**INTERNSHIP COMPLETION REPORT**

**Chakralaya Analytics Pvt Ltd**

**Internship Duration:** June 2023 – August 2023  
**Role:** Data Analytics Intern  
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**1. Introduction**

Internships serve as a critical bridge between academic theory and the practical demands of professional life. During my summer internship at **Chakralayaa Analytics Pvt Ltd**, I engaged in hands-on work on real-world data and projects aimed at transforming procurement data into actionable insights. This experience allowed me to explore the dynamic intersection of data science, business intelligence, and product thinking in a fast-paced startup environment.

Unlike rigid, instruction-driven internships, this experience was defined by autonomy, discovery, and adaptability. I was encouraged to bring my own ideas to the table, explore tools beyond the immediate task list, and build solutions that could contribute meaningfully to the company’s flagship product under development: **Supply Market Intelligence System (SMIS)**.

This report is a detailed account of my journey at Chakralaya Analytics, exploring each facet of my role and responsibilities, tools and technologies used, business context, technical challenges, reflections, learnings, and a roadmap for how this experience shaped my readiness for the industry.

**2. About the Company**

**Chakralaya Analytics Pvt Ltd** is an emerging analytics-based startup incubated at VIT Chennai. With a vision to empower businesses through data, the company focuses on enabling data-informed decision-making in under-optimized verticals such as procurement and operations.

Chakralaya’s mission is to build **modular, insight-driven systems** that transform enterprise data into intelligent workflows. The startup is committed to reducing inefficiencies and making critical business information accessible and interpretable through visual dashboards, smart analytics, and customized KPIs.

The startup’s flagship project, **Supply Market Intelligence System (SMIS)**, is an early-stage platform aimed at solving pain points in procurement processes. The platform aspires to assist procurement professionals by:

* Identifying cost-saving opportunities,
* Highlighting vendor risks,
* Monitoring budget leakages,
* Enabling strategic planning.

The lean and collaborative structure of the company made it a fertile ground for experiential learning and contribution.

**3. Internship Objectives**

At the start of my internship, I outlined a combination of learning goals and contribution goals. These were further shaped by discussions with the Chakralaya team and evolved as the internship progressed.

**3.1 Learning Objectives:**

* To develop a foundational understanding of procurement analytics.
* To become proficient in exploratory data analysis (EDA).
* To gain fluency in using libraries like Pandas, Seaborn, Matplotlib, and Plotly.
* To develop end-user focused data visualizations.
* To understand the workflow of agile startups and contribute to team-wide deliverables.

**3.2 Contribution Objectives:**

* To clean, standardize, and interpret real procurement datasets.
* To produce insight-based summaries for business use cases.
* To assist in creating dashboards and KPI recommendations for SMIS.
* To research how leading ERP tools represent procurement insights.
* To present findings clearly to technical and non-technical team members.

These objectives helped frame the entire internship and informed my weekly planning and deliverables.

**4. Project Overview: Supply Market Intelligence System (SMIS)**

**4.1 What is SMIS?**

The **Supply Market Intelligence System (SMIS)** is envisioned as a centralized procurement dashboard aimed at enabling smarter purchasing decisions using historical and predictive analytics. The prototype focuses on:

* Real-time tracking of procurement KPIs,
* Identification of anomalies and high-risk vendors,
* Budget management and savings analysis,
* Actionable insights presented via intuitive visualizations.

**4.2 My Role within SMIS Development**

My role involved handling backend analytics and prototyping insights that could eventually translate into visual elements for the SMIS dashboard. I worked on defining KPIs, cleaning datasets, structuring time-series data, and evaluating vendor performance.

Key contributions included:

* Producing mock dashboards and cards using Python-generated plots.
* Creating monthly, quarterly, and annual summaries of purchase behavior.
* Drafting executive reports to explain high-level insights.
* Participating in design feedback for visual elements and UI/UX choices.

**5. Roles and Responsibilities**

My day-to-day work responsibilities were varied and adapted based on project progression. Core responsibilities included:

**5.1 Data Cleaning and Preprocessing**

* Used Pandas to load, manipulate, and restructure .csv and Excel datasets.
* Managed missing data using logical imputation methods.
* Standardized inconsistent vendor names using string manipulation.
* Flagged data anomalies and documented cleaning workflows.

**5.2 Exploratory Data Analysis**

* Used correlation matrices and pivot tables to find relationships.
* Investigated volume discounts, category-level purchase trends.
* Tracked unit price variations across time and vendors.
* Summarized procurement concentration by vendor or item.

