

03.06.25

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Customer Attrition Telecom Analysis



Agenda

- 01** Introduction
- 02** Data
- 03** Modeling
- 04** Recommendations and Conclusions
- 05** Next Steps

01

Introduction



Understanding Customer Attrition



Company is a telecommunications company that wants to minimize revenue loss due to customer attrition. In order to retain customers, the company is interested in the following:

- Can customer attrition be predicted?
- Are there any patterns associated with customers that discontinue its service?

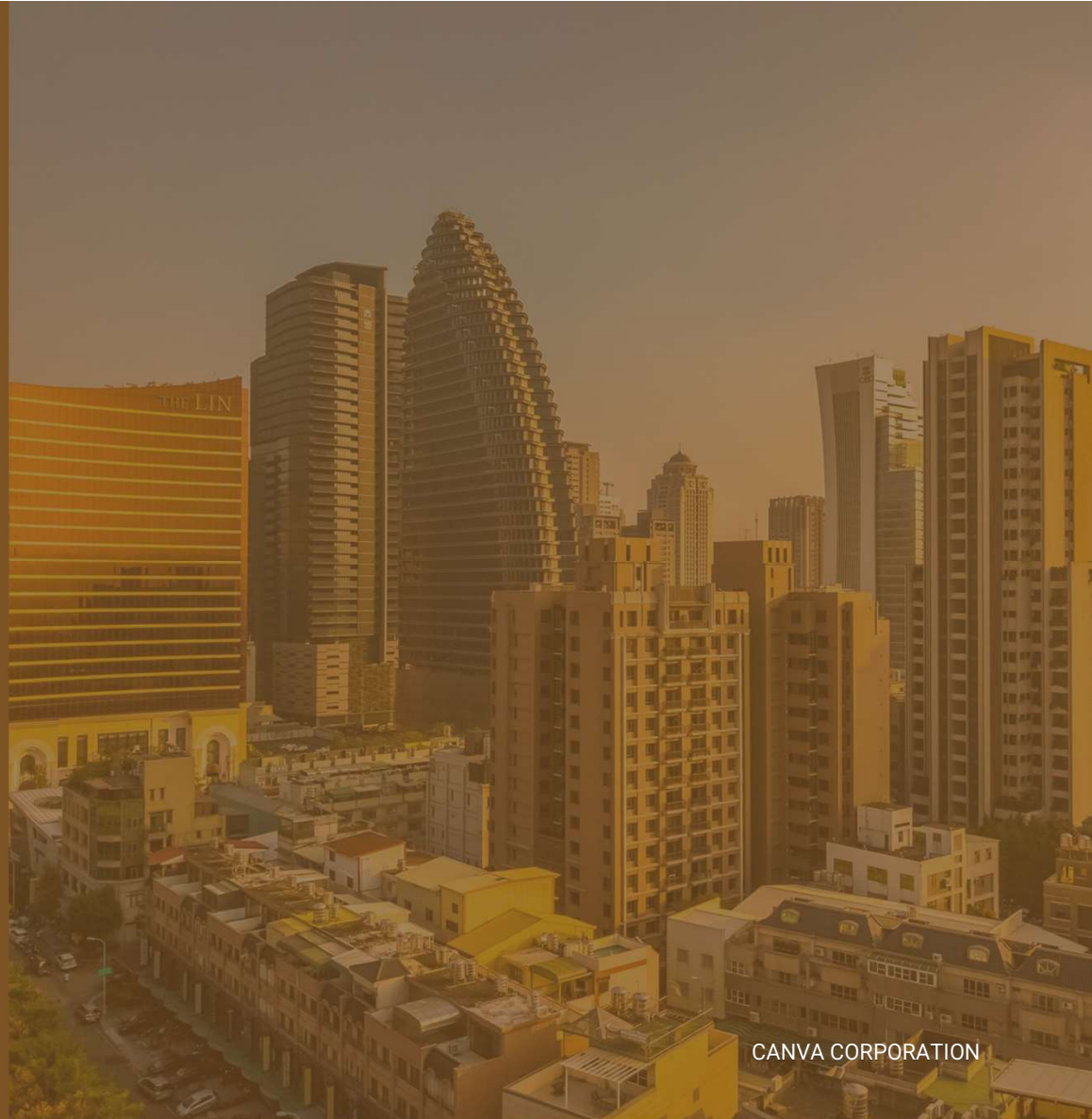
Modeling.....

Completed the following:

- Created a model to predict customer attrition
- Identified potential client characteristics that lead to customer attrition

02

Data



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Data Description

- csv file
 - 3,333 Observations, or Customers
 - 20 Columns, or Features
- Columns include, but not limited, to the following:
 - *State*
 - *Phone Number*
 - *International Plan* (Does the customer have an international plan?)
 - *Voicemail Plan* (Does the customer have a voicemail plan?)
 - *Total Day Charge*
 - *Total Night Calls*

03

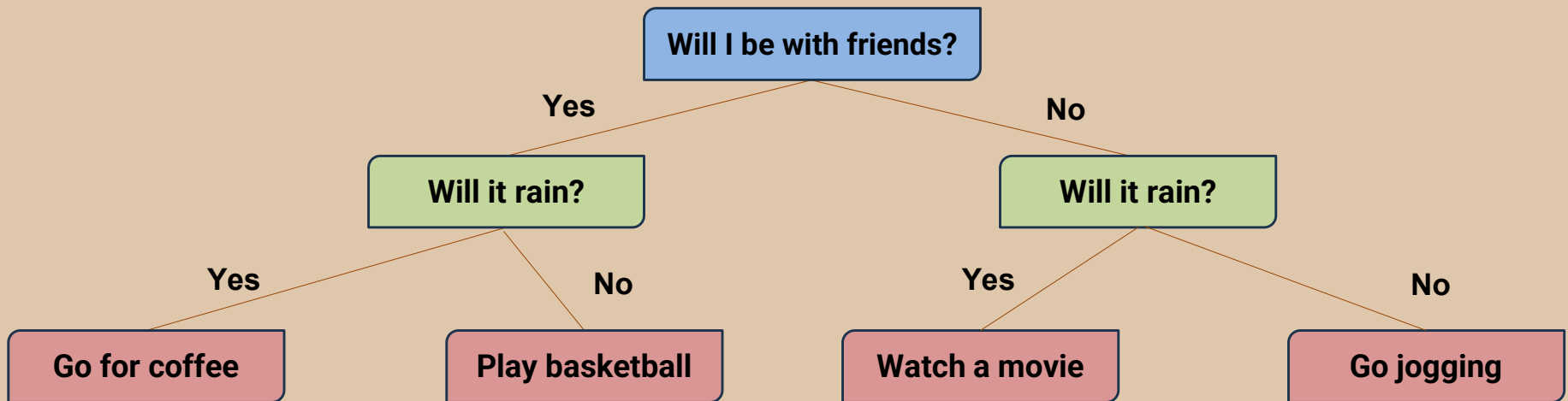
Modeling



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Decision Tree

- What is a Decision Tree (Model)?
 -tree-like graph with nodes representing the place where we pick an attribute and ask a question.....*



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Model Accuracy

- 92%
- How is Accuracy Calculated?

$$= \frac{\text{Number of Observations Correctly Identified}}{\text{Total Number of Observations}}$$

$$= \frac{765}{834}$$

Features

- Most Important Model Features

Rank	Feature
1 st	Customer Service Calls
2 nd	Total Day Charge
3 rd	International Plan
4 th	Total Evening Charge
5 th	Total International Calls
6 th	Total Evening Minutes

- Homeownership
 - Price, Square Feet, Commute Time.....

04

Recommendations and Conclusions



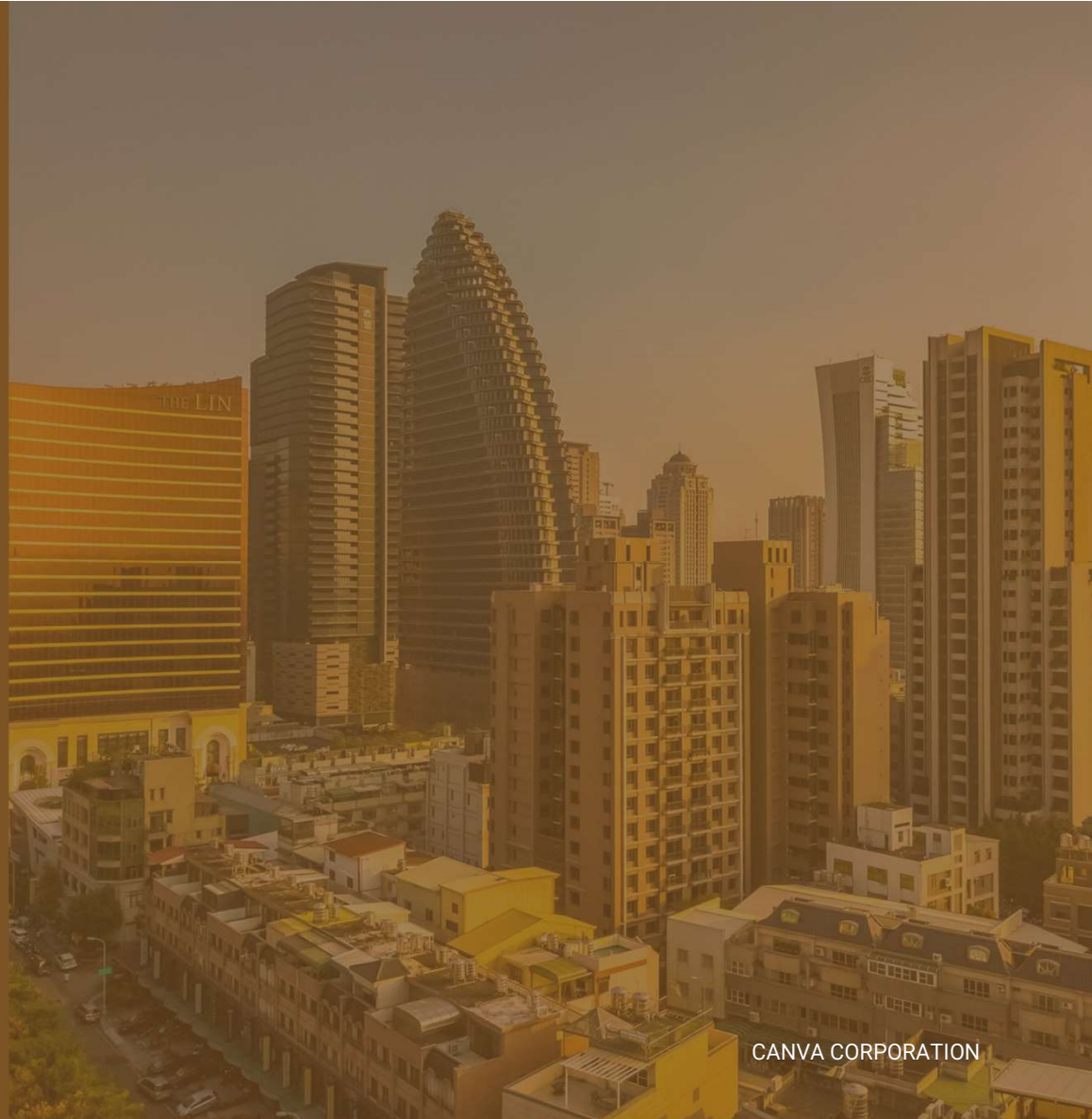
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Recommendations and Conclusions

- Continue with Current Decision Tree Model
 - 92% Accuracy
 - Room for Improvement.....

