IFT 533: Data Visualization & Reporting for IT
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Project - Phase 1: Planning

Team 13

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Section 1: Dataset Description

The Customer Shopping Trends Dataset is a synthetic dataset crafted to mirror consumer behavior patterns within retail environments, focusing on various demographic and financial attributes that influence shopping habits. This dataset provides a detailed view of customer profiles, such as age, gender, annual income, and spending scores, as well as information about their specific purchasing transactions, including the type of product purchased, the purchase amount, and the date of purchase. By simulating this data, the dataset enables in-depth analysis of key trends and factors that shape consumer decision-making, providing valuable insights into market segmentation and targeted marketing.

The dataset's diversity in attributes makes it an ideal resource for understanding customer segmentation, loyalty behaviors, and financial impacts. Researchers, marketers, and data scientists can utilize this dataset to identify correlations between demographic characteristics and spending patterns, forecast trends in product demand, and devise strategies to optimize customer engagement. By analyzing this dataset, teams can extract insights to drive personalized marketing strategies, improve product placement, and optimize sales approaches across various product categories.

Overview of the Dataset:

Row: 3900

Columns: 18

Column Name	Data Type	Description	Category / Range of Values
Customer ID	Categorical	Unique identifier for each customer	1 - 3900
Age	Ratio	Age of the customer in years	18 - 70
Gender	Categorical	The gender of the customer	Male , Female
Item Purchased	Categorical	Specific items bought by the customer	Belt, Skirt ETC
Category	Categorical	Amount spent on the purchase in USD	Accessories, Clothing, Footwear, Outwear
Purchase Amount (USD)	Ratio	Location of purchase or delivery	20 - 100
Location	Categorical	Size of item purchased (e.g., S, M,L)	Arizona , Texas ETC
Size	Ordinal	Size of item purchased (e.g.,	S , M , L , XL

		S, M, L)	
Color	Categorical	Color of the purchased item	Black, Blue, etc..
Season	Categorical	Season associated with the purchase	Fall, Spring , Summer, Winter
Review Rating	Ordinal	Customer's rating for the purchase (e.g., 1-5 stars)	2.5 - 5
Subscription Status	Categorical	Whether the customer has a subscriptions	Yes , No
Payment Method	Categorical	Method used for payment (e.g., Credit)	Cash, Credit Card ETC
Shipping Type	Categorical	Shipping option selected by the customer	Express, Standard ETC
Discount Applied	Categorical	Whether a discount was used for purchase	Yes , No
Promo Code Used	Categorical	Whether a promo code was used	Yes , No
Previous Purchases	Ordinal	Count of past purchases by the customer	1 - 50
Frequency of Purchases	Ordinal	How often purchases are made (e.g., monthly, weekly)	Weekly, Monthly ETC

Section 2: Prospective Dashboard Users

The dashboard will be utilized by various teams within the organization, each with specific needs and goals in mind:

1. **Marketing Team**
   - Analyze customer preferences, demographics, and spending habits
   - Tailor marketing strategies and optimize campaigns
   - Enhance customer engagement by understanding trends in seasonal popularity, color preferences.

2. **Finance Team**
   - Monitor revenue, profitability, and payment preferences
   - Evaluate top revenue-generating products
   - Analyze payment methods
   - Forecast future revenue trends for strategic budgeting and financial planning

3. **Product Development Team**
   - Assess product quality and customer satisfaction across different regions and categories
   - Identify areas for improvement in product quality
   - Optimize product offerings by analyzing customer feedback, ratings, and regional preferences

4. **Customer Experience Team**
   - Monitor customer satisfaction
   - Understand preferences in shipping and subscription services
   - Refine shipping options
   - Evaluate the effectiveness of subscription offerings
   - Focus on factors that improve customer loyalty

Section 3: List of User Requirements & Potential Questions

User Requirements

These requirements specify how the dashboard should function, what it should display, and what actions users should be able to perform to fulfill their objectives:

1. **Data Filtering and Segmentation**
    ○ Enable users to filter data by demographics (e.g., age group, gender, location), time periods (e.g., season, month), and subscription status to tailor insights to specific segments.
    ○ Allow filtering by item category, color, size, payment method, and shipping type to analyze preferences at a granular level.

