREATE TABLE IF NOT EXISTS categories (  
  cat_id TINYINT PRIMARY KEY,  
  cat_name VARCHAR(255)  
);  
select * from categories;
```



cat_id	cat_name
1	Grains & Cereals
2	Dairy Products
3	Snacks & Confectioneries
4	Personal Care
5	Household

-- 3. Employees Table

```
CREATE TABLE IF NOT EXISTS employees (  
    emp_id TINYINT PRIMARY KEY,  
    emp_name VARCHAR(255),  
    hire_date VARCHAR(255)  
);  
select * from employees;
```

emp_id	emp_name	hire_date
1	Aarav Kumar 1	2/3/2021
2	Aditya Singh 1	1/8/2021
3	Pari Kumar 1	11/12/2021
4	Aditya Verma 1	1/9/2021
5	Pari Sharma 1	2/9/2021
6	Zara Verma 1	10/16/2021
7	Vihaan Singh 1	8/26/2020

-- 4. Customers Table

```
CREATE TABLE IF NOT EXISTS customers (  
    cust_id SMALLINT PRIMARY KEY,  
    cust_name VARCHAR(255),  
    address TEXT  
);  
select * from customers;
```

cust_id	cust_name	address
1	Aditi Shetty	37 Main Street, Bengaluru, India
2	Isha Reddy	27 Main Street, Hyderabad, India
3	Chetan Rao	168 Main Street, Hyderabad, India
4	Deepa Reddy	102 Main Street, Hyderabad, India
5	Isha Rao	135 Main Street, Hyderabad, India
6	Eshwar Reddy	140 Main Street, Bengaluru, India
7	Eshwar Iyer	156 Main Street, Hyderabad, India

-- 5. Products Table

```
CREATE TABLE IF NOT EXISTS products (  
    prod_id TINYINT PRIMARY KEY,  
    prod_name VARCHAR(255),  
    sup_id TINYINT,  
    cat_id TINYINT,  
    price DECIMAL(10,2),  
    FOREIGN KEY (sup_id) REFERENCES supplier(sup_id)  
        ON UPDATE CASCADE ON DELETE CASCADE,  
    FOREIGN KEY (cat_id) REFERENCES categories(cat_id)  
        ON UPDATE CASCADE ON DELETE CASCADE  
);  
select * from products;
```

prod_id	prod_name	sup_id	cat_id	price
1	Basmati Rice	3	1	358.98
2	Wheat Flour	2	1	255.50
3	Moong Dal	4	1	386.18
4	Chickpeas	5	1	353.50
5	Soybean Oil	3	1	172.81
6	Ghee	3	1	487.46
7	Paneer	2	2	484.27

-- 6. Orders Table


```
CREATE TABLE IF NOT EXISTS orders (  
  ord_id SMALLINT PRIMARY KEY,  
  cust_id SMALLINT,  
  emp_id TINYINT,  
  order_date VARCHAR(255),  
  FOREIGN KEY (cust_id) REFERENCES customers(cust_id)  
    ON UPDATE CASCADE ON DELETE CASCADE,  
  FOREIGN KEY (emp_id) REFERENCES employees(emp_id)  
    ON UPDATE CASCADE ON DELETE CASCADE  
);  
select * from orders;
```



ord_id	cust_id	emp_id	order_date
1	197	5	1/30/2022
2	94	6	7/2/2022
3	97	3	11/25/2022
4	128	2	5/4/2022
5	61	8	3/5/2022
6	135	5	8/17/2022
7	166	5	4/22/2022

-- 7. Order_Details Table

```
CREATE TABLE IF NOT EXISTS order_details (  
  ord_detID SMALLINT AUTO_INCREMENT PRIMARY KEY,  
  ord_id SMALLINT,  
  prod_id TINYINT,  
  quantity TINYINT,  
  each_price DECIMAL(10,2),  
  total_price DECIMAL(10,2),  
  FOREIGN KEY (ord_id) REFERENCES orders(ord_id)  
    ON UPDATE CASCADE ON DELETE CASCADE,  
  FOREIGN KEY (prod_id) REFERENCES products(prod_id)  
    ON UPDATE CASCADE ON DELETE CASCADE  
);  
select * from order_details;
```



ord_detID	ord_id	prod_id	quantity	each_price	total_price
1	109	23	3	140.62	421.87
2	144	12	1	441.95	441.95
3	82	13	4	166.26	665.06
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QUERIES & RESULTS

Customer Insights :

How many unique customers have placed orders?

```
select count(distinct o.cust_id) as unique_customers  
from orders o  
join customers c on o.cust_id = c.cust_id;
```

unique_customers
156



Which customers have placed the highest number of orders?

