Question 1(a): Monthly Sales & Profit Trend

Business Question: How have monthly sales and profit changed over time?

What I Did:

- Joined list_of_orders with order_details using Order ID
- Aggregated total sales and total profit and grouped them by order month
- Ordered results by months to observe trends

Observation:

- Monthly sales show a steady upward trend from April 2018 to March 2019
- Initial months (Apr–Sep 2018) show negative profits despite reasonable sales
- From October 2018 onward, profits turn positive and increase consistently
- Jan–Mar 2019 record the strongest sales and profitability

Insight:

- Early losses suggest high costs, discounts, or inefficiencies during the initial growth phase
- Profit improvement over time indicates:
    - better pricing strategies
    - improved operational efficiency
    - or a shift toward higher-margin products

Business Meaning :

The consistent rise in monthly sales followed by improving profitability suggests that marketing effectiveness, brand awareness, or product-market fit likely improved over time.

Question 1(b): Yearly Sales & Profit Trend

Business Question: How do yearly sales and profit compare across years?

What I Did:

- Joined list_of_orders with order_details using Order ID
- Aggregated total sales and total profit and grouped them by order year
- Ordered results by years

Observation:

- 2018 generated higher total sales but ended with an overall loss
- 2019 generated lower total sales (partial year) but achieved strong profitability
- Despite higher sales volume in 2018, the business incurred losses, indicating that selling more products alone does not guarantee profitability when costs or margins are unfavorable.

Insight:

- High 2018 sales did not translate into profit, indicating inefficiencies or aggressive expansion. **[**Despite high sales in 2018, losses likely resulted from heavy discounts, high operational and acquisition costs, **Low-margin product mix:** The company sold a lot of products that made very little profit per item, so even high sales volume did not result in good overall profit.**]**
- 2019 reflects a more **mature** and optimized business model
- Profitability improved even without higher revenue volume

Business Meaning:

Even with high sales volume, low margins can reduce overall profitability, so businesses must focus on products that generate real profit after all costs.

Question 2(a): State-wise Revenue & Profit Contribution

Business Question: Which state contribute the most to revenue and profit

What I did:

- Joined list_of_orders with order_details using Order ID
- Aggregated total sales and total profit and grouped them by order state
- Order the result by total sales in descending order to identify top-contributing states

Observation:

- **Madhya Pradesh** generated the highest total sales among all states
- **Maharashtra** achieved the highest total profit despite slightly lower sales
- States with high sales do not always generate the highest profit

Insight:

- Profit varies across states because costs and margins differ by location
- Some states benefit from better pricing, lower operating costs, or fewer returns
- Higher sales volume helps, but margin efficiency matters more for overall profit

Business Meaning:

- Understanding margin efficiency helps decision makers see that higher sales alone don’t guarantee higher profit
- It shifts focus toward better pricing, cost control, and selling the right products
- The goal is to improve profit across states, not just grow revenue

Question 2(b): City-wise Revenue & Profit Contribution

Business Question: Which cities contribute the most to revenue and profit?

What I Did:

- Joined list_of_orders with order_details using Order ID
- Aggregated total sales and total profit and grouped them by city and state
- Ordered the results by total sales in descending order to identify top-performing cities

Observation:

- Indore generated the highest total sales among all cities and strong profitability
- Mumbai and Pune also contributed significantly to overall sales and profit
- Some cities (e.g., Ahmedabad, Hyderabad, Patna) show negative profit despite decent sales
- High sales cities do not always correspond to high profitability

Insight:

- Profit varies across cities because **pricing, costs, and customer behavior differ**
- Cities with negative profit may have **higher logistics costs, more returns, or heavy discounting**
- High-performing cities usually have **better margins and tighter cost control**
- **Sales volume alone isn't enough** — city-level profit depends on **cost and margin efficiency**

Business Meaning:

- Helps decision makers **identify profitable cities** to focus expansion and marketing spend
- Highlights **loss-making cities** where pricing or costs need to be fixed

- Helps decision makers **treat cities differently based on performance**
- Supports **better use of resources** by focusing on cities that actually make profit

Question 3(a): State-wise Loss Analysis

Business Question: Which states generate relatively high revenue but result in low or negative profit?

What I did:

- I Joined list_of_orders with order_details using Order ID
- Aggregated total sales and total profit and grouped them by state
- Filtered states where **total profit ≤ 0** to identify loss-making regions
- Ordered the results by total sales in descending order to identify states with most losses

Observation:

- Punjab, Andhra Pradesh, Bihar, and Tamil Nadu show relatively high total sales but negative total profit**.**
- Despite strong revenue contribution, these states are making loss not profit

Insight

- Some states show high sales but still lose money which means these states might have heavy discounts, high delivery or operating costs, or the wrong product mix
- It suggests that sales growth here is not converting into profit because margins are weak.

