Assignment Questions Subjective

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

   The top 3 features as per the coefficients in the final model are:
   - Time on Website
   - Lead Source_Reference
   - Current Occupation_Working Professional

	coef	std err	z	P>|z|	[0.025	0.975]
const	-3.4948	0.117	-29.779	0.000	-3.725	-3.265
TotalVisits	0.2110	0.181	1.163	0.245	-0.145	0.567
Time on Website	4.0452	0.157	25.817	0.000	3.738	4.352
Lead Source_Olark Chat	0.8722	0.105	8.325	0.000	0.667	1.078
Lead Source_Reference	3.3581	0.215	15.653	0.000	2.938	3.779
Last Activity_Email Bounced	-1.7839	0.316	-5.638	0.000	-2.404	-1.164
Last Activity_Email Opened	0.5938	0.080	7.410	0.000	0.437	0.751
Current Occupation_Student	1.1486	0.224	5.135	0.000	0.710	1.587
Current Occupation_Unemployed	1.1460	0.084	13.719	0.000	0.982	1.310
Current Occupation_Working Professional	3.3497	0.188	17.797	0.000	2.981	3.719
Last Notable Activity_Others	1.6558	0.262	6.322	0.000	1.142	2.169
Last Notable Activity_SMS Sent	1.9421	0.090	21.512	0.000	1.765	2.119

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?

   The Top 3 dummy variables for increasing the lead conversion are:
   - Lead Source_Reference
   - Current Occupation_Working Professional
   - Last Notable Activity_SMS Sent

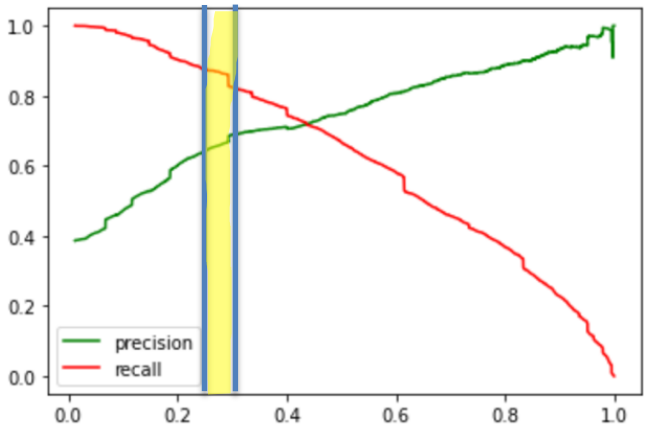
3. X Education has a period of 2 months every year during which they hire some interns. The sales team, in particular, has around 10 interns allotted to them. So during this phase, they wish to make the lead conversion more aggressive. So they want almost all of the potential leads (i.e. the customers 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.

   Recall is the Total number of Hot Leads correctly predicted out of the Total number of actual Converted Leads.

   $$\text{Recall} = \frac{\text{True Positive (TP)}}{\text{Total Actual Positives (TP + FN)}}$$

   Our goal is to reach out to as many Hot leads as possible to ensure maximum conversion rate. If we reduce our probability cutoff, then the Recall will increase further but precision will decrease, which means we will have many false positives i.e., we might reach out many non-potential leads as well.

   But since we have enough resources and we want to make the lead conversion more aggressive, we can tradeoff that precision for a higher recall.



We can set a probability cutoff in the yellow region [0.25 – 0.3] for aggressive lead conversion.

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.

In this case, we aim to reach out to only the Potential leads as we have shortage of resources.
We know that Precision is the Total number of Hot leads correctly predicted out of the total number of predicted hot leads.

$$\text{Precision} = \frac{\text{True positive} \quad (TP)}{\text{Total Predicted positives } (TP+FP)}$$

So, if we want a higher precision, we need to minimize the False Positives and thus we can tradeoff the Recall for a higher precision.

In this case, our probability cutoff should be high and should lie in the yellow region [0.5 – 0.55].