



Course 2 Machine Learning-I

Lead Scoring Case Study

Team:

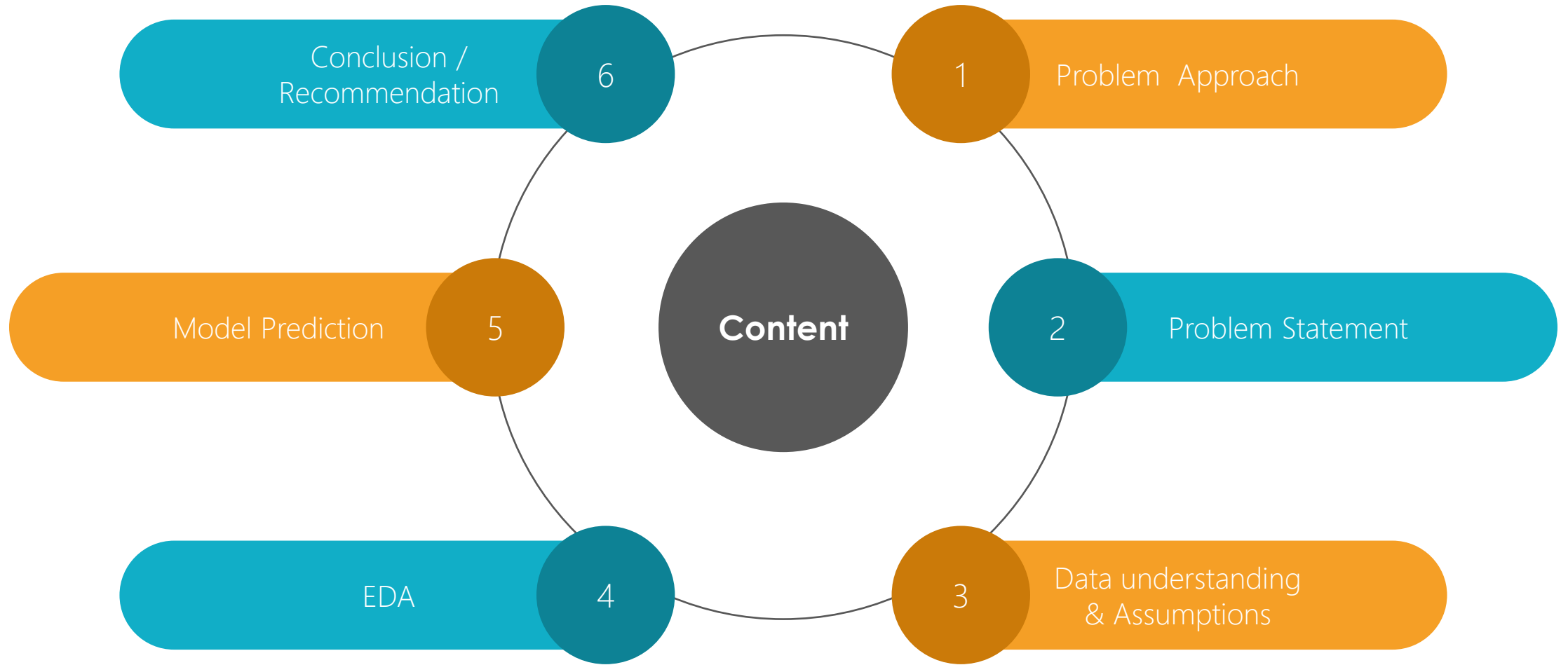
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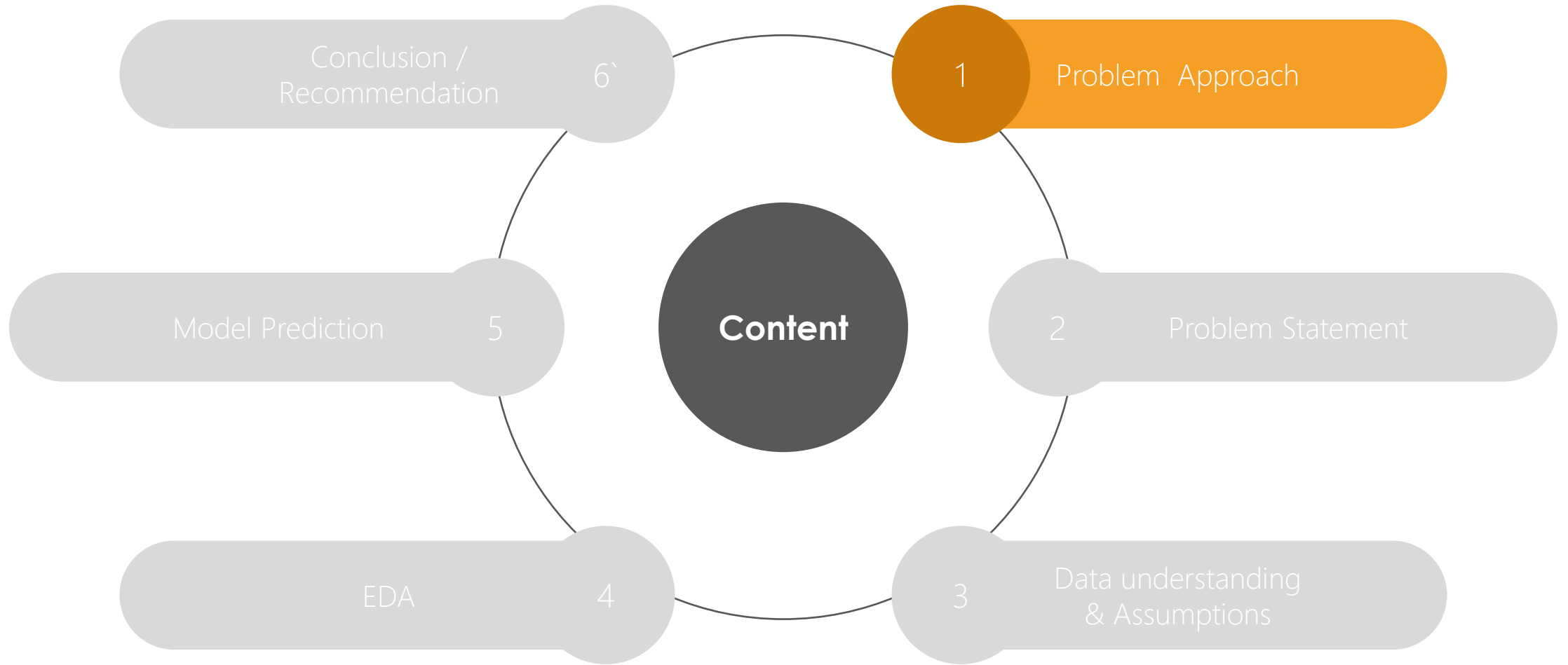
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UpGrad & IIITB | Data Science Program - October 2022 (DSC 49)