05

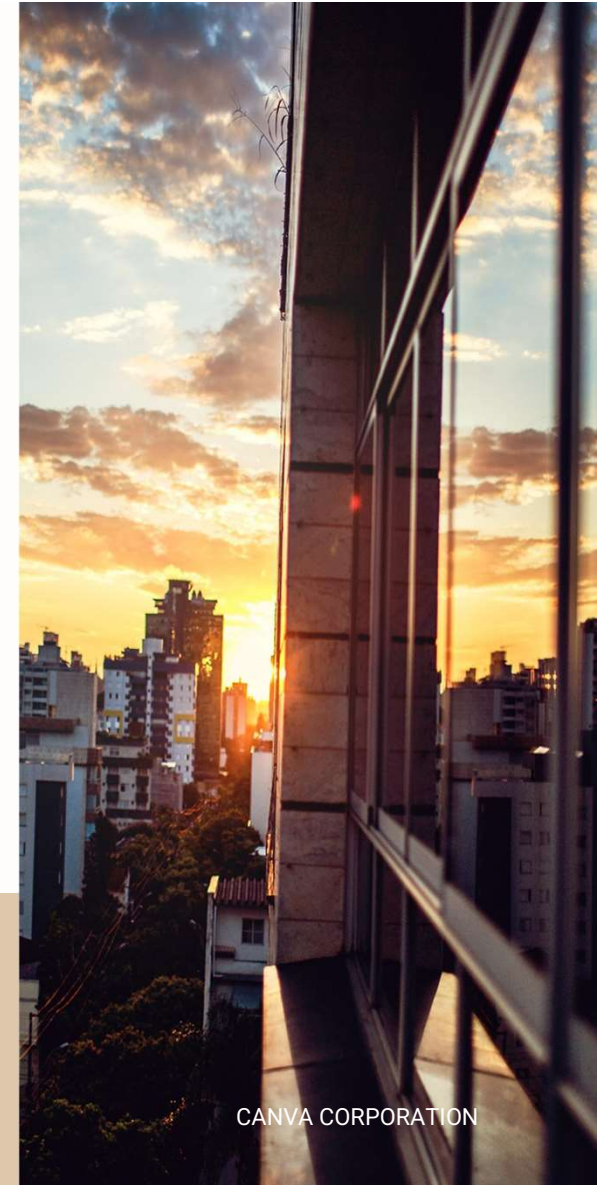
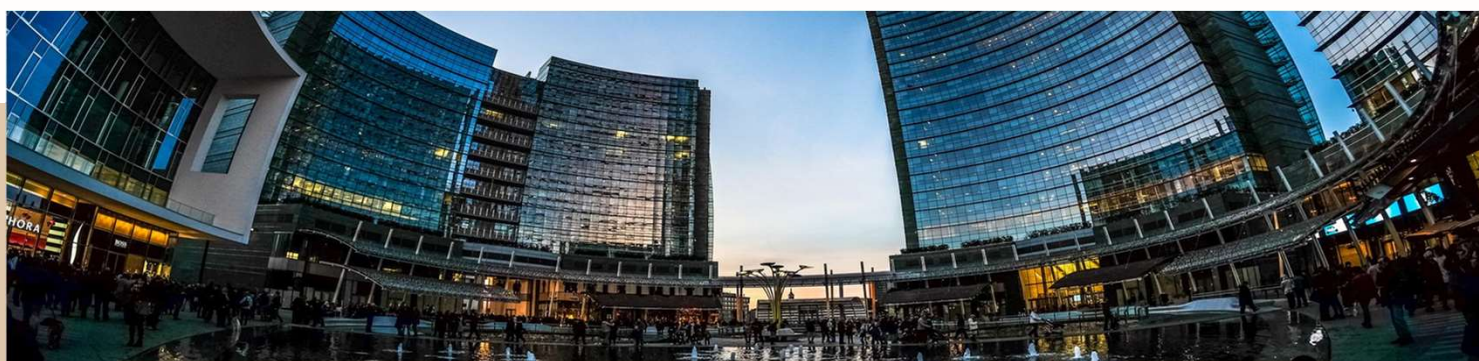
Next Steps