Business Meaning:

- High-revenue but loss-making states require **immediate margin review** rather than more sales push.

- Leadership should **reassess pricing, discount strategies, and cost structures** in these regions to turn revenue into profit.
- Improving margins here boosts profit **without extra marketing spend**

Question 3(b): City-wise Loss Analysis

Business Question: Which cities generate high sales volume but suffer from low or negative profitability?

What I did:

- I Joined list_of_orders with order_details using Order ID
- Aggregated total sales and total profit and grouped them by state and city
- Filtered cities where **total profit ≤ 0** to identify loss-making cities
- Ordered the results by total sales in descending order to identify cities with most losses

Observation:

- Cities like Ahmedabad, Hyderabad, Patna, Chandigarh, Jaipur, and Chennai show high sales but negative profit

- These cities generate significant revenue but are loss-making overall

Insight

- Losses at the city level point to local margin issues, such as higher delivery or operating costs, heavy discounting, or low-margin products
- This shows that profit problems can exist in specific cities, even if the overall state performs well

Business Meaning

- Decision makers should treat problem cities individually, instead of using the same strategy for the entire state

- Fixing pricing, discounts, or delivery costs in these loss-making cities can improve overall profit without reducing sales

4(a) Top Customers by Revenue

Business Question: Who are the top customers by revenue, and are they also profitable?

What I Did

- I Joined list_of_orders with order_details using Order ID
- Aggregated total sales and total profit and grouped the data by CustomerName
- Ordered customers by total sales in descending order to identify top revenue contributors

Observation:

- Some customers generate very high total sales and also show positive profit.
- A few customers have low or even negative profit despite strong sales contribution.

Insight:

- Some customers generate high revenue but low profit likely because of heavy discounts, placing low-margin orders, or higher service and delivery costs.
- This shows that revenue alone doesn't reflect true customer value, as profitability differs from customer to customer.

Business Meaning:

- The business should focus on retaining customers who generate both high revenue and high profit.
- High-revenue but low-profit customers should be reviewed for pricing, discount, or service cost optimization to improve long-term profitability.

4(b) Loss-Making Customers Analysis

Business Question: Which customers generate revenue but result in losses?

What I Did:

- Joined list_of_orders with order_details using Order ID
- Aggregated total sales and total profit and grouped them by CustomerName
- Applied a filter to keep only customers with total profit ≤ 0
- Ordered results by total sales in descending order to find high-revenue loss-making customers

Observation:

- Several customers generate high sales volume while producing negative total profit.
- These customers contribute to revenue but reduce overall profitability.

Insight:

- Loss-making customers most likely receive heavy discounts, make frequent returns, or face high delivery and service costs.
- This suggests that current retention strategies may focus more on revenue growth than on profitability.

Business Meaning:

- Management should re-evaluate relationships with customers who consistently generate losses.
- Optimizing pricing, reducing discounts, or changing service terms for these customers can improve overall profitability without impacting total sales.

5 Customer–City–State Profit Leakage Analysis

Business Question: Which high-sales customers are generating losses even in profitable cities and states, and where should the business focus to improve margins without losing revenue?

What I Did:

- I joined list_of_orders with order_details using Order ID
- Aggregated total sales and total profit and grouped them by customer–city–state level
- Filtered for customers with total profit ≤ 0 to identify loss-making customers
- Compared these customers against city-wise and state-wise profitability results to detect profit leakage

Observation:

- In profitable states and cities**,** several high sales–volume customers are generating negative profit**.**
- Examples include:
    - **Madhya Pradesh (Indore, Bhopal):** Saputik, Bhawna, Siddharth, Madhulika
    - **Maharashtra (Mumbai, Pune):** Chirag, Mohan, Shaily, Shruti
    - **Rajasthan (Jaipur):** Chandni, Rishabh
    - **Karnataka (Bangalore):** Vini, Noopur, Shreyoshe
- These customers contribute significant revenue, yet reduce overall profitability.

Insight:

- Since the cities and states are profitable overall, the losses are likely coming from specific customers rather than regional demand or operations.
- Possible reasons include heavy discounts, unfavorable pricing, low-margin product mix, or high delivery and service costs for certain high-volume customers.

- This means the business is keeping revenue from these customers but losing profit.

Business Meaning:

- These customers are important to the business because of their high purchase volume.
- Focused actions such as adjusting pricing, reducing discounts, or improving product mix can turn these customers profitable without losing revenue.
- Improving even a small number of high-volume customers can lead to a large increase in overall profitability.

