1. Which are the top three variables that contribute the most to lead conversion probability?

Rephrased Answer:

The top three features that significantly impact the likelihood of a lead converting are:

- **Lead Source_Olark Chat**: 1.860251
- **Lead Origin_Lead Add Form**: 4.729656
- **Tags_Will revert after reading the email**: 4.608920

These variables exhibit the highest influence in the model, indicating that they play a crucial role in predicting lead conversion probability.

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2. What are the top three categorical/dummy variables to focus on to improve lead conversion rates?

Rephrased Answer:

Since the key contributing variables identified in the first question are categorical/dummy variables, the same features should be prioritized for improving lead conversion:

- **Lead Source_Olark Chat** (1.860251)
- **Lead Origin_Lead Add Form** (4.729656)
- **Tags_Will revert after reading the email** (4.608920)

Focusing on optimizing these factors can significantly enhance conversion rates.

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3. How should X Education adjust its strategy during the intern hiring period to maximize conversions?

Rephrased Answer:

To make the most of the interns' assistance and aggressively convert leads, the model should be adjusted to a **lower threshold of 0.1**. This ensures that more leads are classified as potential conversions, allowing the team to reach a larger audience.

Performance Metrics with Default Cutoff (0.3):

- **Accuracy**: 85.64%
- **Sensitivity (Recall)**: 86.50%

- **Specificity**: 85.08%
- **Precision**: 79.13%

Performance Metrics with Lower Cutoff (0.1):

- **Accuracy**: 75.83%
- **Sensitivity (Recall)**: 95.71%
- **Specificity**: 62.83%
- **Precision**: 62.74%

Key Insights:

- **High Sensitivity (95.71%)**: The model captures almost all potential leads, ensuring minimal missed opportunities.
- **Moderate Specificity (62.83%)**: Some non-converting leads will also be targeted, but this is acceptable during an aggressive push.
- **Moderate Precision (62.74%)**: Although some leads may not convert, the objective here is to maximize outreach.

By following this approach, interns can focus on calling a larger pool of potential customers, leading to an overall increase in successful conversions.

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4. How should X Education adjust its strategy when lead conversion targets are met early, and they want to minimize unnecessary calls?

Rephrased Answer:

When the company has already met its conversion goals for the quarter, the focus should shift toward **minimizing unnecessary calls**. This can be achieved by increasing the model's threshold to **0.9**, ensuring that only the most promising leads are contacted.

Performance Metrics with Default Cutoff (0.3):

- **Accuracy**: 85.64%
- **Sensitivity (Recall)**: 86.50%
- **Specificity**: 85.08%
- **Precision**: 79.13%

Performance Metrics with Higher Cutoff (0.9):

- **Accuracy**: 83.59%
- **Sensitivity (Recall)**: 60.86%
- **Specificity**: 98.45%
- **Precision**: 96.25%

Key Insights:

- **High Specificity (98.45%)**: Almost all non-converting leads are filtered out, reducing unnecessary phone calls.
- **High Precision (96.25%)**: The majority of leads contacted will likely convert, making phone calls more efficient.
- **Lower Sensitivity (60.86%)**: Some potential leads may be missed, but this trade-off is acceptable when the primary goal is to reduce the sales team's workload.

By implementing this strategy, the sales team can focus on high-priority tasks while only engaging with leads that have the highest probability of conversion.