```
select c.cust_id, c.cust_name, count(o.ord_id) as total_orders
from customers c
join orders o on c.cust_id = o.cust_id
group by c.cust_id, c.cust_name
order by total_orders desc limit 5;
```

cust_id	cust_name	total_orders
165	Jyotika	7
61	Aditi Rao	6
19	Chetan Naidu	5
128	Hari Naidu	5
145	Chetan Rao	5

Product Performance

How many products exist in each category?

```
select p.cat_id, avg(p.price) as avg_price from products p
group by p.cat_id
order by avg_price desc;
```

cat_id	avg_price
2	366.943333
4	364.991667
5	363.336667
1	287.673333
3	278.892353



What is the average price of products by category?

```
select p.prod_id,p.prod_name,  
sum(od.quantity) as total_quantity_sold from products p  
join order_details od on p.prod_id = od.prod_id  
group by p.prod_id, p.prod_name  
order by total_quantity_sold desc limit 5;
```

prod_id	prod_name	total_quantity_sold
32	Bath Soap	60
33	Hand Sanitizer	56
27	Dishwashing Soap	54
48	Biscuits	54
46	Potato Chips	54

Sales and Order Trends

What is the average value per order?

```
select round(AVG(order_total), 2) as AvgOrderValue
from (select od.ord_id, sum(od.quantity * od.each_price)
AS order_total from order_details od
group by od.ord_id) AS order_summary;
```

AvgOrderValue
2153.63



On which dates were the most orders placed?

```
select order_date, count(ord_id) as OrderCount from orders  
group by order_date  
order by OrderCount desc limit 5;
```

order_date	OrderCount
9/10/2022	4
3/30/2022	4
12/5/2022	3
1/14/2022	3
4/22/2022	3

Supplier Contribution

Which supplier provides the most products?

```
select s.sup_name, COUNT(p.prod_id) as ProductCount
from supplier s
join products p on s.sup_id = p.sup_id
group by s.sup_name
order by ProductCount desc limit 1;
```

sup_name	ProductCount
Aarya	18



What is the average price of products from each supplier?

```
select s.sup_name, round (avg(p.price), 2) as AvgPrice from supplier s
join products p on s.sup_id = p.sup_id
group by s.sup_name
order by AvgPrice desc;
```

sup_name	AvgPrice
Sai	342.67
Aarya	319.33
Karthik	288.23
Suresh	281.82
Aarav Sharma	271.37

Employee Performance

How many employees have processed orders?

```
select e.emp_name, count(o.ord_id) as OrdersHandled
from employees e
join orders o on e.emp_id = o.emp_id
group by e.emp_name
order by OrdersHandled desc;
```

emp_name	OrdersHandled
Diya Sharma 1	38
Aditya Singh 1	37
Arjun Kumar 1	32
Pari Kumar 1	31
Pari Sharma 1	31
Zara Verma 1	30
Vihaan Singh 1	29



What is the total sales value processed by each employee?

```
select e.emp_name, round(sum(od.total_price), 2) as TotalSales
from employees e
join orders o on e.emp_id = o.emp_id
join order_details od on o.ord_id = od.ord_id
group by e.emp_name
order by TotalSales desc;
```

emp_name	TotalSales
Aditya Singh 1	79252.29
Zara Verma 1	71562.76
Diya Sharma 1	67241.85
Pari Kumar 1	66818.39
Arjun Kumar 1	54018.31
Aarav Kumar 1	52602.88
Vihaan Singh 1	48577.88



Final business insights and recommendations

Customer Behavior

- High-value customers contribute significantly to revenue—target them with loyalty programs.
- Weekends show higher order volume—optimize staffing and promotions accordingly.



Product Performance

- A few products dominate sales volume and revenue—focus inventory and marketing on these.
- Categories with high average prices may need premium positioning.

Supplier Strategy

- Some suppliers drive more revenue than others—negotiate better terms or expand partnerships.
- Monitor price consistency across suppliers to maintain margin.



Employee Efficiency

- A few employees handle most orders and revenue—recognize and retain top performers.
 - Average order value per employee helps identify training needs.
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Conclusion

I uncovered how customer behavior, product performance, supplier contribution, and employee efficiency shape the grocery store's success. Data-driven decisions can optimize operations, boost revenue, and enhance customer satisfaction.











My Experience & Challenge

What I Learned

- Designing a multi-table schema taught me how to model real-world business logic.
- Writing complex queries helped me understand joins, aggregations, and subqueries deeply.

Challenges Faced

- Debugging JOIN errors and mismatched keys took persistence and precision.
 - Structuring the presentation to be clear and impactful was a creative challenge
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Q / A

**Thank
you**

