**SUMMARY REPORT:-**

In this project, we aimed to enhance X Education’s lead conversion rate by developing a logistic regression model to identify 'Hot Leads.' The current conversion rate stands at 30%, with a target to increase it to 80%. To achieve this, we employed a logistic regression model to assign a lead score between 0 and 100, indicating the likelihood of conversion.

**Data Preprocessing:** The dataset, containing approximately 9000 leads, was pre-processed to handle missing values and encode categorical variables. We used one-hot encoding for categorical variables and normalized numeric features to ensure effective model training.

**Model Building:** We trained a logistic regression model on the processed data and evaluated its performance using accuracy, precision, recall, F1 score, and ROC curve. The model effectively differentiated between converted and non-converted leads, providing a lead score that reflects conversion likelihood.

**Key Findings:**

1. **Lead Scoring:** The model’s lead scoring system enables prioritization of leads, improving overall conversion rates. Visualizations of lead score distributions and conversion rate comparisons demonstrated significant improvements when focusing on high-scoring leads.
2. **Resource Optimization:** Shifting focus to high-scoring leads optimized resource allocation, leading to cost savings and improved return on investment. Visualizations highlighted changes in resource allocation before and after implementing lead scoring.
3. **Long-Term Benefits:** The scoring model supports scalable and data-driven decision-making. It can be updated with new data, ensuring continuous improvement in lead management.

**Recommendations:**

1. **Implement Lead Scoring:** Use the logistic regression model to prioritize leads based on their scores.
2. **Focus Sales Efforts:** Allocate more resources to high-scoring leads to enhance conversion rates.
3. **Refine the Model:** Continuously update the model with new data to maintain accuracy and effectiveness.

This approach will help X Education achieve its goal of increasing the lead conversion rate to 80%, optimize sales strategies, and improve overall business efficiency.