**Customer Behaviour and Marketing Analytics**

**AIM**

To Identifying Trends, understand customer behaviour and preferences, Analyse campaign effectiveness and impact on sales, Track feedback and resolution status to improve customer service, monitor sales data and conversion rates to identify high-performing products. Provide actionable insights for strategic planning and operational improvements.

**FEATURES:**

**Customer Demographics**

* **CustomerID**: Unique identifier for each customer.
* **Age**: Age of the customer.
* **Gender**: Gender of the customer.
* **Income**: Income of the customer.
* **Region**: Geographic region where the customer resides.
* **Location**: Specific location or city of the customer.
* **MaritalStatus**: Marital status of the customer.
* **EducationLevel**: Education level of the customer.
* **EmploymentStatus**: Employment status of the customer.
* **HouseholdSize**: Number of people in the customer’s household.

**Campaign Performance**

* **CampaignID**: Unique identifier for each campaign.
* **CustomerID**: Unique identifier for each customer involved in the campaign.
* **CampaignType**: Type of campaign (e.g., Display Ads, Email, Social Media).
* **Response**: Customer response to the campaign.
* **ClickThroughRate**: Percentage of customers who clicked on the campaign link.
* **ConversionRate**: Percentage of customers who completed a desired action (e.g., purchase) after clicking the campaign link.
* **ROI**: Return on investment for the campaign.
* **CampaignDuration**: Duration of the campaign in days.
* **Budget**: Total budget allocated for the campaign.
* **Impressions**: Number of times the campaign was displayed.
* **EngagementRate**: Percentage of customers who engaged with the campaign.

**Customer Feedback**

* **FeedbackID**: Unique identifier for each feedback entry.
* **CustomerID**: Unique identifier for each customer providing feedback.
* **FeedbackScore**: Numerical score representing the feedback.
* **SatisfactionLevel**: Level of customer satisfaction.
* **Comments**: Additional comments provided by the customer.
* **FeedbackDate**: Date when the feedback was given.
* **ResponseTime**: Time taken to respond to the feedback.
* **ResolutionStatus**: Status of the feedback resolution (e.g., resolved, pending).
* **FeedbackChannel**: Channel through which the feedback was received (e.g., email, phone, online form).

**Sales and Conversion**

* **SaleID**: Unique identifier for each sale.
* **CustomerID**: Unique identifier for each customer making a purchase.
* **ProductCategory**: Category of the purchased product (e.g., Books, Clothing, Electronics, Groceries).
* **PurchaseAmount**: Total amount spent on the purchase.
* **PurchaseDate**: Date when the purchase was made.
* **Conversion**: Indicates whether the purchase was a result of a conversion (e.g., from a campaign).
* **PaymentMethod**: Method used for payment (e.g., Cash, Credit Card, Debit Card, PayPal).
* **DiscountApplied**: Indicates if a discount was applied to the purchase.
* **ShippingMethod**: Method used for shipping the product (e.g., Express, Standard, Overnight).
* **ReturnStatus**: Status indicating if the product was returned.

**METHODOLOGY:**

1. **Data Cleaning and Preparation:**

* Identifying and Visualising Missing values
* Removing rows where in ID columns if missing
* Impute missing values with mean for numerical columns
* Impute missing values with mode for categorical columns
* Visualize outliers using boxplots before handling
* Handling Outliers using IQR method
* Verify that there are no more missing values
* Visualize missing values with heatmap after imputation
* Imported the data into Power BI.

1. **Data Visualization:**
   * Created visuals to represent the key metrics and trends.
   * In Columns like age that didn’t have any grouping and made a new group with bins of 10.
   * Used appropriate chart types to effectively communicate the data.
   * Used appropriate Slicers like in-between and buttons.
   * Customized the dashboard so that it is pleasing to the eye and easy to understand and digest.

**OUTPUT:**

A screenshot of a computer

Description automatically generated

A close-up of a computer screen

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A close-up of a graph

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A close-up of a graph

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A screenshot of a computer

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**RESULT ANALYSIS**

**Customer Demographics Analysis**

1. **Total Customers**: Total of **9000 customers** with an median age of **43 years** and an average income of **$51.11k**.
2. **Age Distribution**: The largest age groups are **30-44 (36.29%)** and **45-59 (25.76%)**, indicating a significant portion of customers are in their prime working years.
3. **Gender Distribution**: The gender split is with **29.86% female**, **40.42% male and 29.72% other** customers.
4. **Customer Locations**: The customers are from Houston. Los Angeles, Phoenix, Chicago and New York.
5. **Regional Distribution**: The majority of customers are from the **South (2.96k)**, followed by the **East (2.04k)**.

**Campaign Performance Analysis**

1. **Campaign Types**: The pie chart shows that **Email (33.42%)** are the most used campaign type , followed by **Display Ads** (22.69%),  **Social Media** (12.01%) and **Search Engine** (21.88%).
2. **Average Conversion Rate**: The gauge chart shows an average conversion rate of approximately **50.18%**.
3. **ROI Distribution**: Highest ROI is 1.5, followed by 1.0 and 1.0 and 2.0

**Customer Feedback Analysis**

1. **Comments Distribution**: The bar graph categorizes comments into **Excellent (22.45%)**, **Good (32.64%)**, **Average(22.28%)**, and **Poor (22.63%)**, a detailed breakdown of customer sentiments.
2. **Satisfaction Levels**: The line graph and histogram display the distribution of satisfaction scores, peaking at **4**.
3. **Average Response Time**: The Average Response time is **15.01 Days**.
4. **Feedback Score Distribution**: The line graph peaks at **score** **5** and has a decline at **score 9**.

**Sales and Conversion Analysis**

1. **Total Sales**: Total purchase amount of **$6,665,527** from **6,535 sales** withAverage Purchase amount of $**101.99**.
2. **Product Categories**: The Distribution of sales cross categories: **Books (22.39%)**, **Clothing (33.33%)**, **Electronics (22.02%)**, and **Groceries (22.26%)**.
3. **Conversion Rates**: The average conversion rate is **0.49**, with a detailed breakdown by product category.

**Summary of the Analysis:**

* **Feedback Channels and Sales:** The majority of feedback comes through email (2428). This indicates that customers who purchase online are more likely to provide feedback via email. Understanding this can help in tailoring follow-up campaigns or customer service efforts.
* **Age and Feedback Score:** Different age groups have varying satisfaction levels. Younger customers are more critical, while older customers might have different expectations. Analysing this can help in tailoring customer service and product offerings.
* **Age and Campaign Effectiveness**: The largest age groups (30-44 and 18-29) might respond differently to various campaign types. younger demographics engage more with social media campaigns, while older groups prefer email or search engine campaigns.
* **Purchase Amount Distribution**: Clothing and Electronics show significant purchase amounts. This could be linked to targeted campaigns or customer preferences in these categories.
* **High Conversion Categories**: Clothing has the highest conversion rate (1044 conversions), followed by Electronics (729). This indicates a strong performance in these categories, which could be due to effective campaigns or high customer satisfaction in these areas.