1. Which are the top three variables in your model which contribute most towards the probability of a lead getting converted?

```
In [79]: # Export the lead scores to Excel
         lead_scores_df = pd.DataFrame({'Prospect_ID': X_test.index, 'Lead_Score': lead_scores, 'Converted': y_test})
         lead_scores_df.to_excel(r'C:\Users\hp\Downloads\lead_scores.xlsx', index=False)
```

```
In [80]: # Get the coefficients from the trained model
         coefficients = model.coef_[0]
```

```
In [81]: # Create a DataFrame to associate coefficients with feature names
         coef_df = pd.DataFrame({'Feature': X_imputed.columns, 'Coefficient': coefficients})
```

```
In [82]: # Sort the coefficients in descending order to identify top variables
         top_variables = coef_df.sort_values(by='Coefficient', ascending=False).head(3)
```

```
In [83]: print("Top three variables contributing most towards conversion probability:")
         print(top_variables)

         Top three variables contributing most towards conversion probability:
                                         Feature  Coefficient
         88  Tags_Will revert after reading the email     1.571615
         3                 Total Time Spent on Website     1.084354
         71                Tags_Closed by Horizzon     1.057205
```

2. What are the top 3 categorical/dummy variables in the model which should be focused the most on in order to increase the probability of lead conversion?

```
In [84]: # Create a dictionary to map coefficients to feature names
         coef_dict = {}
         for coef, feat in zip(coefficients, X_imputed.columns):
             coef_dict[feat] = coef
```

```
In [85]: # Sort the coefficients in descending order of magnitude
         sorted_coefs = sorted(coef_dict.items(), key=lambda x: abs(x[1]), reverse=True)
```

```
In [86]: # Get the top 3 categorical/dummy variables
         top_categorical_vars = [feat for feat, coef in sorted_coefs[:3]]
```

```
In [88]: print("Top 3 categorical/dummy variables:")
         print(top_categorical_vars)

         Top 3 categorical/dummy variables:
         ['Tags_Ringing', 'Tags_Will revert after reading the email', 'Total Time Spent on Website']
```

3. X Education has a period of 2 months every year during which they hire some interns. The sales team, in particular, has around 10 interns allotted to them. So during this phase, they wish to make the lead conversion more aggressive. So they want almost all of the potential leads (i.e. the customers who have been predicted as 1 by the model) to be converted and hence, want to make phone calls to as much of such people as possible. Suggest a good strategy they should employ at this stage.

During the period when X Education is looking to make lead conversion more aggressive and convert a larger portion of potential leads, here's a strategy they can employ:

Phone Call Strategy for Lead Conversion:

**Focus on High Probability Leads:** Since you have identified the top three categorical/dummy variables that contribute the most to lead conversion probability, prioritize leads that have these characteristics. Specifically, focus on leads that have the following attributes:

Tagged as "**Will revert after reading the email**"
Spent a **significant amount of time on the website**
Tagged as "**Closed by Horizzon**"

**Segmentation**: Segment the leads based on these key attributes and assign them a higher priority for phone call outreach.

Interns and Call Management:

Allocate the 10 interns among these high-priority segments.
Divide the segments based on lead attributes and characteristics so that each intern can specialize in a specific group of leads.
Provide the interns with comprehensive training and scripts to ensure consistent and effective communication.
Set targets for the number of calls each intern should make daily.
Monitor and track the performance of each intern, providing feedback and coaching as needed.

**Personalized Outreach**:

Customize the phone call approach for each segment based on the attributes that make them high-priority. For example, if the lead has spent significant time on the website, discuss relevant content or features that they might be interested in.
Leverage the information in the "Tags" field to tailor the conversation. Leads tagged with "Will revert after reading the email" can be reminded about the email content they might have received.
Follow-up Strategy:

Plan a follow-up mechanism for leads that do not convert on the first call. These leads should not be ignored after one attempt. Create a schedule for subsequent follow-up calls to maintain engagement and provide additional information.
Tracking and Analysis:

Keep detailed records of each phone call, including the outcome and feedback.

Analyze the results regularly to identify patterns and adjust the strategy accordingly.
Feedback Loop:

Regularly gather feedback from interns about the leads, their responses, and any insights they've gained from the conversations.
Use this feedback to refine the approach and strategies over time.
By focusing on high-probability leads and tailoring the phone call approach based on their attributes, X Education can maximize the effectiveness of their interns and increase the chances of lead conversion during the aggressive period.


4. Similarly, at times, the company reaches its target for a quarter before the deadline. During this time, the company wants the sales team to focus on some new work as well. So during this time, the company's aim is to not make phone calls unless it's extremely necessary, i.e. they want to minimize the rate of useless phone calls. Suggest a strategy they should employ at this stage.

During the period when the company aims to minimize the rate of useless phone calls and focus on new work, a strategy that can be employed is to implement a more targeted and efficient lead engagement approach. Here's a suggested strategy:

**Lead Scoring Refinement**: Refine the lead scoring model to prioritize leads that are more likely to convert without relying heavily on phone calls. The model seems to indicate that variables like "Total Time Spent on Website" and "Tags_Will revert after reading the email" contribute significantly to conversion probability. Adjust the lead scoring weights to emphasize these variables more during this period.

**Automated Nurturing Sequences**: Implement automated nurturing sequences for leads that have shown interest but might not be ready for immediate contact. Use personalized email sequences that provide valuable information and engage the leads in a meaningful way. These sequences can be triggered based on their interactions with the website and previous emails.

**Content-Centric Engagement**: Develop and share high-quality content that addresses the pain points and challenges of the leads. This could include blog posts, whitepapers, webinars, and other valuable resources that demonstrate the company's expertise in solving their problems. This approach helps maintain engagement without excessive phone calls.

**Segmentation and Personalization**: Segment the leads based on their interests, industry, and engagement level. Tailor your communication to each segment's specific needs and preferences. Personalized communication through emails, targeted ads, and content will create a more relevant and engaging experience.

**Limited High-Impact Outreach**: Instead of making numerous phone calls, strategically choose the leads for high-impact personalized outreach. This could involve carefully crafted messages that highlight how the company can provide value, based on the leads' behavior and preferences.

**Lead Behavior Analysis**: Continuously monitor lead behavior on the website, such as page visits, downloads, and content consumption. If a lead shows increased engagement during this period, consider making a strategic phone call when the timing seems right.

**Feedback Loop**: Encourage leads to provide feedback on their preferred communication methods and frequency. This insight can help tailor the engagement approach more effectively.

**Data-Driven Insights**: Regularly analyze the data from previous campaigns and interactions to identify patterns and adjust the engagement strategy accordingly. Focus on channels and content that have demonstrated a higher success rate during this specific period.

**Leverage Social Media**: Engage leads through social media platforms, providing helpful information, addressing queries, and showcasing success stories. Social media interactions can be less intrusive than phone calls while maintaining engagement.

**A/B Testing:** Implement A/B testing for different communication approaches, such as email subject lines, content topics, and engagement timing. Continuously optimize your strategy based on the results.

By implementing this strategy, the company can maintain engagement and nurture leads effectively during the period when they want to minimize phone calls. This approach aligns with the company's goals while still providing value to leads and increasing the likelihood of conversion.