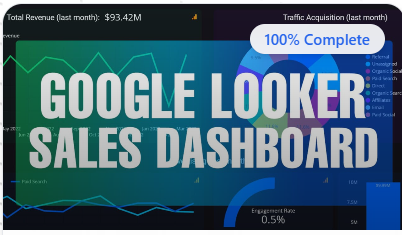
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**Learn to Build Real Time Sales Dashboard - Google Looker**

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Made By-

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**Training Certificate**

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**Internship Report**

**Introduction**

During my internship, I worked extensively with **Google Looker Studio** to develop meaningful data visualizations and dashboards for real business scenarios. The main objective was to transform raw sales and customer data into clear, actionable insights for different teams within the company, including Marketing, Sales, Operations, and Customer Service. Throughout this period, I learned how to handle blended data, create custom calculated fields, build dynamic visualizations, and apply best practices for presenting business information. Below, I have summarized four core analyses I completed during my internship, each addressing specific business questions using Looker Studio.

**Organization Overview**

I interned with a data-driven organization that focuses on delivering analytics-based insights for business growth. The company supports various teams like marketing, operations, and product management by providing accurate and timely data insights.

**Objective of the Internship**

The main objective of my internship was to gain practical experience in **data visualization and business reporting** using Google Looker Studio. I was responsible for transforming raw transactional data into clear, actionable dashboards and charts that would help different teams — including Marketing, Sales, Operations, and Customer Service — make informed decisions. By working on real datasets and queries, I learned how to understand business requirements and translate them into meaningful visual insights.

**Tools & Technologies Used**

- SQL for data querying  
- Python (Pandas, Matplotlib, Seaborn) for analysis  
- Jupyter Notebook as the development environment  
- MS Excel for initial checks  
- Looker Studio for dashboard visualization

### **1**. **Comparing Sales Trends for Multiple Categories**

**Objective:**  
To help the Marketing Team evaluate category performance trends and identify the best-performing product category in 2022.

**Approach & Execution:**

* Filtered sales data for the year 2022 using the order\_date field.
* Grouped the data by **product category** and **month**, and aggregated total **quantity ordered (qty\_ordered)**.
* Created a **time series line chart** using Matplotlib/Seaborn to visualize monthly sales trends per category.
* Enabled comparison across categories over the months to observe consistent or seasonal performance.
* Analyzed which categories had steady growth and which experienced declines or volatility.

**Insights:**

* Clearly identified which category had the **highest sales growth** over the year.
* Helped the team understand **seasonal spikes** and plan category-specific marketing strategies accordingly.

### **2. Comparing Weekend and Weekday Sales**

**Objective:**  
To evaluate the effectiveness of weekend promotional campaigns from October to December 2022.

**Approach & Execution:**

* Filtered the dataset to include only Q4 (October–December) 2022 using order\_date and year.
* Extracted **day of the week** using day\_name and classified days into **weekends** (Saturday, Sunday) and **weekdays** (Monday–Friday).
* Calculated **average daily sales** (before\_discount) separately for weekends and weekdays for each month and for the full Q4 period.
* Visualized the results using a grouped bar chart to compare monthly averages side-by-side.

**Insights:**

* Assessed whether **weekend promotions led to higher average sales** compared to weekdays.
* Provided feedback to the Campaign Team on which months saw stronger weekend performance and where promotional efforts were less effective.

### **3. Product Category Performance by Net Profit**

**Objective:**  
To determine which product categories contributed most to the company’s net profitability.

**Approach & Execution:**

* Calculated **net profit** for each product using the formula: after\_discount - cogs.
* Aggregated the net profit values by **product category**.
* Built a **bar chart** displaying total net profit per category, sorted in descending order to easily identify the top performers.
* Added a **year slicer** to allow dynamic filtering of profitability by year.

**Insights:**

* Pinpointed the **most and least profitable categories**, enabling operations and management teams to make decisions on product focus, procurement, and discontinuation.
* Supported strategic resource allocation by identifying high-margin categories.

### **4. Total Revenue vs Discount Impact by Category**

**Objective:**  
To analyze the impact of discounting strategies on revenue across product categories.

**Approach & Execution:**

* Computed total **revenue before discount** using SUM(before\_discount) and **after discount** using SUM(after\_discount) per category.
* Added a **calculated field** to measure the **discount impact** (before\_discount - after\_discount).
* Developed a grouped **bar chart** to display both revenue values per category along with the absolute discount loss.
* Used color-coded bars to highlight categories with the highest revenue erosion due to discounts.

**Insights:**

* Identified which categories were **most impacted by discounts**, both positively (sales uplift) and negatively (profit erosion).
* Helped the Marketing Team refine discounting strategies by pinpointing where discounts yielded ROI and where they may need rethinking.

# **Data Analysis & Visualization**

I performed cleaning using Pandas (handling nulls, type conversion) and used Matplotlib and Seaborn for visual analysis. For example, I created bar graphs to compare revenue before and after discounts across categories and line plots to see trends over time.

**Key Learnings**

* **Data Blending:** I learned how to join multiple datasets and match them using common keys (like sku\_name) to compare time periods.
* **Custom Calculations:** I gained hands-on experience creating CASE statements, IF conditions, and simple mathematical formulas within Looker Studio.
* **Visual Design:** I understood how to select appropriate charts (bar, pie, line) to represent different insights clearly.
* **Business Context:** I improved my ability to interpret raw data in a way that addresses specific business questions, such as identifying underperforming products or analyzing repeat customer behavior.
* **Error Troubleshooting:** I learned how to debug common Looker Studio issues like aggregation errors and unsupported expressions.

**Challenges Faced**

* **Re-aggregation Errors:** One key challenge was understanding how Looker Studio handles aggregated vs. non-aggregated fields. I learned the difference between data source-level and chart-level calculations to resolve these errors.
* **Data Preparation:** Some required fields like discount\_amount were not directly available, so I had to create them using other columns (e.g., before\_discount - after\_discount).
* **Blending Limitations:** Managing blended data sources required careful attention to join keys and matching fields to ensure the charts displayed the right metrics.
* **Visual Clarity:** Deciding which chart types would best communicate the data without clutter took some trial and error.

**Conclusion**

Overall, this internship gave me hands-on experience in building dashboards and using data to answer real-world business questions. I learned how to use Looker Studio’s blending, calculated fields, visual elements, and filters effectively to create clear and informative reports. This experience strengthened my practical skills in data visualization and reporting, which will be valuable for my future projects and career.