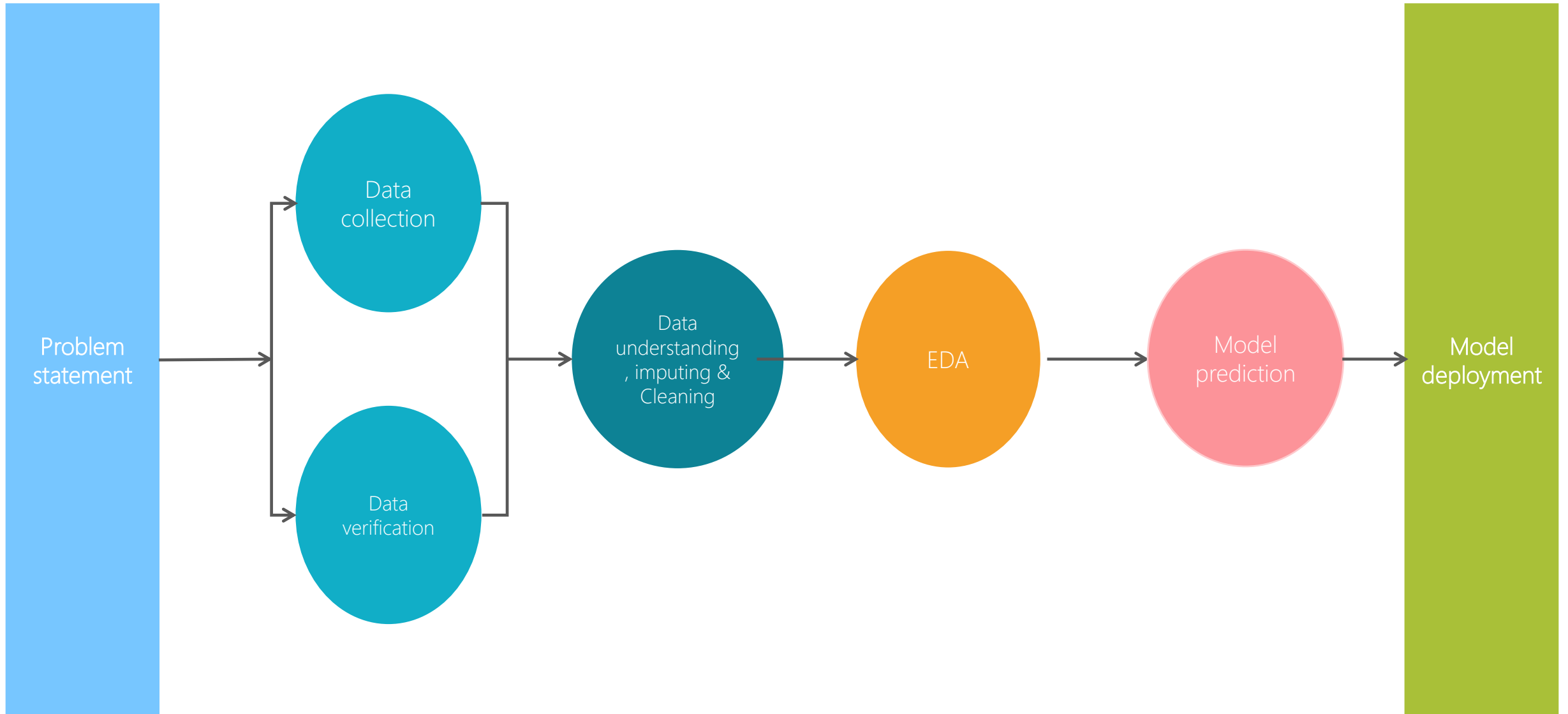
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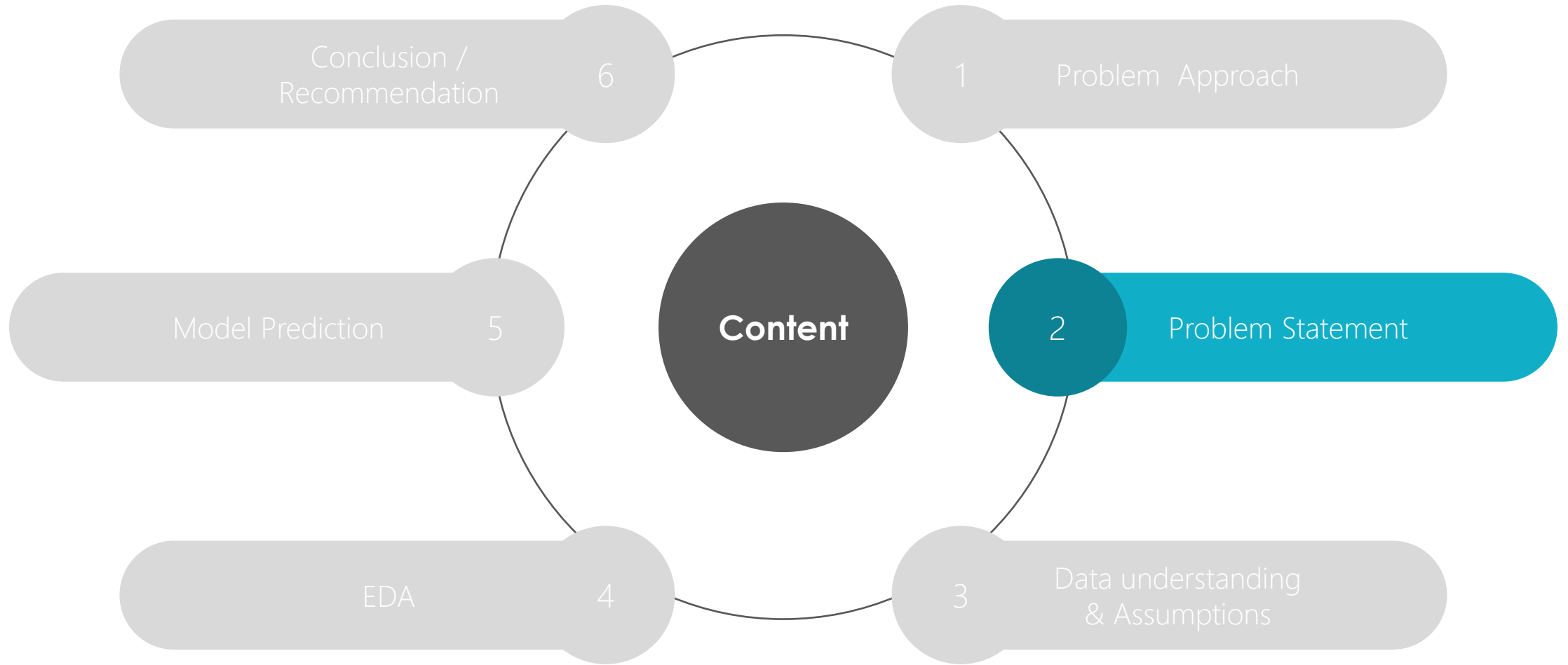
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Problem Approach



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Problem Statement

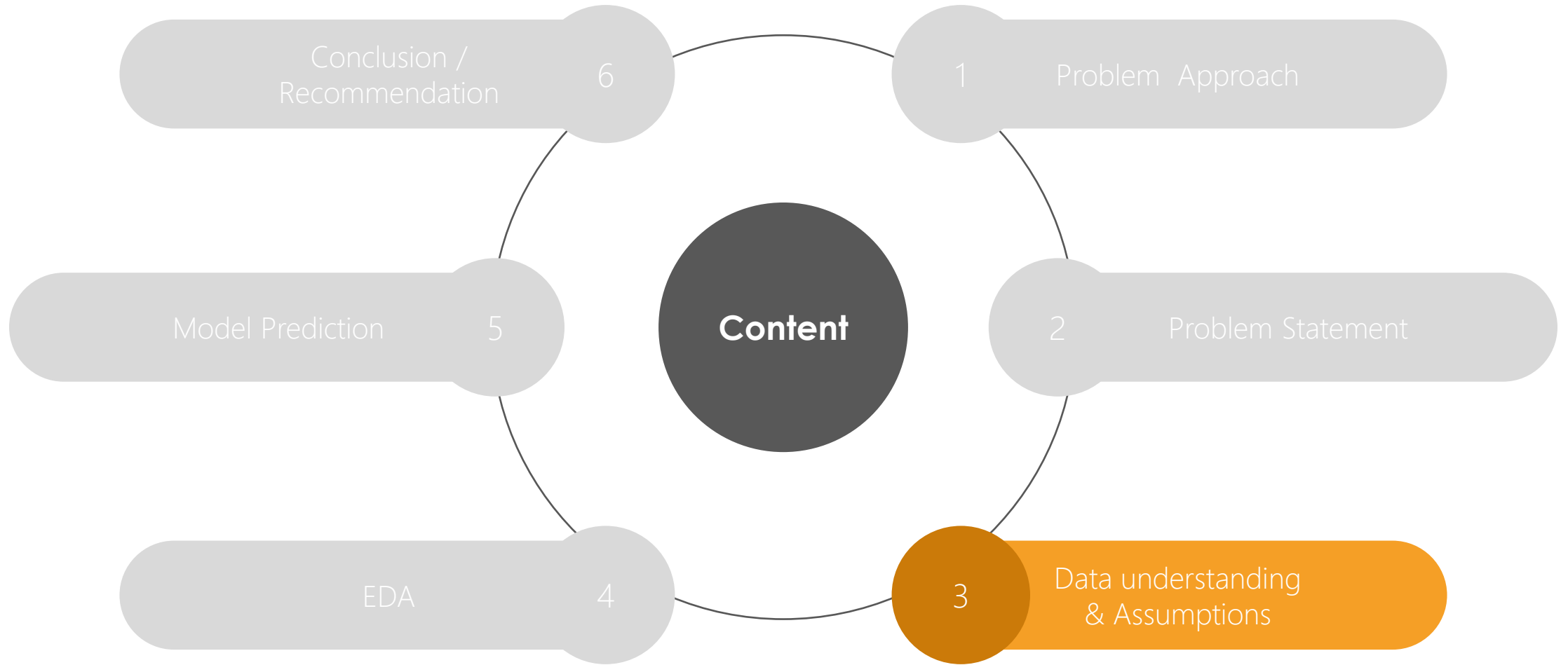
X Education sells online courses to industry professionals. The company markets its courses on several websites and search engines like Google. Leads are generated through various means. The typical lead conversion rate at X education is around 30%.

