**Project Title: E-Commerce Customer Behavior & Sales Optimization**

**Objective:**

Analyze customer behavior and purchasing patterns to uncover insights that help improve sales strategies, optimize marketing efforts, and increase customer retention.

**Deliverables**

1. **Data Cleaning & Transformation**
   * Handle missing values, duplicates, and outliers
   * Normalize and encode categorical data
   * Create derived variables (e.g., order frequency, revenue per user)
2. **Exploratory Data Analysis (EDA)**
   * RFM (Recency, Frequency, Monetary) Analysis
   * Customer Lifetime Value (CLV)
   * Cart abandonment analysis
   * Product category and revenue trends
3. **Segmentation & Modeling**
   * Apply **k-means clustering** for customer segmentation
   * Use **classification models** to predict if a customer will make a repeat purchase (Logistic Regression / Random Forest)
   * (Optional Advanced) Time-series forecast using **ARIMA or Prophet** for sales forecasting
4. **Dashboards and Reporting**
   * Create an interactive dashboard in:
     + Power BI / Tableau / Looker Studio
     + Show KPIs: revenue, top products, churn rate, segmentation stats
5. **Business Recommendations**
   * Provide 5–10 actionable insights backed by data
   * Include visualizations in a final slide deck for presentation

**Tools Suggested**

* **Python** (Pandas, NumPy, Scikit-learn, Matplotlib/Seaborn)
* **SQL** (for data wrangling if needed)
* **Power BI / Tableau**
* **Jupyter Notebook / Google Colab**

**Learning Goals for Interns**

* Develop real-world analytical thinking
* Gain experience in EDA, modeling, and storytelling
* Practice working with noisy and real-world data
* Learn how to transform analysis into business insights