Project Alpha – Sales Analytics System for Adidas

Project Name: Project Alpha
Client: Adidas
Department: Global Sales and Analytics
Created by: TeamSync Data Intelligence Division
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1. Project Overview

Project Alpha is an advanced **sales analytics and forecasting system** developed for **Adidas** to analyze, visualize, and optimize sales performance across multiple regions and product categories.

The goal of this project is to help Adidas' business teams make **data-driven decisions** by understanding sales trends, customer preferences, and market dynamics in real time.

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2. Objectives

- To collect and process sales data from all Adidas retail and online channels.
- To generate real-time dashboards for product-wise, region-wise, and month-wise performance.
- To implement machine learning models for **sales forecasting** and **inventory planning**.
- To identify **top-performing products**, **peak sales periods**, and **low-performing regions**.
- To enable management to take **predictive and strategic actions** based on insights.

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3. Key Features

1. **Data Integration:**
   Connects to multiple data sources such as Shopify, Zoho, and internal sales databases

via APIs.

2. **Sales Dashboard:**
   Displays total revenue, number of units sold, and monthly sales comparisons.

3. **Forecasting Engine:**
   Uses machine learning models (ARIMA, LSTM, and Random Forest) to predict upcoming sales.

4. **Product Performance Analysis:**
   Ranks products based on revenue, profit margin, and units sold.

5. **Regional Insights:**
   Provides heatmaps and charts to identify high and low sales regions.

6. **Customer Insights:**
   Segments customers based on buying behavior, repeat purchases, and seasonal demand.

7. **Automated Reports:**
   Weekly and monthly reports are auto-generated and sent to sales managers via email.

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4. Data Pipeline

1. **Data Collection:** Extract sales data from APIs and internal systems.

2. **Data Cleaning:** Handle missing values, normalize columns, and standardize formats.

3. **Data Storage:** Store processed data in a **PostgreSQL database** for analytics.

4. **Feature Engineering:** Derive metrics such as revenue growth rate, profit margins, and customer segments.

5. **Model Training:** Use Python-based machine learning libraries (`pandas`, `scikit-learn`, `xgboost`, `statsmodels`).

6. **Dashboard Visualization:** Built using **Power BI** and **Streamlit** for real-time insights.

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5. Technology Stack

Layer	Tools/Technologies Used
Programming	Python, SQL
Data Processing	Pandas, NumPy
Database	PostgreSQL
Visualization	Power BI, Streamlit
Machine Learning	Scikit-learn, XGBoost, LSTM
Cloud Deployment	AWS EC2, S3
Version Control	GitHub
API Integration	Shopify, Zoho, Google Analytics

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6. KPIs and Metrics

- Total Revenue (Monthly / Yearly)
- Units Sold per Product
- Highest Earning Product
- Region with Maximum Sales
- Month with Peak Sales
- Sales Forecast Accuracy
- Inventory Turnover Rate
- Customer Retention Rate

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7. Challenges

- Managing inconsistent data formats from multiple sales channels.

- Handling missing transaction details and invalid timestamps.
- Forecasting accuracy during seasonal or promotional spikes.
- Integration of real-time APIs with minimal latency.

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8. Outcomes

- Improved sales forecasting accuracy by **23%** using ML-based predictions.
- Reduced report generation time from **2 days to 15 minutes**.
- Enhanced management visibility with live sales dashboards.
- Data-driven decision-making improved overall efficiency by **30%**.

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9. Future Enhancements

- Integrate **AI-based demand prediction** for new product launches.
- Add **voice query support** for dashboards (e.g., “Show me Q2 sales for footwear”).
- Connect with **TeamSync AI Assistant** for instant analytics summaries.
- Expand the system to include **customer sentiment analysis** using NLP.

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10. Contact Information

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11. Link to document: