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

   Answer: The top three variables in our model that contributed most towards the probability of a lead getting converted are:

   1. **Lead Source_Welingak Website**
   2. **Lead Source_Reference**
   3. **Last Activity_Had a Phone Conversation**

   Hereunder, we have also added a snapshot of the same.

```
Total Time Spent on Website                1.12
Lead Source_Olark Chat                     1.39
Lead Source_Reference                      3.84
Lead Source_Welingak Website               6.02
Last Activity_Email Bounced               -1.54
Last Activity_Had a Phone Conversation     2.94
Last Activity_SMS Sent                     0.93
What is your current occupation_Student   -2.52
What is your current occupation_Unemployed -2.46
Last Notable Activity_Modified            -0.86
Last Notable Activity_Unreachable          2.54
Specialization_Services Excellence        -2.12
dtype: float64
```

---

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?**

   Answer: The top 3 categorical/dummy variables in our model which should be focused the most on in order to increase the probability of lead conversion as per our analysis are:

   1. The students who have '**Lead Source_Reference'** are more likely to get converted with a value of **3.84.**
   2. Students browsing the courses '**Lead Source_Welingak Website** have a very high chance of getting converted with a value of **6.02.**
   3. The students with '**Last Activity_Had a Phone Conversation'** are likely to convert more while opting for any course with a value of **2.94.**

```
Total Time Spent on Website                1.12
Lead Source_Olark Chat                     1.39
Lead Source_Reference                      3.84
Lead Source_Welingak Website               6.02
Last Activity_Email Bounced               -1.54
Last Activity_Had a Phone Conversation     2.94
Last Activity_SMS Sent                     0.93
What is your current occupation_Student   -2.52
What is your current occupation_Unemployed -2.46
Last Notable Activity_Modified            -0.86
Last Notable Activity_Unreachable          2.54
Specialization_Services Excellence        -2.12
```

---

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 many of such people as possible. Suggest a good strategy they should employ at this stage.**

Answer:
We observed that whenever the probability thresholds are critically **very low**, we saw that the 'sensitivity' is **very high** & the 'specificity' is **very low**. Likewise, for larger probability thresholds, the 'sensitivity' values are **very low,** but the 'specificity' values are extremely high. Here, the higher 'Sensitivity' indicates that our model will precisely specify nearly all leads who are likely to convert. This is accomplished by overestimating the conversion rate.

Now, since X Education owns more manpower for the upcoming 2 months. Furthermore, they wish to run the lead conversion campaign aggressively by capturing and nurturing almost all the potential leads, we can thus select a lower threshold value for 'Conversion Probability'.

What will happen? Lowering the threshold value will lead to an increased 'Sensitivity' value that will result in making sure that all the potential leads who are probable to convert are recognized. Also, the X education company may take all essential efforts on such potential leads. We have highlighted below, that if we use the threshold of **0.3** or **0.4** then it may help the X education company to convert potential leads aggressively.

Thus, by using this strategy, the conversion rate may be reduced, but it will increase the total number of conversions which will result in increased revenue growth.

probability	accuracy	sensitivity	specificity
0.00	0.48	1.00	0.00
0.10	0.57	0.99	0.18
0.20	0.69	0.95	0.44
0.30	0.76	0.89	0.63
0.40	0.79	0.79	0.78
0.50	0.79	0.74	0.84
0.60	0.77	0.67	0.87
0.70	0.74	0.55	0.91
0.80	0.71	0.44	0.96
0.90	0.64	0.27	0.98

4. **Similarly, at times, the company reaches its target 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.**

   Answer: If the X Education company reaches its quarterly target before deadlines and further do not wish to waste time and effort on useless phone calls except when it is really required to do calling. In this case, it is recommended to choose a **higher threshold value** for all the **Conversion Probabilities**.

   By increasing the threshold value, it will also **increase** the '*specificity*' and at the same time it will **lower** the *'sensitivity'*. This will result in calling leads that has a **very high conversion rate** by marketing team.

   Moreover, we also suggest to use a threshold value of **0.7** or **0.8**. This will aid the sales team to only call the **44%** or **55%** of the total leads. Therefore, the conversion rate would become as high as **91%** for the threshold cutoff of **0.7** and **96%** for the threshold cutoff of **0.8.** Hence, the strategy!

   Hereunder, sharing a snap shot with value details as discussed above.

probability	accuracy	sensitivity	specificity
0.00	0.48	1.00	0.00
0.10	0.57	0.99	0.18
0.20	0.69	0.95	0.44
0.30	0.76	0.89	0.63
0.40	0.79	0.79	0.78
0.50	0.79	0.74	0.84
0.60	0.77	0.67	0.87
0.70	0.74	0.55	0.91
0.80	0.71	0.44	0.96
0.90	0.64	0.27	0.98