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Next Steps

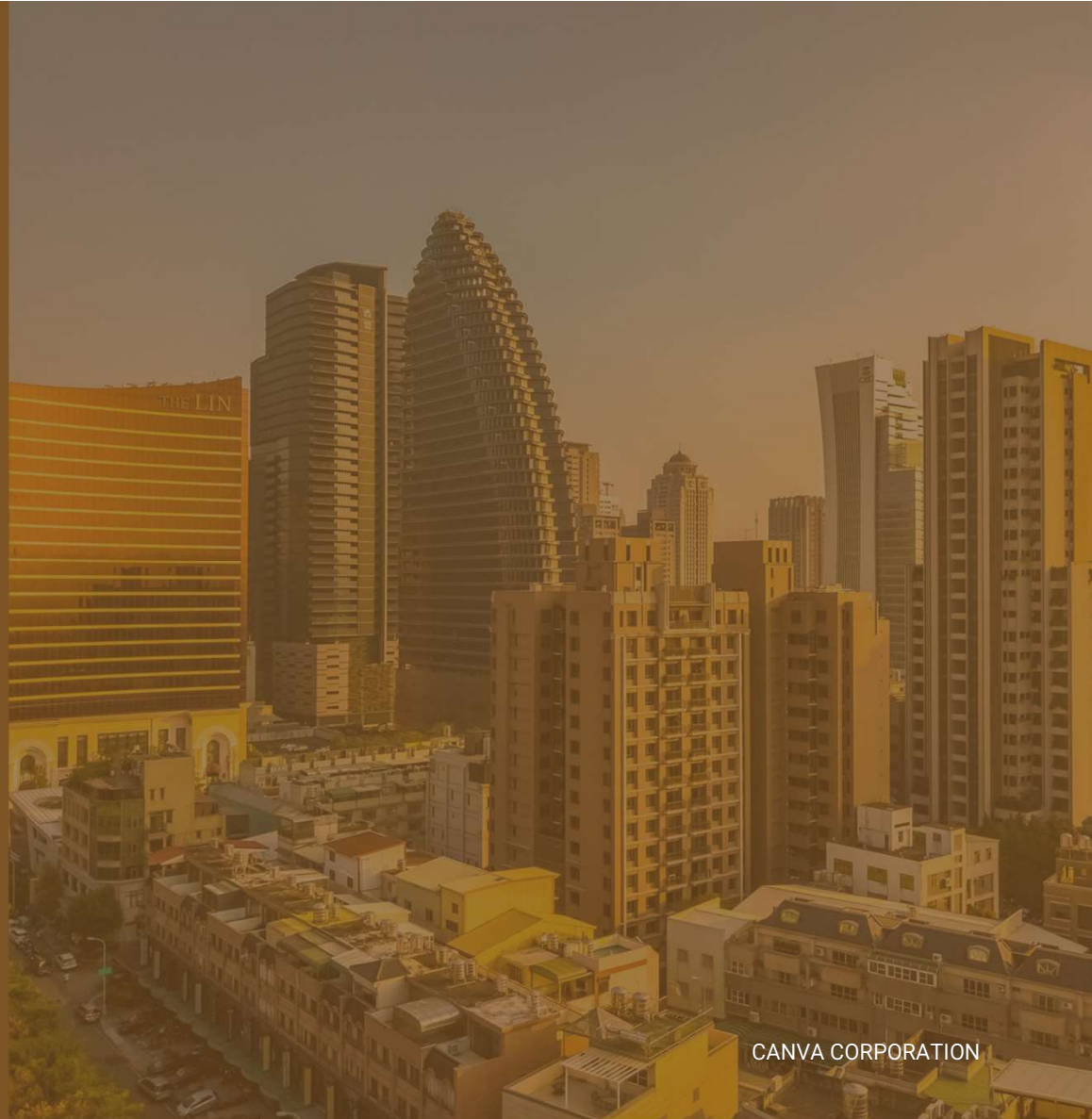
- 1 – Present and Educate Other Model Metrics (i.e. – Recall)
- 2 – Further Understand Most Important Model Features (i.e. – Customer Service Calls)
- 3 – Incorporate Feedback and New Information into Decision Tree Model



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06

Appendix



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Appendix

- Dey, Diganta. (2024). "Predictive Analytics with Decision Trees: A Beginner's Guide."
- Habib, Jaber. (2024). "Understanding Decision Tree Classifier: A Comprehensive Guide."
- Penumudy, T. (2021). "Decision Tree for Dummies."