Requirement of X Education company are:

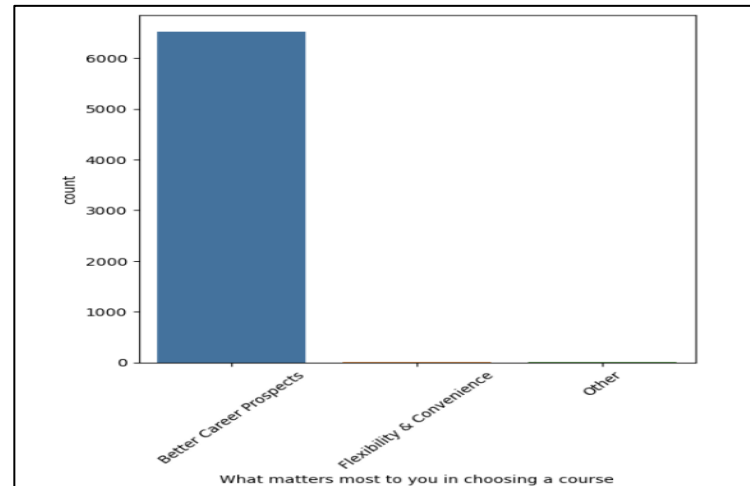
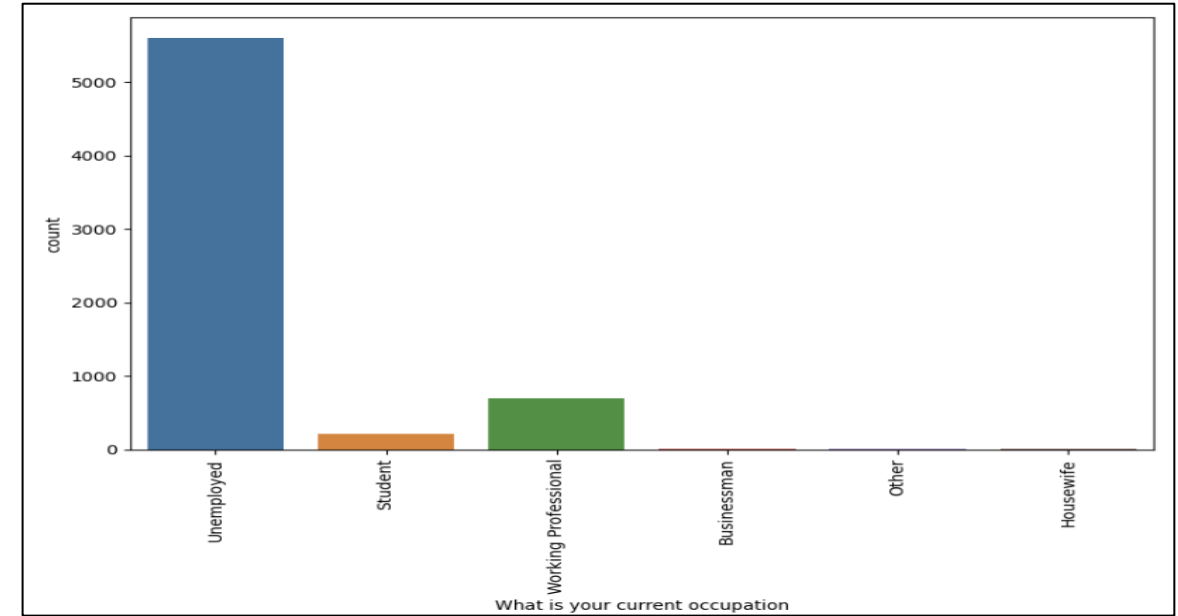
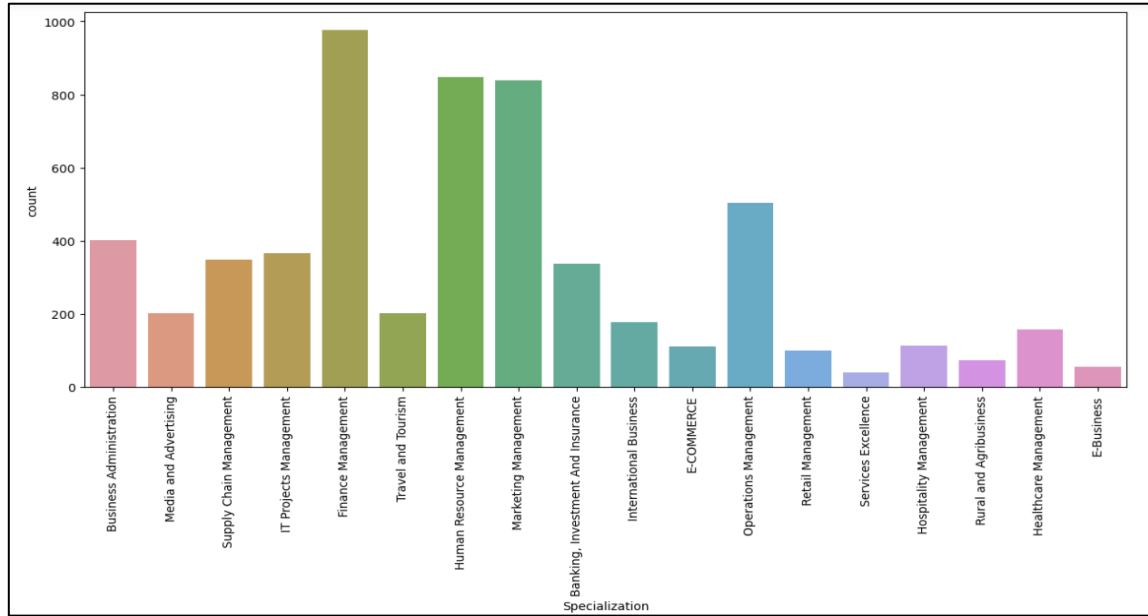
- Assign a lead score to each of the leads
 - Higher lead score have a higher conversion chance
 - Lower lead score have a lower conversion chance
- Lead conversion rate to be increased to 80%



