**Objective**:

 **Purpose**: To extract comprehensive insights from the CRM dataset and optimize marketing strategies to enhance customer engagement.

 **Key Questions**:

* How do different channels (Email, Push Notifications, In-App Messages, SMS) perform in terms of key marketing metrics?
* What are the actionable insights that can be derived to inform and optimize future campaigns?

**Data Description**

* **Data Source**: CRM campaigns dataset.
* **Date Range**: January 2022 to December 2023.
* **Channels**: EMAIL, PUSH NOTIFICATIONS, IN-APP MESSAGES, SMS.
* **Marketing Metrics**:
  + % CTR (Click-Through Rate)
  + % CVR (Conversion Rate)
  + % CTCVR (Click-to-Conversion Rate)
  + Email % Open Rate
  + % Open to Click Rate
  + % Control Group Conversion

**Columns**

 **CRM Name**: The name of the CRM system or campaign identifier.

 **Year**: The year when the campaign was sent.

 **Week number**: The week number in the year when the campaign was sent.

 **Month**: The name of the month when the campaign was sent.

 **Month number**: The numerical representation of the month (1 for January, 2 for February, etc.).

 **Sent Date**: The date when the campaign was sent.

 **Sent time**: The time when the campaign was sent.

 **End date**: The end date of the campaign.

 **Country**: The country where the campaign was targeted.

 **Channel**: The channel through which the campaign was sent (e.g., Email, SMS).

 **Service Type**: The type of service being marketed (e.g., carsharing, subscription leasing, subleasing).

 **Message type**: The type of message sent (e.g., promotional, transactional).

 **Customer LifeCycle**: The stage in the customer lifecycle (e.g., new customer, returning customer).

 **Target**: The target audience of the campaign.

 **Messages Sent**: The number of messages sent in the campaign.

 **Recipients**: The number of recipients of the campaign.

 **Notification opens**: The number of times notifications were opened.

 **App opens**: The number of times the app was opened.

 **Clicks**: The number of clicks received.

 **Day1 Conv.**: The number of conversions on the first day.

 **Conversions**: The total number of conversions.

 **Registrations**: The number of user registrations.

 **Campaign Revenue**: The revenue generated from the campaign.

 **Voucher Name**: The name of any voucher used in the campaign.

 **Control Group Volume**: The volume of the control group.

 **Control Group Conv**: The conversions from the control group.

 **Control Group Rev**: The revenue from the control group.

 **Campaign Name**: The name of the campaign.

**Data Preparation**

* **Data Cleaning**:
  + Removed duplicate entries.
  + Handled missing values by filling in with appropriate measures (mean/mode for numerical values, 'Unknown' for categorical).
  + Corrected data types.
  + Filled Notification& app opens NULLs with the average.

**Results**

* **Key Findings**:
  + Email campaigns achieved the highest CTR and Open Rate.
  + Push notifications led in terms of CTCVR.
  + There is a noticeable uplift in conversion rates for campaigns targeted at specific segments.
* **Visualizations**:
  + Line chart showing yearly revenues by months.
  + Column chart displaying the distribution of Conversions by channel.
  + Bar chart displaying Customer life cycle distribution.
  + Bar chart displaying Conversions for Service type.
  + Column chart displaying Message type impact on conversions

**Recommendations**

* Since the email open rate is very low, considering A/B testing different subject lines and personalization techniques to increase engagement.
* Continue to invest in push notifications and in-app messages, as these channels show high conversion rates.
* Utilize messages that include both text and images to maximize conversions.
* Focus on campaigns targeted at new customers, as they have the highest conversion rates.
* Analyze what changes were made in campaigns towards the end of 2023 that led to increased revenue and apply those insights to future campaigns.

### Note on Data Limitations

The insights and recommendations provided in this analysis are based solely on the data available for the years 2022 and 2023. The conclusions drawn reflect the performance of the CRM campaigns within this specific dataset and may not encompass all potential influencing factors or external variables. It is important to consider that additional data or context could further refine and enhance the accuracy of these findings. Consequently, any decisions or strategies derived from this analysis should be re-evaluated as new data becomes available.