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PART A: SQL Proficiency (Operational Analysis)

- (1)

```
Select c.City, avg(o.DeliveryTime)
from Customers c join Orders o using(CustomerID)
group by c.City;
```
- (2)

```
Select Name, CustomerID
from Customers
where CustomerID in
  (Select CustomerID from Orders
   group by CustomerID order by sum(TotalAmount) desc limit 3)
```
- (3)

```
Select od.ProductID, P.ProductName
from Products p
join OrderDetails od on od.ProductID= p.ProductID
join Orders o on o.OrderID = od.OrderID
join Stores s on s.StoreID = o.StoreID
where s.City = 'Mumbai'
group by od.ProductID
order by sum(od.Quantity) desc limit 3
```
- (4)

```
Select count(distinct CustomerID)
from Customers
where lastOrderDate >= Date_Add(Now(), Interval -30 Days)
```
- (5)

```
Select StoreId, Sum(TotalAmount)
from Orders
where Status='Completed'
group by StoreID
```

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Part B: Problem Solving (Customer Retention & Churn Analysis)

- (1)

```
Select Distinct c.CustomerID, c.Name
from Customers c
join Orders o using(CustomerID)
where o.LastOrderDate >= Date_Add(Now(), Interval -3 Month)
group by o.CustomerID
having count(o.OrderID)=1
```
- (2)

```
Select c.City,
count(distinct o.CustomerID) as total_customers,
count(distinct case when count(o.OrderID)=1 then CustomerID end) as
single_order_customer,
round((100*single_order_customer/ total_customers ),2) as
single_order_percentage
from Customers c join Orders o using(CustomerID)
group by c.City
order by single_order_percentage desc
```
- (3) **Three features for a customer churn prediction model:**
 - **Order frequency:** How frequently a customer places orders.
 - **Average order value:** The average value of orders a customer places.
 - **Customer engagement metrics:** Number of visits, wishlist items, or reviews.
- (4) **Customer retention strategies:**
 - Offer personalized discounts or loyalty rewards to frequent customers.
 - Implement a subscription model with perks like free deliveries.
 - Improve post-purchase engagement with feedback and recommendations

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Part C: Business Case Study (Efficiency & Growth Strategy)

- (1) Select CORR(d.DistanceCovered, o.DeliveryTime) AS correlation
from Orders o join Delivery d using (OrderID)
- (2) Three strategies to optimize store-level operations:
 - Dynamic route optimization: Use real-time traffic data for route adjustments.
 - Optimize store inventory: Maintain stock levels based on demand prediction.
 - Centralize delivery hubs: Consolidate deliveries in high-demand areas to reduce delivery times.
- (3) Revenue Maximization Formula:
$$\text{Total Revenue} = \text{Order Value} - (\text{Delivery Cost} + \text{Operational Cost})$$
$$\text{Total Revenue} = \text{Order Value} - (\text{Delivery Cost} + \text{Operational Cost})$$
- (4) Per Order Profit Maximization Formula:
$$\text{Per Order Profit} = \text{Order Value} - (\text{Delivery Cost} + \text{Store Cost})$$
$$\text{Per Order Profit} = \text{Order Value} - (\text{Delivery Cost} + \text{Store Cost})$$
- (5) Comparison of Blinkit, Zepto, Instamart, and BB: Compare key factors such as delivery speed, price competitiveness, product variety, and geographic reach. Each platform likely specializes in different aspects, such as Blinkit focusing on ultra-fast delivery and BigBasket on product variety.