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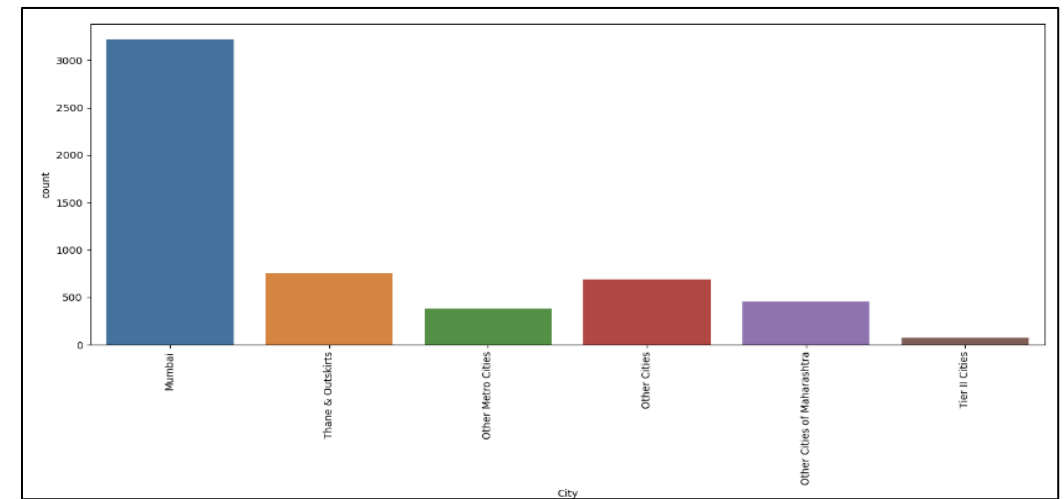
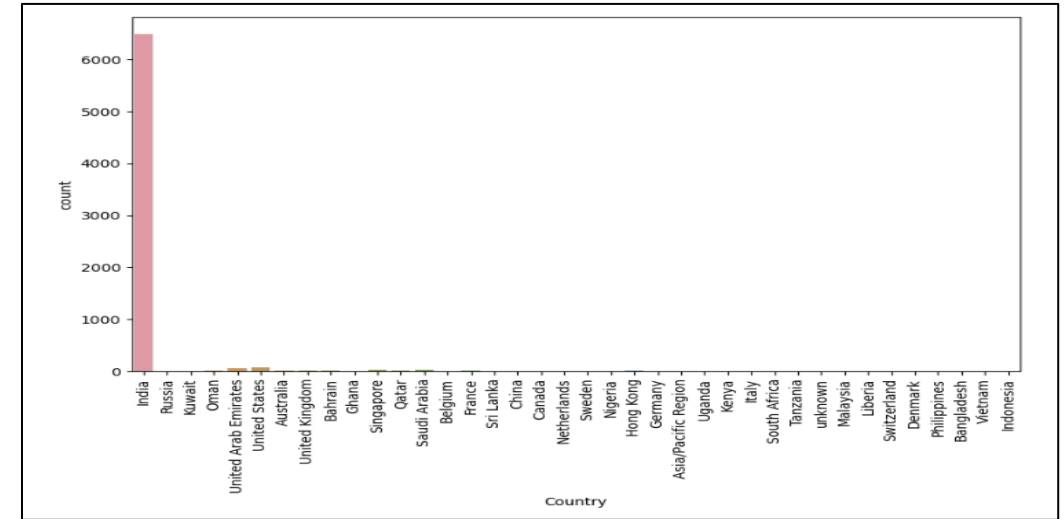
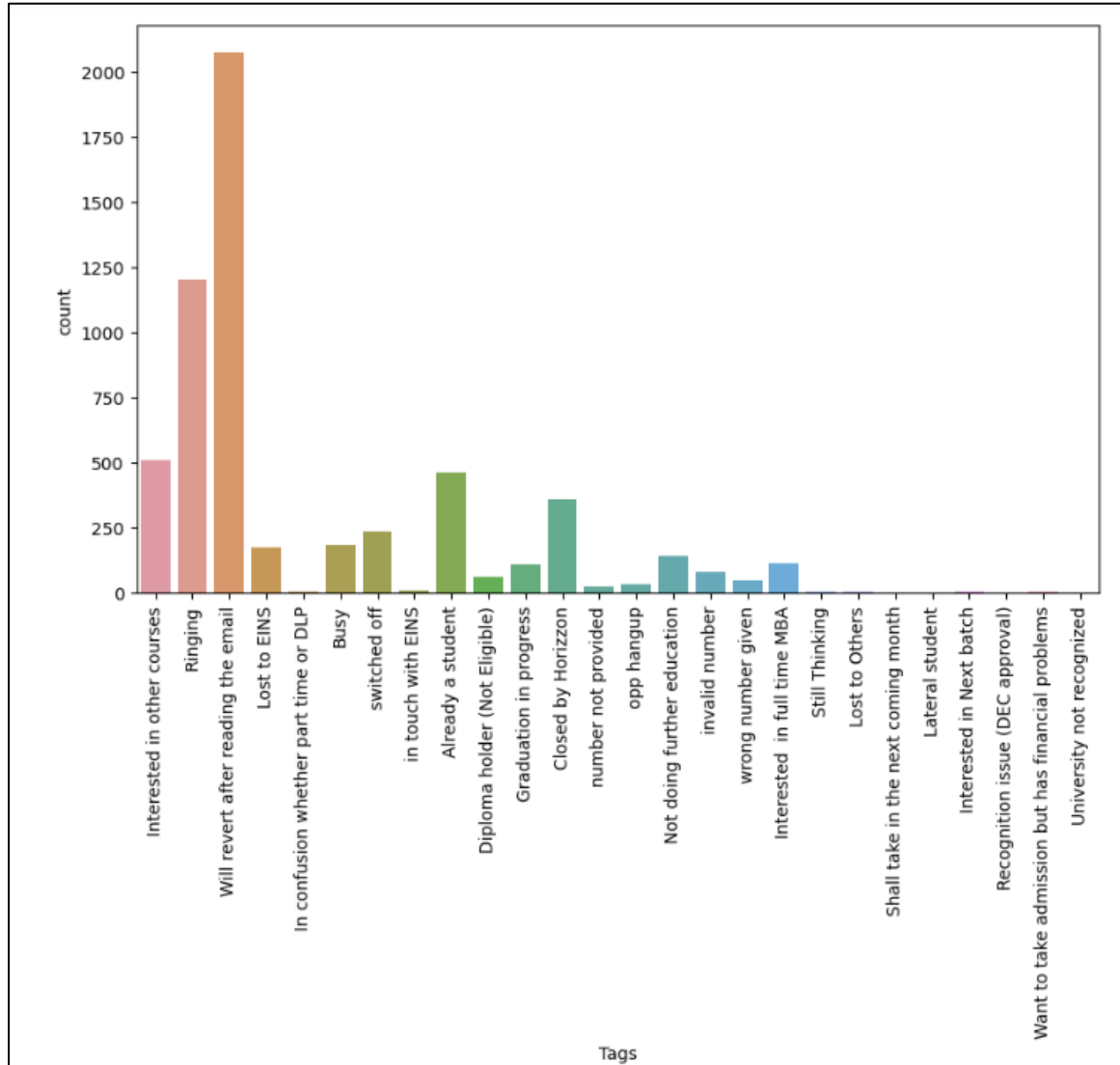


Data Understanding



- Prospective leads visiting X Education sites from various domains & occupation
- Major reason for opting online education "Better career prospects".