Question 6(a): Category-wise Sales & Profit Analysis

Business Question: Which product categories generate the most sales, and how profitable are they?

What I Did:

- I used the order_details table
- Aggregated total sales and total profit and grouped them by category
- Ordered categories by total sales in descending order to see top contributors

Observation:

- **Electronics** has the highest total sales and strong profit.
- **Clothing** has slightly lower sales than Electronics but similar profit.
- **Furniture** has high sales but very low profit compared to the other categories.
- All categories generate positive profit, but profit levels differ a lot.

Insight:

- High sales do not automatically mean high profit.
- Furniture likely has **higher costs or lower margins**, which reduces profit despite good sales.
- Electronics and Clothing seem to have **better margin control**, allowing profit to grow with sales.

Business Meaning:

- Decision-makers should not judge category performance by sales alone.
- Categories like Furniture need **cost or pricing review** to improve profitability.
- Focusing more on categories with healthy margins can increase overall profit.

Question 6(b): Sub-Category-wise Sales & Profit Analysis

Business Question: Within each category, which sub-categories drive sales, and are they actually profitable?

What I Did:

- I Used the order_details table
- Aggregated total sales and total profit and grouped them by category and sub-category
- Ordered categories by total sales in descending order to see top contributors

Observation:

- Some sub-categories have high sales and high profit, such as: Printers and Bookcases
- Some sub-categories show high sales but low or negative profit, such as: Electronic Games and Tables

- Several Clothing sub-categories have moderate sales with small but positive profit.
- High sales sub-categories are not always the most profitable.

Insight:

- Sub-categories with negative profit likely suffer from low margins, heavy discounts, or higher costs.
- High-profit sub-categories probably have better pricing or lower operational costs.
- This shows that quantity sold or sales volume alone does not decide profitability.

Business Meaning:

- The business should promote high-margin sub-categories**,** not just high-selling ones.
- Loss-making sub-categories need pricing, discount, or cost fixes**.**
- Improving sub-category mix can boost profit without increasing overall sales.

Question 7: Quantity vs Profit Analysis (Category Level)

Business Question: Do higher quantities sold always result in higher profit across categories?

What I Did:

- I used the order_details table
- Grouped data by category and calculated total quantity sold and Total profit
- Ordered categories by total quantity in descending order to compare quantity vs profit

Observation:

- **Clothing** has the highest quantity sold and also the highest total profit.
- **Electronics** has much lower quantity than Clothing but almost similar profit.
- **Furniture** has the lowest quantity sold and very low profit.
- Categories with lower quantity can still generate strong profit.

Insight:

- Higher quantity sold does not always lead to higher profit.
- Profit depends more on margins and cost structure than just volume.
- Electronics likely has higher profit per unit, while Furniture likely has lower margins or higher costs.

Business Meaning:

- Decision-makers should not focus only on selling more units.
- Categories with better margins should be prioritized even if volumes are lower.
- Improving margins in low-profit categories can increase profit without increasing quantity.

Question 8(a): Category-wise Target vs Actual Sales

Business Question: Are sales targets being met across different product categories?

What I Did:

- I joined order_details with sales_target using category
- Grouped data by category and aggregated actual_sales, sales_target and target_gap

Observation:

- Furniture, Clothing, and Electronics all show negative target gaps

- Actual sales are much lower than sales targets for every category
- No category has met or exceeded its target

Insight:

- Targets across categories were set higher than what sales could realistically achieve
- This gap points to over-optimistic planning or weak execution
- Since all categories missed targets, the issue is systemic, not category-specific

Business Meaning:

- Leadership should revisit how category targets are defined
- Targets need to be based on past sales performance and realistic demand
- More realistic targets improve planning accuracy and accountability

Question 8(b): Month-wise Target vs Actual Sales

Business Question: Are monthly sales targets being met over time?

What I Did:

• I extracted order month from the order date and joined list_of_orders with order_details using Order ID
• I joined the data with sales_target using category
• I grouped the data by order month and aggregated actual_sales, sales_target, and target_gap, ordering the results by order_month

Observation:

- Every month shows a negative target gap
- Even the highest-sales months failed to meet targets
- No month crossed the target line

Insights:

- Monthly targets are set above achievable performance levels.
- Repeated misses suggest targets were set without fully matching ground reality
- Seasonality helps performance, but not enough to meet current targets

Business Meaning:

- Targets need to be reset based on actual performance trends
- Leadership should factor in seasonality and historical data while setting goals
- More realistic targets can improve forecasting accuracy and team motivation