2. **Customer Behavior Insights**
    ○ Display visualizations that show the distribution of item categories across different seasons to identify popular items during each season.
    ○ Provide a color preference breakdown within each item category to support targeted marketing and inventory planning.
    ○ Show average purchase amounts by age group, gender, and location to understand demographic spending trends.

3. **Revenue and Profitability Analysis**
    ○ Highlight the top N items contributing the most to overall revenue, supporting high-level revenue analysis.
    ○ Calculate and display average purchase amounts across seasons to help forecast future revenue trends.

4. **Payment Method Insights**
    ○ Present the percentage breakdown of payment methods used, allowing the finance team to understand customer payment preferences.
    ○ Show the most popular payment methods among different age groups to help tailor payment options for customer convenience.

5. **Customer Satisfaction and Product Quality**
    ○ Display customer ratings for each product category, highlighting categories with average ratings below 3 for quality improvement.
    ○ Segment ratings by region to identify geographical areas with lower average ratings, supporting region-specific quality enhancements.

6. **Shipping and Subscription Preferences**
    ○ Provide insights into purchase amounts by shipping type, allowing the customer experience team to optimize shipping options based on customer preferences.
    ○ Analyze purchase patterns based on subscription status, helping assess the value of subscription offerings and their impact on customer loyalty.

7. **Drill-Down and Export Options**
   ○ Enable users to drill down from high-level insights to detailed item-level data for deeper analysis.
   ○ Allow data export in various formats, making it easy for users to share insights in reports and presentations.

8. **Real-Time or Regularly Updated Data**
   ○ Ensure the dashboard updates data in real-time or at frequent intervals to provide the latest insights, allowing teams to make timely decisions.

9. **User-Friendly Interface**
   ○ Design an intuitive, visually appealing interface with clear navigation, making it easy for users across departments to explore data and gain insights.

Potential Questions

The dashboard should address the following key questions, providing actionable insights that support decision-making for each user group:

Customer Preferences and Trends

1. What is the percentage distribution of each item category purchased across different seasons?
2. What is the average purchase amount (in USD) for each age group and gender, and how does it vary?
3. What is the average purchase amount (in USD) for customers in each location? Identify the top N locations with the highest spending.
4. What is the percentage distribution of color preferences within each item category?

Revenue and High-Value Product Identification

5. Which are the top N items that contribute the most to overall revenue?
6. What is the average purchase amount across seasons, and how can it be used to forecast future revenue?

Payment Method Analysis

7. What is the percentage breakdown of payment methods used across all customers?
8. Which are the top N payment methods popular among different age groups?

Customer Engagement and Demographic Insights

9. Which age groups exhibit higher spending frequency, indicating potential loyalty?

Product Quality and Improvement Areas

10. Which product category has a lower customer rating (below 3), indicating products that need quality improvement?

Shipping and Subscription Preferences

11. What is the average purchase amount for each shipping type, and how does it align with customer preferences?
12. How does the average purchase amount differ for subscribed versus non-subscribed customers, and is offering subscriptions beneficial for the company?

Section 4: References

1. https://www.kaggle.com/datasets/zeesolver/consumer-behavior-and-shopping-habits-dataset?select=shopping_behavior_updated.csv

2. https://www.kaggle.com/datasets/waqi786/remote-work-and-mental-health
(Other dataset shortlisted)

3. https://www.kaggle.com/datasets/nelgiriyewithana/global-youtube-statistics-2023
(Other dataset shortlisted)

4. https://app.mural.co/t/ift533projectgroup139235/m/ift533projectgroup139235/1731445252262/1fcf456867882fdef2a0ba00b60c8182abec13af