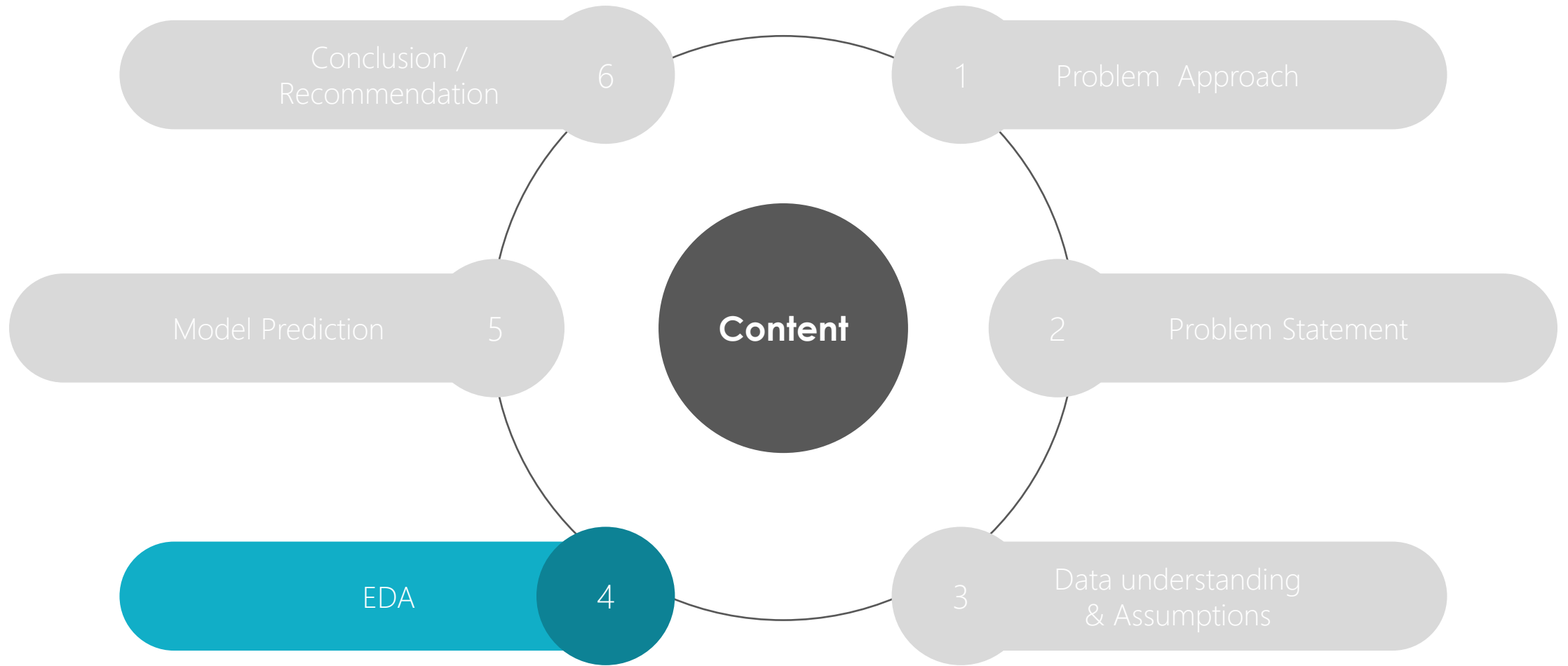
Data Assumptions



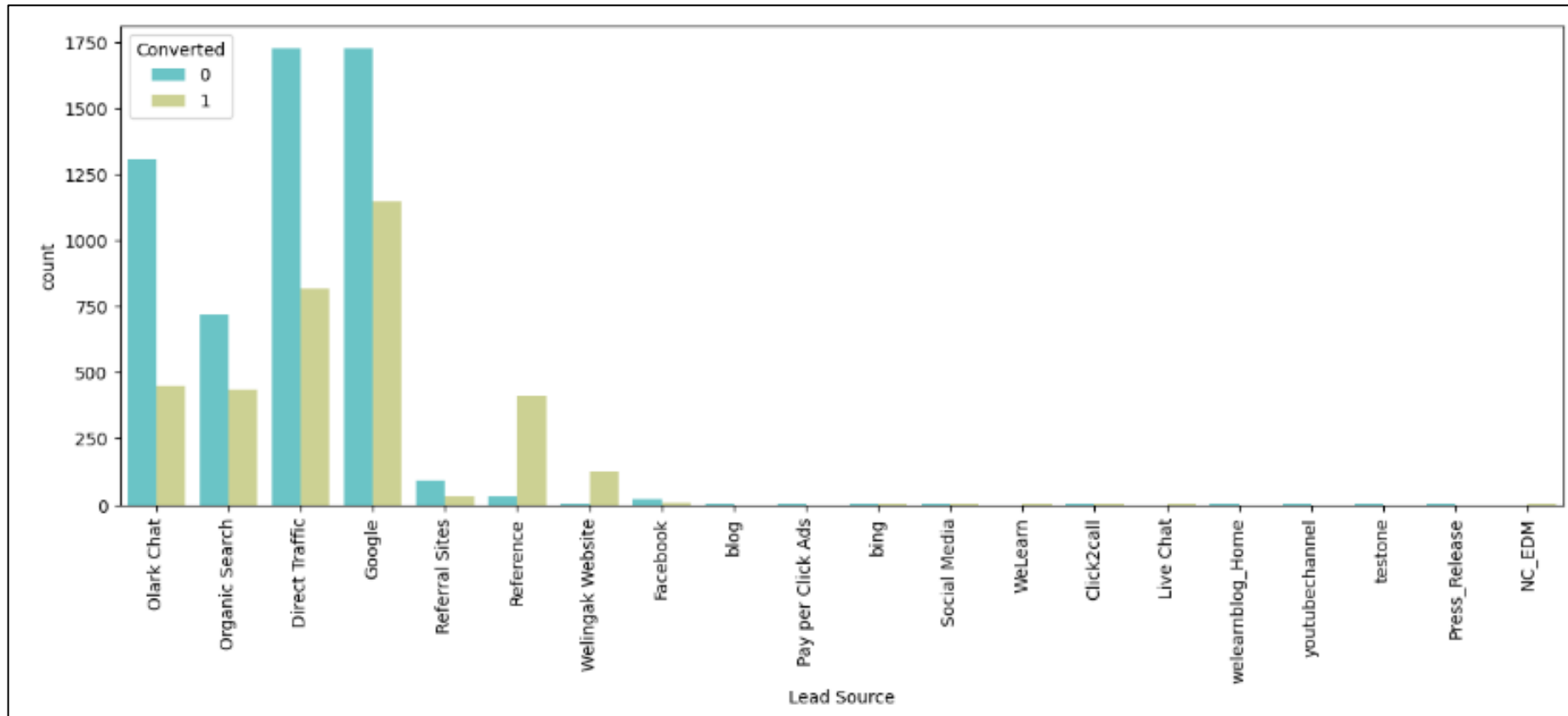
For various missing values suitable replacements are considered

eg. Missing tags replaced with "will revert after reading the email" and Imputed missing values of "Countries" with "India" and missing cities as "Mumbai"

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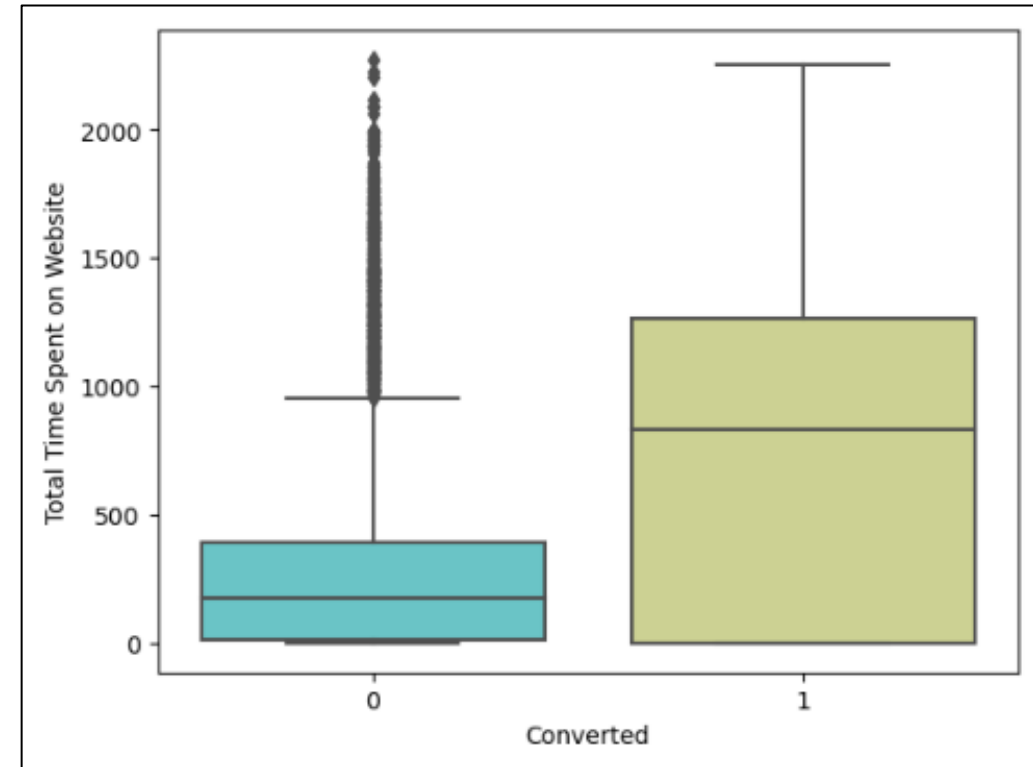
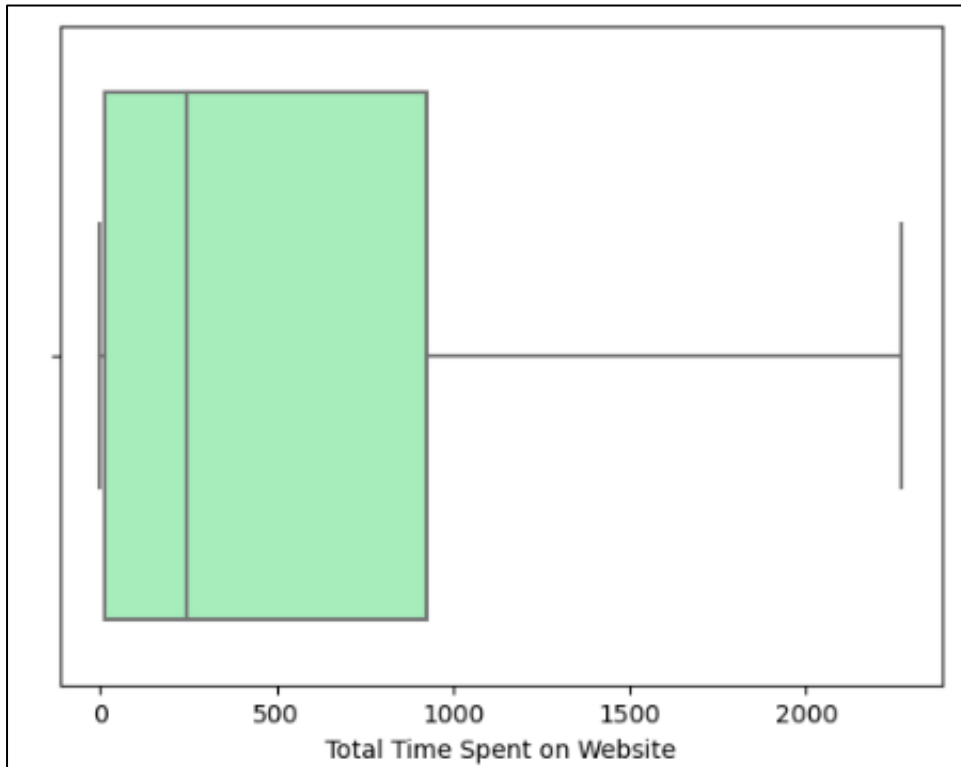


