[BUSINESS ANALYST]

**Context**

**PROJECT 1**

In our first project, the aim was to study the advertisement strategies and the cost of acquisition of customers. The idea was to optimize media strategy to minimise the acquisition cost. This included minimizing media campaign costs, targeting customer segments that were identified as having the lowest acquisition cost, and maximizing customer reach.

By making use of data analysis and machine learning solutions, we were able to identify the most important factors that influenced the cost of acquiring a customer. The main business insights gathered were:

-       The biggest factor that increased the cost of acquisition of customers was the ratio of the space dedicated to meat in a convenience store. The larger the meat area, the higher was the customer acquisition cost. This allowed us to conclude that meat can be categorised as an expensive product and a store selling a lot of meat is therefore more inclined to serving customers with more money.

-       Depending on the media type used for marketing, the type of store and even the gender the cost varied a lot. Having this knowledge was useful to allow us to better target our customers. Our study showed, for example, that daily paper and the radio were the advertisement media preferred by most customers, well ahead of the TV or the bulk mail, for example.

**PROJECT 2**

Based on the above, the store chain put in place some practices that successfully enabled them to:

-       Optimize their market spending: By predicting the cost of acquiring a customer, the store chain was able to better allocate its marketing spend and invest in channels and campaigns that are most likely to bring in new customers at the lowest cost. This helped maximize the return on investment for marketing activities and improve overall profitability.

-       Increase customer lifetime value: By predicting the cost of acquiring a customer and optimizing customer acquisition strategies, the store chain was able to attract new customers who are more likely to become loyal, high-value customers. This helping to increase the lifetime value of customers and improve overall customer retention and loyalty.

The business has hence realized the importance of gathering such data for analysis and modeling and is considering the expansion of their data in the future by establishing an ongoing influx of data generated by their customers.

To do so, they realized that they may need to first revisit their data management processes to ensure that the data will be properly stored and cleaned. This would involve developing a proper data architecture, data storage systems, and data processing workflows.

Changing the data management processes can also lead to improved efficiency and cost savings, such as by reducing the time and resources required for data processing and analysis. This can involve implementing new data automation, as well as streamlining data workflows to ensure that data is processed and analysed more quickly and accurately.

In addition, since the former model developed led to significant positive impacts on the business, they are considering its improvement by employing methods such as hyperparameter tuning. The use of automated tools and algorithms to automate the process of building and optimizing machine learning models is also another point to consider. AutoML tools, for example, can automatically perform tasks such as data pre-processing, feature engineering, model selection, hyperparameter tuning, and ensembling.  By simplifying and accelerating the machine learning process, it becomes easier for businesses and individuals with limited technical expertise to build and deploy machine learning models.

**KPIs**

To track the performance of the machine learning project, and ensure that it is generating value for the business, the following KPIs were determined:

1. **Cost of Customer Acquisition:** This will measure the total cost of acquiring a new customer, including marketing, sales, and other related expenses.
2. **Customer Lifetime Value (CLV):** This will measure the total value a customer is expected to bring to the company over their lifetime as a customer.
3. **Accuracy of Predictions:** This will measure how accurate the machine learning model is at predicting the cost of acquiring a new customer.
4. **Cycle Time:** This will measure the time required to complete a process or task.