

# Customer Term Deposit Predictor

Meagan Gardner, Elshaday Yoseph, Shell Ou, Henry Ha

## Land Acknowledgement

*With gratitude, we would like to acknowledge we are located on the traditional, unceded, ancestral territories of the  $x\ m\acute{a}\ k\ \acute{a}y\acute{a}m$  (Musqueam),  $Skw\acute{w}\acute{w}\acute{í}mesh$  (Squamish), and  $s\acute{a}lilw\acute{a}ta$  (Tsleil-Waututh) First Nations, whose historical relationships with the land continue to this day.*

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## Presentation Overview

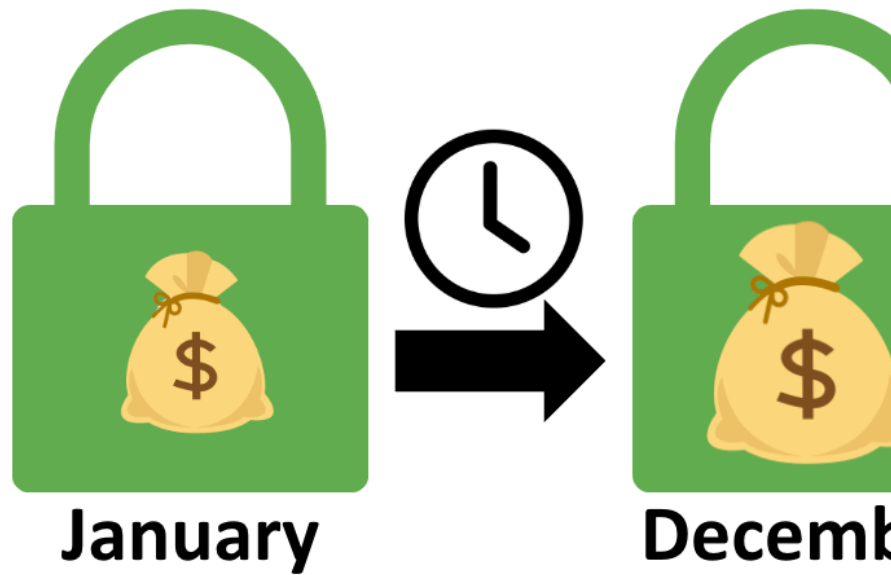
- **Meagan:** Background and research question
  - **Elshaday:** Exploratory Data Analysis
  - **Shell:** Logistic Regression Model
  - **Henry:** Results and conclusion
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## Canada's Investment Landscape

- 79% of Canadians recognize the importance of investing
  - Only 48% actually invest annually
  - Over half of those that don't invest state a fear of losing money
  - **The Opportunity:** Low-risk investment options!
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## What is a Term Deposit?

- A low-risk, steady way to grow your savings



- Keeps initial investment secure
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## Our Research Goal

We aim to determine whether a machine learning model can predict if a customer will agree to open a term deposit

- This will lead to:
  - More targeted campaigns
  - Cost effectiveness
  - Improved customer relationships.

## Exploratory Data Analysis

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**Elshaday Slides (to be updated)**

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**Elshaday Slides (to be updated)**

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**Elshaday Slides (to be updated)**

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**Elshaday Slides (to be updated)**

**The Model**

**Shell Slides (to be updated)**

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**Shell Slides (to be updated)**

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**Shell Slides (to be updated)**

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**Shell Slides (to be updated)**

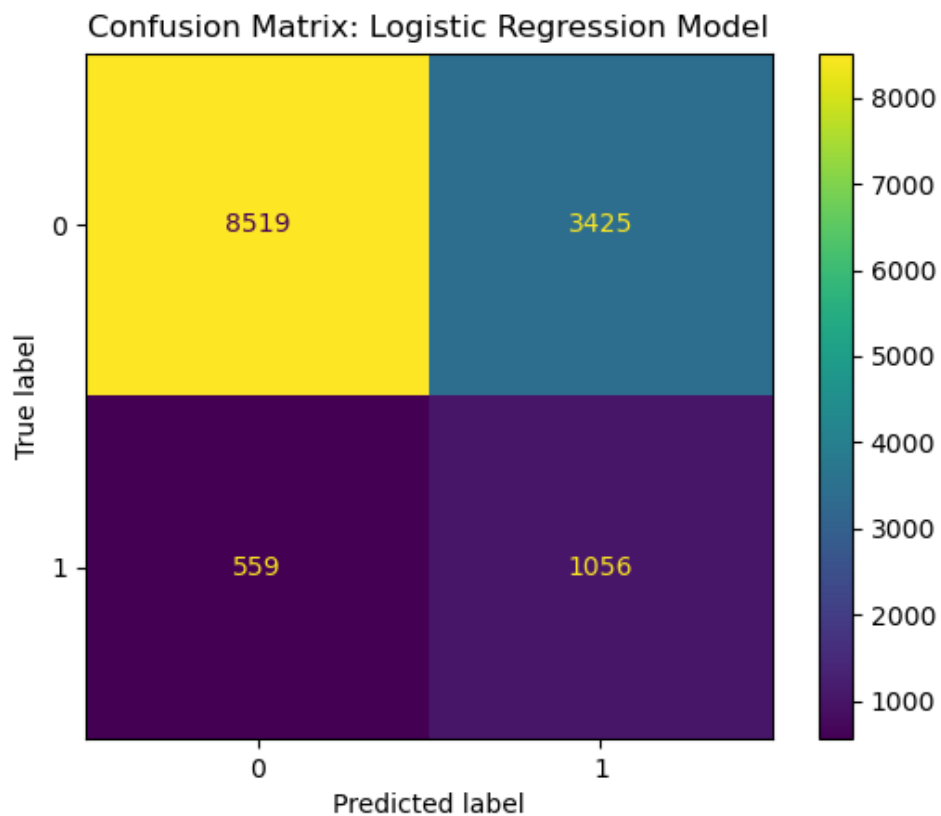
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Shell Slides (to be updated)

## Results and Discussion

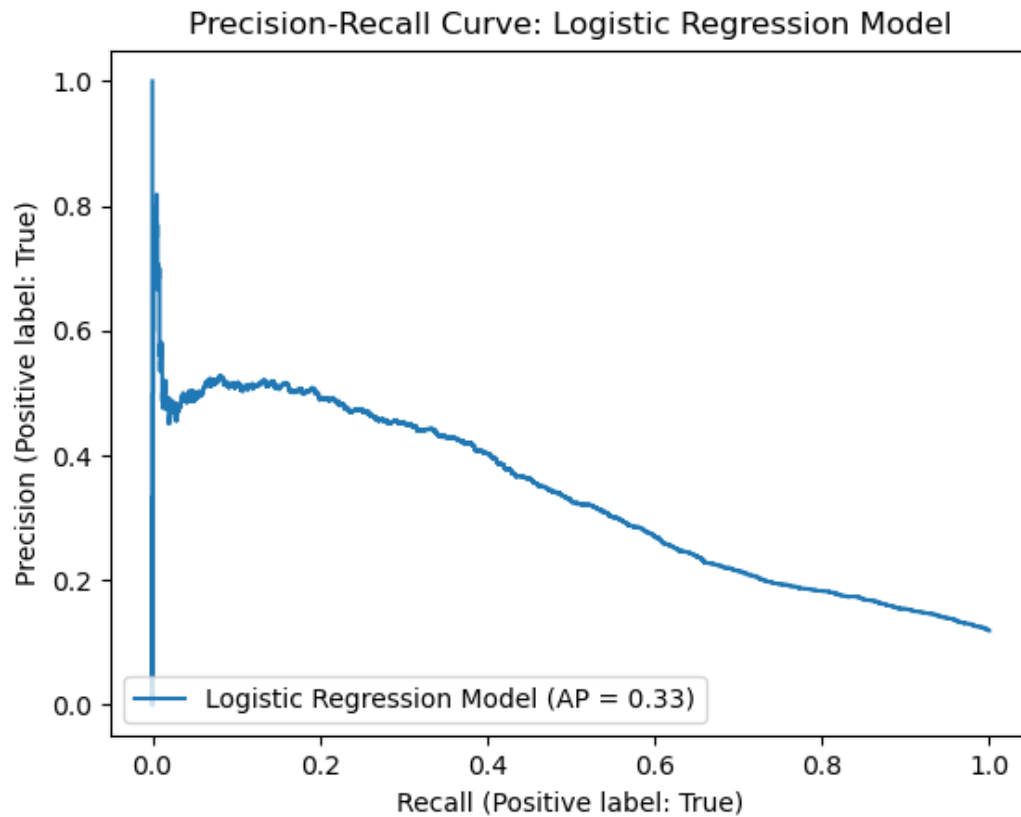
### Confusion Matrix

- Key Insights
  - Strong performance for non-subscribers.
  - Low precision for subscribers (0.24).
  - Highlights true positives, true negatives, false positives, and false negatives.



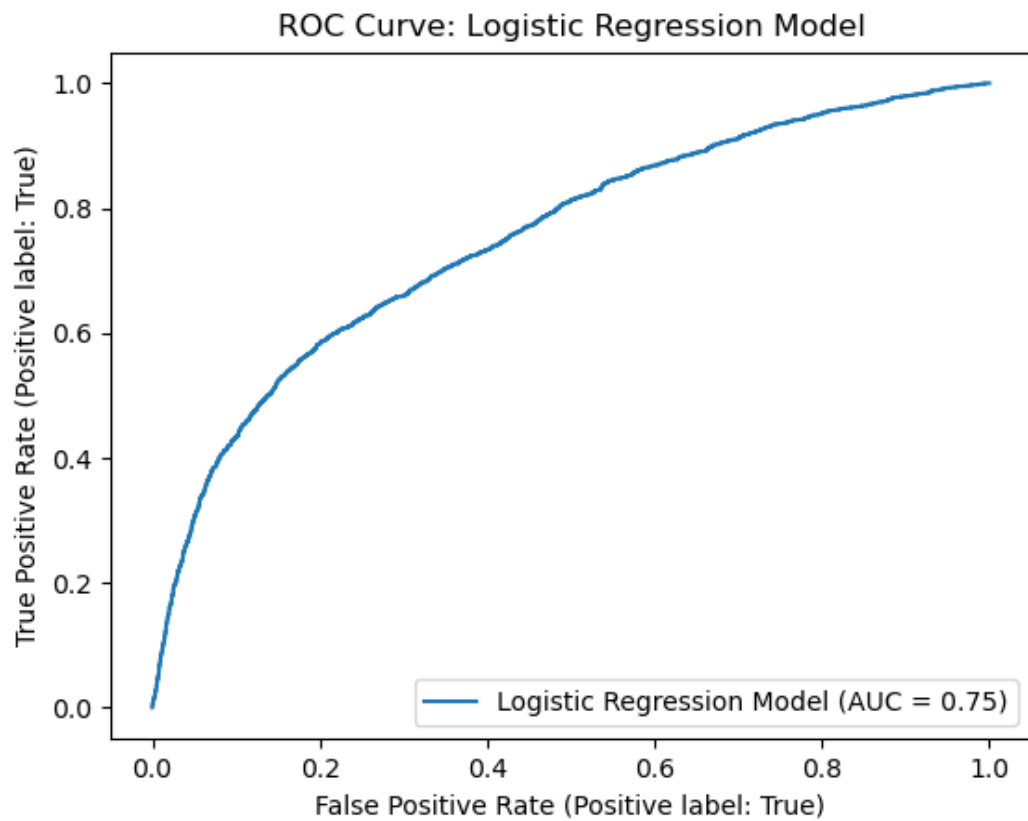
## Precision-Recall Curve

- Key Insights:
  - Precision-recall trade-off is critical.
  - Impact of threshold adjustments on precision and recall metrics.



## ROC Curve

- Key Insights:
  - AUC score of 0.75 suggests moderate predictive power.
  - Useful for assessing model performance across thresholds.



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## Limitations

- Key Points:
    - Dataset Imbalance: Significant imbalance affects precision.
    - Precision Issues: Low precision for term deposit subscribers.
    - Model Scope: Logistic regression may not capture complex relationships.
    - Feature Limitations: Lack of features like transaction history impacts performance.
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## Practical Implications

- Applications:
    - Optimize marketing strategies using model predictions.
    - Efficient resource allocation.
  - Challenges:
    - Low precision increases costs by targeting non-subscribers.
    - Improvements in precision are needed for better efficiency.
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## Future Research Directions

- Suggestions:
  - 1) Advanced Models: Use Random Forests or Gradient Boosting Machines to improve precision and accuracy.
  - 2) Additional Features: Include transaction history or customer engagement metrics.
  - 3) Economic Context: Integrate external factors such as interest rates or market conditions.

## Questions?

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