Exploratory Data Analysis



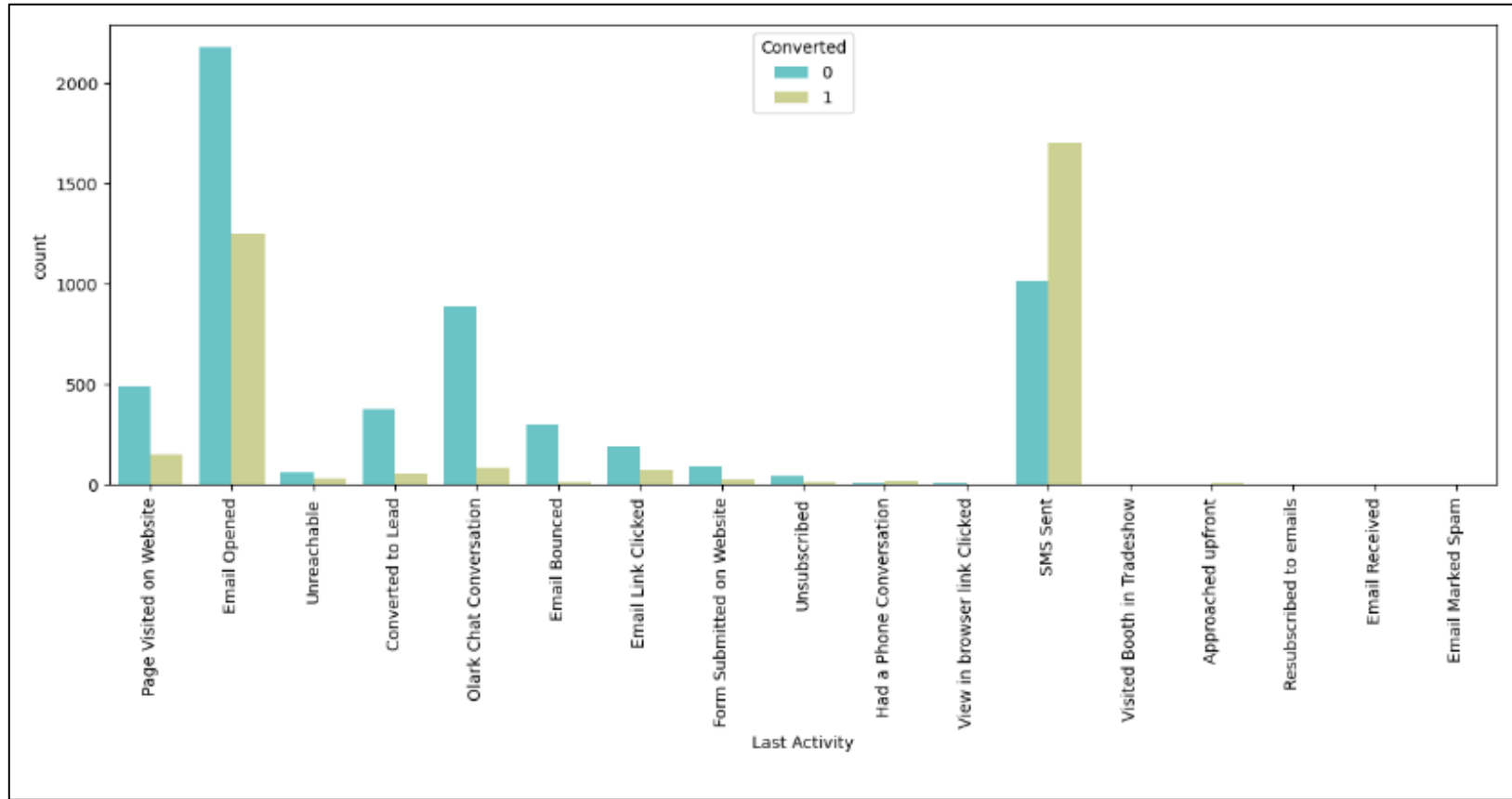
- More leads are generated from Direct Traffic and Google
- Leads generated from Olark Chat and Organic Search are also to be considered
- Conversion rate of Reference from Welingak Website is high.

Exploratory Data Analysis



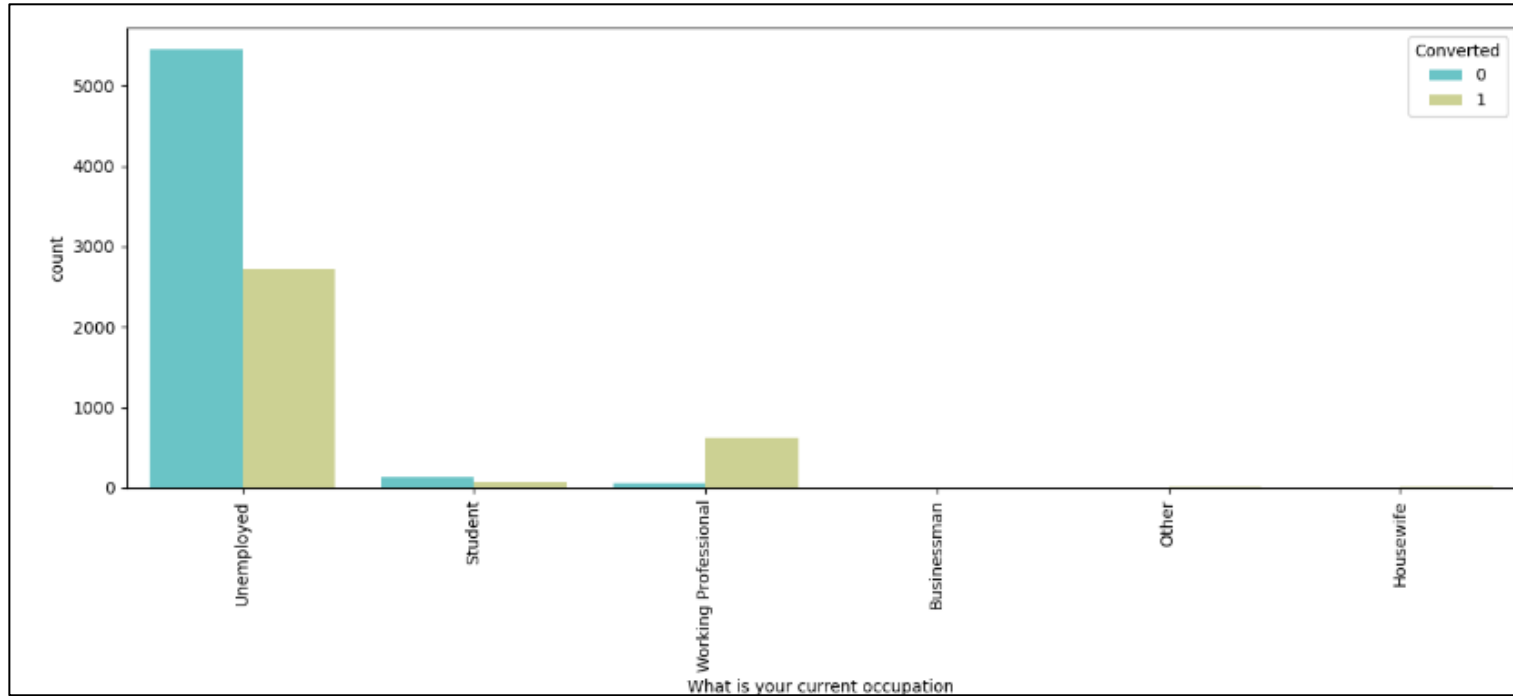
Leads spending more time on website are more likely to be converted

Analysis



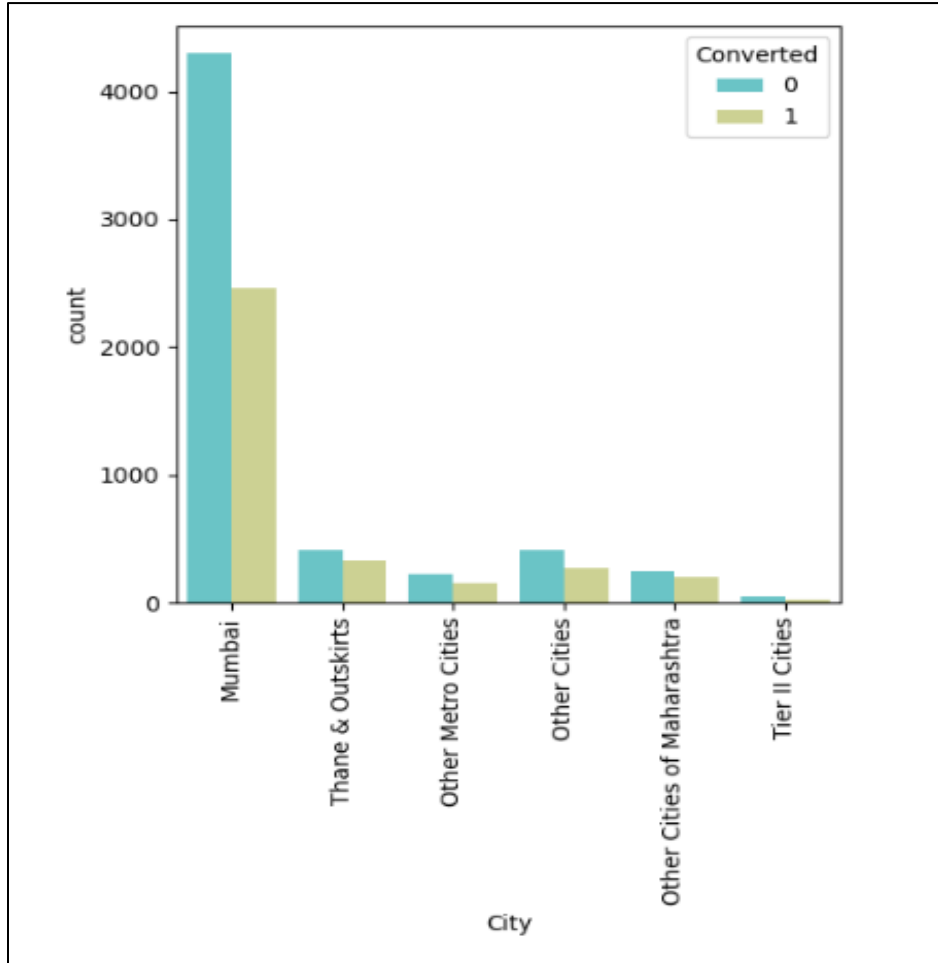
- Approx 40% of leads have opened the email as last activity
- Conversion rate of leads with last activity as SMS sent is around 62%

