

Handbook Hints for Sales Analytics Case Study

Data Cleaning & Transformation – Hints

- Load and inspect dataset – Use a library to load the CSV file and explore the structure with basic summary functions.
- Convert OrderDate to datetime – Ensure the date column is in the correct format to extract time-based insights like month/year.
- Handle missing/duplicate values – Check for and deal with missing entries or duplicate rows appropriately.
- Create Month, Year, and Profit columns – Extract components from the date and calculate new derived columns using basic arithmetic.

Exploratory Data Analysis – Hints

- Total revenue and profit – Aggregate the revenue and profit columns to understand the overall business performance.
- Top 5 sales reps by revenue – Group by sales representative and rank them based on total revenue.
- Top 10 products by revenue – Analyze product-level performance by summing revenues and sorting.
- Revenue trend over time – Summarize revenue monthly or quarterly to plot trends.
- Revenue by region – Compare regional performance using aggregated revenue values.
- Sales rep profit margin analysis – Compute average or total profit per rep and visualize their efficiency.

Modeling – Hints

- Linear Regression: Predict Total – Use numeric input features (e.g., units and cost) to build a model that predicts revenue.
- Evaluate R^2 and RMSE – Apply evaluation metrics to understand model accuracy and error.
- Segment reps by performance levels – Categorize sales reps based on quantiles or thresholds of revenue or profit.

Power BI Dashboard Tasks – Hints

- Total Revenue & Profit (cards) – Create summary cards using DAX measures.
- Monthly Sales Trend (line chart) – Use a date hierarchy or Month column on the x-axis to visualize trends.
- Top Reps & Products (bar charts) – Display top contributors using descending-sorted bar visuals.

- Sales by Region (map/treemap) – Choose a regional dimension and visualize sales distribution.
- Profit Analysis by Rep (matrix/table) – Use a matrix to compare reps across time with profit as the value.

Case Study Questions – Hints

- What trends are visible over time? – Explore line charts and time series plots for seasonality or growth.
- Which reps and regions perform best? – Check bar charts and ranking tables based on total revenue.
- Any underperforming areas? – Look for regions or reps consistently below average in revenue or profit.
- Recommendations to improve sales – Use patterns from the analysis to suggest actionable steps.
- Profit variation by product/region – Compare average profit margins across products and regions to find high/low performers.