In this project, we embarked on a journey to help X Education improve their lead conversion process. We started by performing exploratory data analysis (EDA) to understand the dataset, identify patterns, and gain insights into factors influencing lead conversion. During EDA, we analyzed the distribution of numerical features, explored relationships between features, and visualized key patterns in the data.

After EDA, we proceeded with data preprocessing, which involved handling missing values, encoding categorical variables, and scaling numerical features. We ensured that the data was in a clean format suitable for analysis and modeling in Python.

Following EDA, we proceeded to build a logistic regression model to predict lead conversion. Model performance was assessed using various metrics, facilitating an understanding of its effectiveness and areas for improvement. Subsequently, we formulated lead conversion strategies tailored to different phases: an aggressive approach during intern hiring periods to maximize sensitivity, and a conservative approach post-quarterly targets to maximize specificity.

During the analysis, we discovered that adjusting the decision threshold of the model could be beneficial for meeting specific business objectives. We developed strategies to address the company's requirements during different phases:

- During the aggressive lead conversion phase (intern hiring period), we adjusted the threshold to maximize sensitivity, ensuring that almost all potential leads predicted as positive by the model were converted. This involved making phone calls to a larger proportion of potential leads, maximizing the chances of conversion.

- Conversely, during the minimize useless phone calls phase (after meeting quarterly targets), we adjusted the threshold to maximize specificity. This reduced the number of phone calls made, as only leads with high predicted probabilities of conversion were contacted, minimizing wasted resources.

Overall, through this project, we learned the importance of adjusting model thresholds to align with specific business objectives. By understanding the company's requirements and adapting our approach accordingly, we can optimize the lead conversion process and maximize efficiency and effectiveness in sales efforts.

In conclusion, this project provided valuable insights into lead conversion optimization strategies, highlighting the importance of flexibility and adaptability in data-driven decision-making processes. Through continuous refinement and improvement, X Education can enhance its sales performance and achieve its business goals.