**Course: Introduction to Business and Data Analytics**

**Assignment Title: Logistics Performance Dashboard (Power BI)**

**Lecturer: Dr. John Serbe Marfo**

**Deadline: 27th April 2025**

**📘 Preamble:**

You have been appointed as a Junior Business Analyst at **Akwaaba Logistics Ltd**, a local third-party logistics provider based in Kumasi. The company manages order fulfillment, warehousing, and product distribution across Ghana, covering categories such as electronics, furniture, apparel, and food.

Akwaaba Logistics currently operates warehouse zones in Accra, Kumasi, and Tamale and works with both international and local carriers such as DHL, FedEx, UPS, and GhanaPost Express. With increasing demand for data-driven decision-making, the company has requested a **Power BI dashboard** to monitor and evaluate their logistics performance across three main areas: **Order Management**, **Transportation**, and **Warehouse/Inventory**.

You have been provided with a dataset of recent operations covering a six-month period. Use Power BI to analyze the data and provide actionable insights for management.

**🧾 Assignment Questions**

**Page 1: Order Management**

1. Calculate and visualize the following KPIs:
   * Order Accuracy Rate
   * Order Cycle Time (number of days between order and delivery)
   * Backorder Rate (by region and by product category)
   * Fill Rate
   * Perfect Order Rate
2. Which product category had the highest backorder rate, and in which region was it most common?
3. Analyze the trend of order cycle time over the six-month period. What operational challenges could be contributing to delays?
4. Based on your analysis, recommend two strategies to improve order fulfillment performance.

**Page 2: Transportation**

1. Calculate and present:
   * On-Time Delivery Rate
   * Average Delivery Time
   * Freight Cost per Shipment
   * Truck Turnaround Time *(assume average turnaround of 4–8 hours and simulate values if missing)*
2. Which carrier delivered the highest percentage of on-time shipments?
3. Compare freight cost trends among the carriers. What might explain the differences?
4. Suggest two cost-saving strategies that the company could implement without compromising delivery timelines.

**Page 3: Warehouse and Inventory**

1. Analyze the following warehouse KPIs:
   * Inventory Turnover Ratio
   * Order Picking Accuracy
   * Warehouse Capacity Utilization
   * Cycle Time for Order Fulfillment
2. Which warehouse zone is operating at the highest capacity utilization, and is that affecting performance?
3. Identify patterns in picking accuracy. Are there particular months or zones with notable inconsistencies?
4. Propose two warehouse operational improvements based on your findings.

**Bonus (Optional, for Extra Credit):**

1. Use Power BI’s slicers and filters to allow dynamic analysis by:
   * Region
   * Product Category
   * Carrier
   * Month of operation
2. Create a summary dashboard or homepage that links to each of the three pages and shows a high-level snapshot of key metrics.