Internship Report

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Internship Title: Google Looker Studio Data Analytics Internship
Organization: Nullclass
Duration: 1 Month
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1. Introduction

This report presents the outcomes of my internship project completed with Nullclass, focused on real-time data analytics and visualization. The project involved analyzing sales data from a retail company to derive actionable insights and building interactive dashboards using SQL, Python, and Google Looker Studio.

The primary goal was to support sales and operations teams by creating tools for data-driven decision-making and identifying business trends.

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2. Background

Before starting the internship, I completed the training program offered by Nullclass on Google Looker Studio, which covered key concepts including data connection, calculated fields, time-series visualizations, and dashboard publishing.

Additionally, I utilized SQL Workbench and Jupyter Notebook during the training phase for initial dataset exploration and validation, helping me understand the data structure before creating the final dashboards.

The internship phase built directly on this foundation, requiring the integration of two business-oriented analytics tasks into the existing training project. The deliverables were hosted and submitted via a public GitHub repository and presented through Looker Studio.

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3. Learning Objectives

- Develop a strong understanding of SQL for querying and aggregating data.

- Apply Python for data cleaning, transformation, and visualization.

- Build interactive dashboards in Google Looker Studio for effective reporting.

- Derive key business insights from raw transactional data.

- Present findings in a format that is accessible to non-technical stakeholders.

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4. Tasks and Activities

Task 1: Sales Prediction for Q2 2023

Objective: Predict quarterly sales using Q1–Q4 2022 data.
Approach:

1. **Data Preparation:**
   - Aggregated sales by quarter (order_date, qty_ordered, after_discount).
   - Calculated total sales per quarter.

2. **Modeling:**
   - Trained a Linear Regression model (scikit-learn).
   - Evaluated accuracy using MAE and RMSE .

3. **Visualization:**
   - Created a Looker Studio dashboard comparing actual vs. predicted sales.
   - Added scorecards for quarterly KPIs.

Task 2: Product Category Performance by Net Profit

Objective: Identify top-performing categories.
Approach:

1. **Calculated Metrics:**
   - Net Profit = SUM(after_discount - cogs) by category.

2. **Visualization:**
   - Sorted bar chart (highest-to-lowest profit).
   - Added year-filter slicers for dynamic analysis

5. Tools and Technologies Used

- **Python (Pandas, NumPy)**: Data cleaning, aggregation, and feature engineering.

- **Jupyter Notebook**: Exploratory data analysis (EDA) and preprocessing.

- **Google Looker Studio:** Dashboard development with interactive filter, Visualization, Dynamic scorecards

- **SQL Workbench**: Querying and validating structured datasets during training.

- **GitHub**: Version control, project hosting, and sharing deliverables.

- **Microsoft Word**: Professional report documentation.

6. Challenges and Problem Solving

- **Challenge:** Limited historical data (only 4 quarters).
  Solution: Used linear regression for simplicity and interpretability.

- **Challenge:** Dynamic quarter filtering in Looker Studio.
  Solution: Created a Year-Quarter calculated field.

- **Challenge:** Explaining ML metrics to non-technical stakeholders.
  Solution: Added MAE/RMSE scorecards with plain-text descriptions.

7. Outcomes and Impact

By the end of the internship, I delivered a fully interactive, multi-page dashboard integrated into my original training project. The project showcased calculated metrics, filters, grouped dimensions, and dynamic visualizations. Additionally, I documented the work through a professional GitHub repository containing the dashboard PDF, screenshots, and a detailed README file.

- Delivered a public GitHub repo with:
  - Python scripts for data processing/modeling.
  - Looker Studio dashboard (live link).
  - Screenshots and documentation.
- The dashboard enables teams to:
  - Forecast sales trends.
  - Allocate resources to high-profit categories.

8. Conclusion

The internship experience at Nullclass significantly deepened my knowledge of business intelligence and dashboard design. It provided a strong blend of technical and communication skills, requiring me to think critically, design effective visual interfaces, and document my work thoroughly.

I am grateful for this opportunity and look forward to applying these skills in future data analytics and business intelligence projects.

9. Key Deliverables

- **Live Dashboard:** Google Looker Dashboard
- **GitHub Repository:** View on Github

- **Dashboard PDF Export:**
  Available as Google Looker Dashboard.pdf in the GitHub repository.

- **Screenshots:**
  Available directly in the GitHub repository as individual PNG files.