Analysis

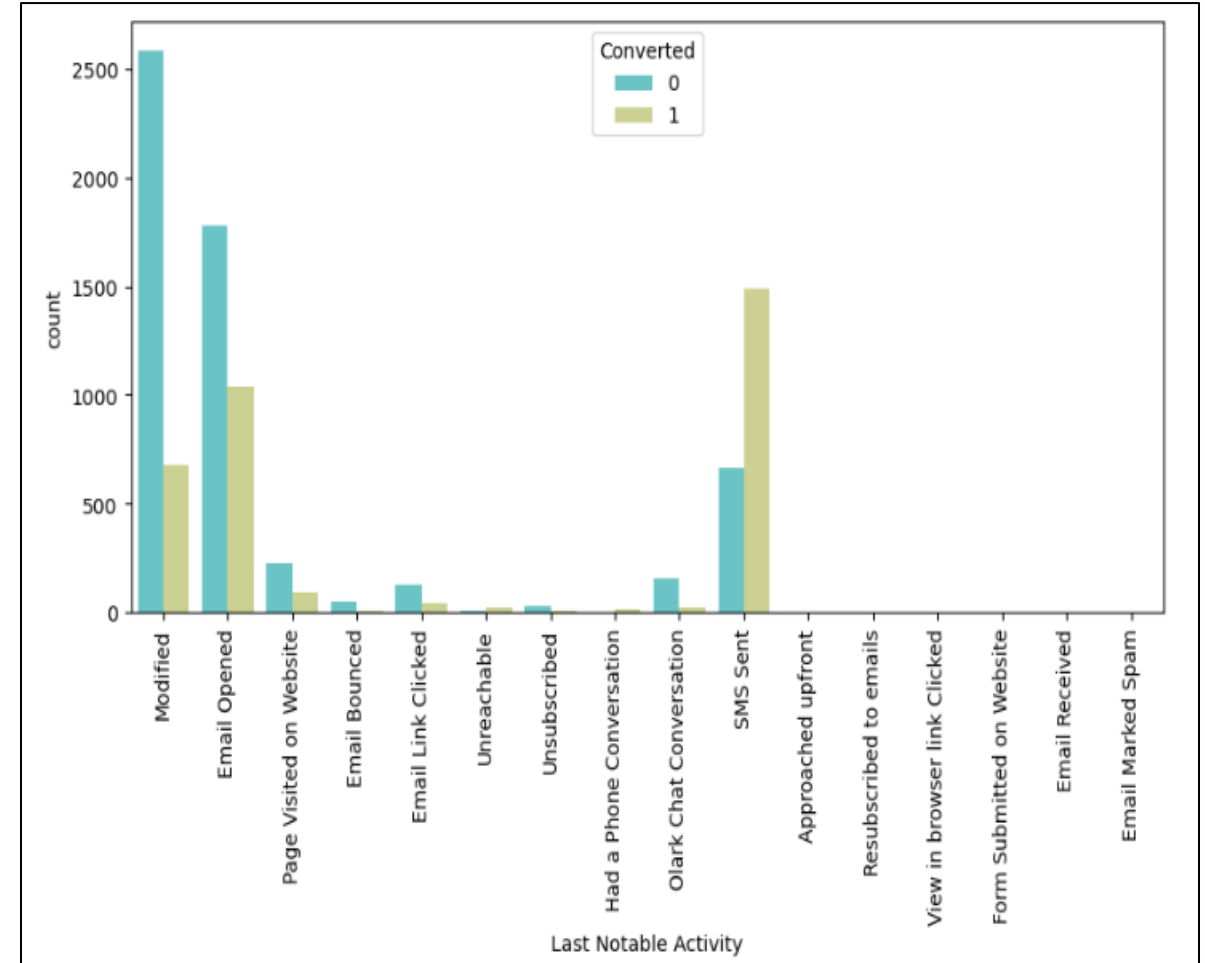


- Unemployed leads are more in number and the conversion rate is upto 35%.
- Highly converted leads are working professionals and have every possibility of joining the course.

