**Saadaa Technical Assessment**

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**Data Analysis & Reporting**

**Customer Behavior**

**Purchase Patterns**:

* **Returning vs. New Customers**: Majority are returning customers (810), showing loyalty.
* **Order Frequency**: High order frequency of 9 orders by 99 customers.
* **Customer Lifetime Value**: High-value orders (e.g., ORD000044 with ₹7251.06) indicate valuable customers.

**Customer Locations**:

* **High Transaction Volumes**: Pune (136), Kolkata (133), Bangalore (132), Delhi (131) are key regions. Target marketing efforts in these areas.

**Sales Performance**

**Top-Performing Products**:

* **Popular Categories**: Jackets(175), Jeans(173) and Shirts, T-shirts (169 Both) are the most ordered.
* **Sizes in Demand**: S(233), XXL(198), M(197) sizes are popular.

**Seasonal Trends**:

* No specific seasonality data is provided, but high-value (₹ 7000+) orders could indicate peak periods.

**Revenue Drivers**:

* **High-Value Orders**: Significant orders like ORD000044, ORD000213, ORD000538 contribute to revenue.

**Marketing Effectiveness**

**Marketing Channels**:

* **Email Marketing**: Highly effective (219), leading to high engagement scores.
* **Social Media Ads**: Facebook Ads (219 again) drive significant engagement and orders.

**Conversion Rates**:

* **High Engagement Scores**: Effective campaigns through Email Marketing and social media channels (Facebook mostly).

**Return Analysis**

**Discounts vs. Returns**:

* **High Discounts**: Orders with high discounts don't always lead to higher engagement (e.g., CUST00861, discount applied=50%, order frequency=1).
* **Return Rates**: Considerate percentage of order return (20.4 percent), suggesting matter of concern.

**Product Categories**:

* **Returns**: Analyzed across different categories show minimal return rates (Dresses - 19.28%, Jackets - 17.14%, Jeans - 23.68%, Shirts - 22.48%, Sweatshirts - 20.94%, T-Shirts - 18.92%).

**Inventory Insights**

**Stockout Risks**:

* **Out of Stock Items**: 899 items are in stock and 101 items need restocking.

**Predictive Model**:

* **Inventory Management**: Made a predictive model in the shared Jupyter notebook for inventory management**.**

**github file -** [**code-tests/Saadaa Technical Assessment .ipynb at main · vash04/code-tests**](https://github.com/vash04/code-tests/blob/main/Saadaa%20Technical%20Assessment%20.ipynb)

**Deliverables**

**Data Exploration & Key Insights**

* **Summary of Findings**:
  + Strong customer loyalty with the majority being returning customers.
  + High demand for Jackets, Jeans, Shirts and T-shirts.
  + Effective marketing through Email and Facebook.
  + Approx one – fifth of order return rates indicating a matter of concern there.

**Actionable Recommendations**

1. **Customer Retention**:
   * Implement loyalty programs and personalized offers.
   * Re-engage customers with low order frequency through targeted campaigns.
2. **Customer Acquisition**:
   * Focus on acquiring new customers in high-potential regions like Pune, Kolkata, Bangalore and Delhi.
   * Launch targeted marketing campaigns to attract new customers.
3. **Inventory Management**:
   * Ensure adequate stock levels for popular products and sizes (e.g., S, M and XXL).
   * Regularly review and adjust inventory based on demand forecasts to prevent stockouts.
4. **Marketing Strategy**:
   * Prioritize effective channels like Email Marketing and social media ads (Instagram, Facebook).
   * Create personalized marketing campaigns catering to different customer segments.
5. **Product Performance**:
   * Analyze high-value orders to identify successful strategies and replicate them.
   * Expand product offerings in popular categories (T-Shirts, Jackets, Shirts, Jeans).

**Technical Approach :**

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