**5.3 KPI Formulation**

* Proposed KPIs such as Average Unit Price Drift, Vendor Lead Time Consistency, Category-wise Spend Trend, etc.
* Used industry benchmarks to refine definitions.
* Created Python scripts to calculate and visualize these KPIs dynamically.

**5.4 Visual Analytics**

* Designed static dashboard mockups using Seaborn and Matplotlib.
* Developed interactive visuals in Plotly.
* Suggested visual layouts based on stakeholder personas.
* Produced data stories to accompany each graph, enhancing readability.

**6. Tools and Technologies Used**

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| **Tool** | **Purpose** |
| Python | Primary programming language |
| Pandas | Data manipulation and transformation |
| Seaborn | Statistical visualizations |
| Matplotlib | Custom plots and figure tuning |
| Plotly | Interactive dashboards |
| Jupyter Notebook | Development environment |
| Excel | Initial data review and validation |
| Google Docs | Documentation and collaboration |
| Notion | Task tracking and shared research logs |
| Slack / Meet | Communication and weekly standups |

**7. Weekly Progress Summary**

**Week 1-2:**

* Onboarded with the team.
* Understood SMIS roadmap.
* Conducted initial EDA on sample procurement data.

**Week 3-4:**

* Cleaned raw datasets.
* Identified inconsistencies and built cleaning scripts.
* Submitted the first round of insight visuals.

**Week 5-6:**

* Developed vendor scorecards.
* Created pricing and volume anomaly flags.
* Presented KPI definitions in team review.

**Week 7-8:**

* Simulated quarterly procurement reports.
* Integrated feedback from design and product leads.
* Compiled final dashboard prototypes and written summaries.

**8. Deep Dive: Procurement Analytics Use Cases**

To build domain awareness, I researched and mapped procurement-specific analytics use cases:

* **Spend Analysis**: Detecting high-cost items and inefficient vendors.
* **Vendor Rationalization**: Identifying redundant suppliers.
* **Compliance Tracking**: Verifying purchase limits by departments.
* **Predictive Demand Planning**: Using past trends to estimate upcoming procurement needs.
* **Cost Benchmarking**: Comparing internal unit prices with market trends.

My analyses were aligned with these use cases, ensuring the dashboard insights were grounded in operational value.

**9. Collaboration and Communication**

Given the remote nature of the internship, communication and documentation were key. I followed best practices such as:

* Maintaining weekly progress reports.
* Sharing Jupyter notebooks with markdown comments.
* Creating mini slide decks with visualization walkthroughs.
* Conducting bi-weekly presentations for the team.

This not only helped me stay aligned but also improved my ability to present technical findings to mixed audiences.

**10. Challenges and Problem-Solving**

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| **Challenge** | **Response** |
| Inconsistent data | Wrote custom scripts to sanitize and normalize values |
| Ambiguous requirements | Created mockups and confirmed through review sessions |
| Resource limitations | Used open-source tools and lightweight scripting |
| Time zone coordination | Documented everything thoroughly for async reviews |

Each of these challenges contributed to my learning curve and improved my adaptability.

**11. Business Learnings**

This internship provided insight into the **business side of analytics**. Key takeaways:

* Data needs to be explained, not just shown.
* Dashboards should adapt to personas (executive, analyst, operational).
* Efficiency is valued over complexity.
* Clean data = faster insights = better business outcomes.

**12. Key Takeaways**

* Improved my EDA and visualization skills.
* Learned how to prioritize data tasks under startup constraints.
* Became more confident in stakeholder communication.
* Understood the lifecycle of analytics feature development.
* Experienced agile collaboration in a real product environment.

**13. Future Scope and Recommendations**

If I had more time, I would have liked to:

* Integrate predictive analytics for reorder forecasting.
* Build automated pipelines using Airflow or Streamlit.
* Use clustering techniques for vendor classification.
* Design interactive BI dashboards using Power BI or Tableau.

For future interns:

* Explore the domain first.
* Ask clarifying questions often.
* Document your work daily.
* Don’t hesitate to suggest ideas — startups value initiative.

**14. Conclusion**

My time at Chakralaya Analytics Pvt Ltd has been both educational and inspiring. I gained hands-on exposure to data projects that are still shaping into products. I learned the value of adaptability, curiosity, and collaboration. Above all, I understood how analytics fits into a real business and why storytelling with data is as important as crunching numbers.

This internship has reinforced my decision to pursue a career in data science and has better prepared me to take on full-time roles that blend analytics, product thinking, and stakeholder collaboration.

**15. Acknowledgments**

I sincerely thank:

* The Chakralaya Analytics team for their support and trust.
* My faculty coordinator for enabling this internship.
* My peers and mentors for guidance throughout the journey.

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