Analysis

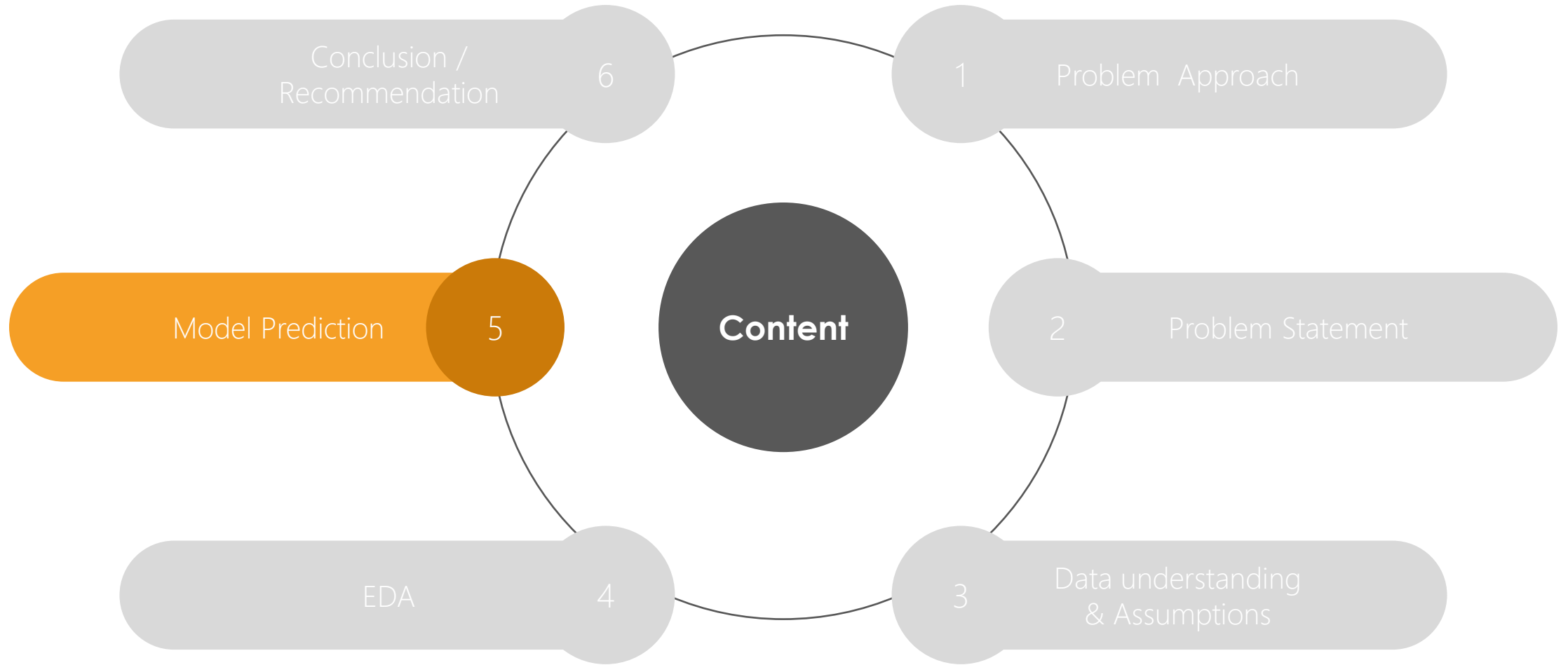


From the above we can notice that most of the leads are from Mumbai city

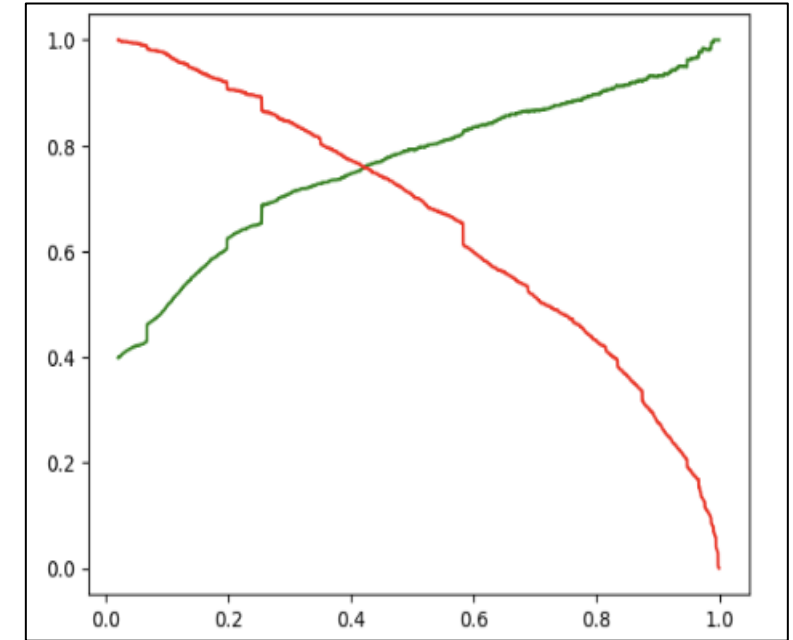
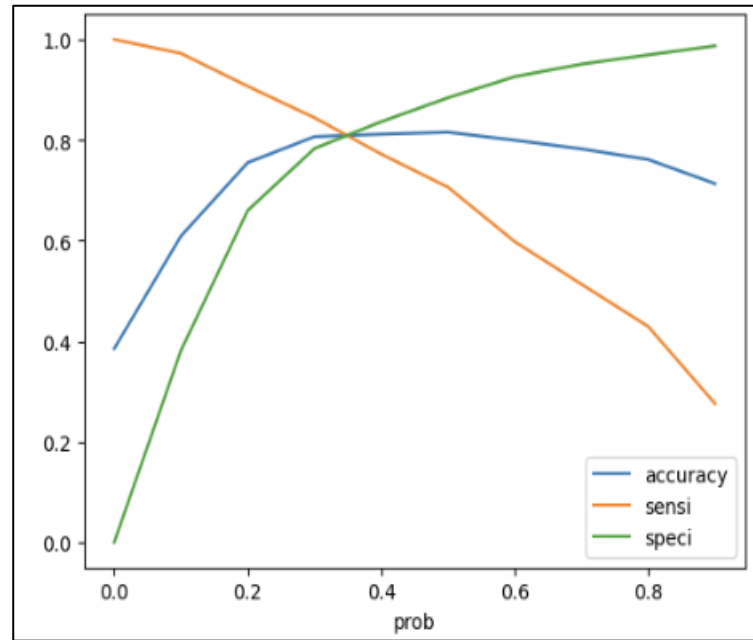
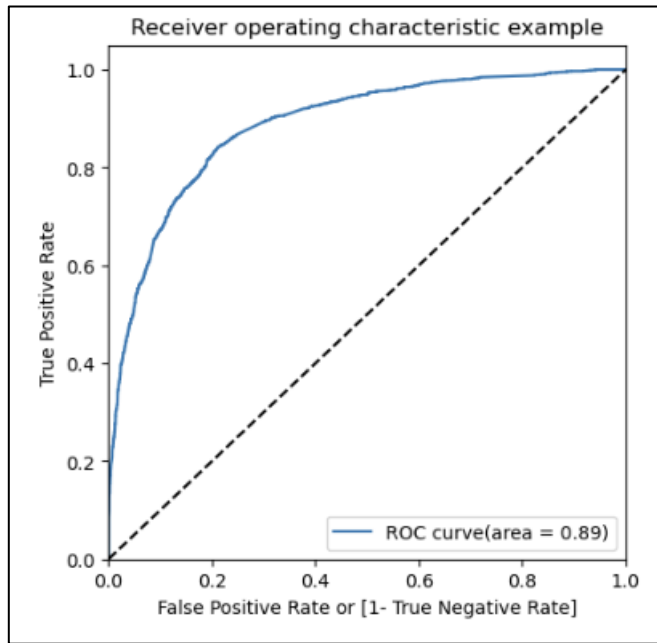


Leads with SMS sent as the Last Notable Activity has the high conversion rate

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Model Prediction



Train data:

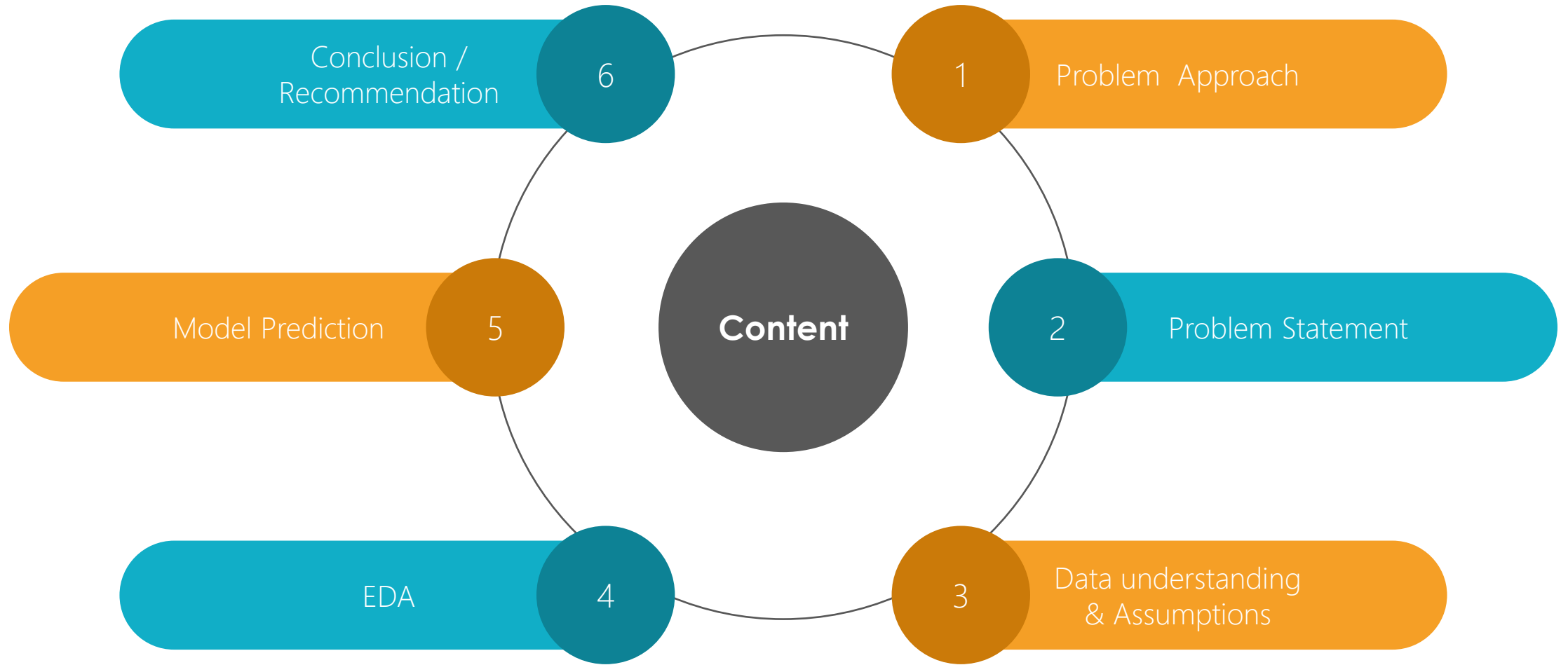
- Accuracy: 81.5%
- Sensitivity: 70.6%
- Specificity: 88.39%

Test data:

- Accuracy: 80.24%
- Sensitivity: 80.33%
- Specificity: 81.17%

As a result our target of lead conversion rate is around 80% . The model seems to predict the conversion rate very well and satisfies CEO's target of improving the conversion rate $\geq 80\%$

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Conclusion / Recommendation

Likely leads for X Education should contact :

- Leads from the sources : 'Welingak Website' and 'Reference'.
- Leads who are Working Professional.
- Leads whose last notable activity is SMS sent
- Leads who spend most of the time on Website
- Leads whose Last Notable Activity is Email Opened
- Leads whose Last Activity_Had a Phone Conversation

Not Likely leads for X Education:

- Leads whose Specialization are others
- Leads whose Last Activity is Olark Chat Conversation
- Leads whose lead sources are : 'Google', 'Organic Search', 'Referral Sites', 'Direct Traffic'
- Leads who selected the option for 'Do Not Email' as 'Yes'



Thank You

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