

**PROJECT**

**CUSTOMER CHURN  
ANALYSIS FOR NEO  
TELECOM**

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# INRODUCTION

**In today's competitive telecom industry, customer retention is paramount. As the data scientist at Neo Telecom, my focus is on combating customer churn – the phenomenon where customers switch to competitors. By analyzing the customer\_churn dataset, I aim to uncover patterns, drivers, and predictors of churn. Through data manipulation, visualization, and predictive modeling, I seek to develop actionable insights and strategies to retain customers and sustain Neo Telecom's growth in the market.**



## About Company

Neo Telecom is a leading telecommunications company dedicated to providing innovative solutions and exceptional services to its customers. With a strong commitment to customer satisfaction and technological advancement, Neo Telecom has established itself as a prominent player in the telecom industry.

# PROBLEM STATEMENT

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Customer churn, where customers switch from Neo Telecom to competitors, poses a significant challenge. As a data scientist at Neo, our objective is to analyze customer data, identify factors contributing to churn, and implement strategies to retain customers and reduce churn rate.

## TASK TO BE PERFORMED

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### Data Manipulation:

- Extract Specific Columns: We extract the 5th and 15th columns to explore specific customer attributes.
- Filter Records: We filter records based on conditions such as gender, age, and payment method to create targeted subsets for analysis.

### Data Visualization:

Visualization plays a crucial role in understanding patterns and relationships in the data. We create visualizations to explore and interpret the data:

- Bar Plot for Internet Service: Visualize the distribution of Internet service categories among customers.
- Histogram for Tenure: Understand the distribution of customer tenure with Neo.
- Scatter Plot for Monthly Charges vs Tenure: Explore the relationship between monthly charges and customer tenure.
- Box Plot for Tenure and Contract: Compare tenure distribution across different contract types.

### Logistic Regression:

We employ logistic regression models to predict churn based on customer attributes:

- Simple Logistic Regression: Assess the impact of monthly charges on churn.
- Multiple Logistic Regression: Evaluate the combined impact of tenure and monthly charges on churn.

### Decision Tree:

Decision tree models are effective for classification tasks such as predicting churn. We build a decision tree model using tenure as the independent variable.

### Random Forest:

Random forest models, an ensemble learning technique, combine multiple decision trees for improved accuracy. We construct a random forest model using both tenure and monthly charges as independent variables.

# DATASET OVERVIEW

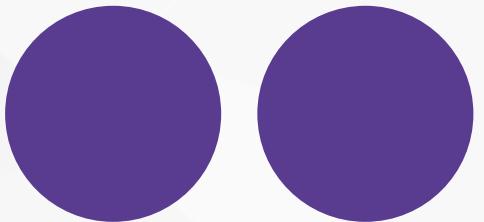
1. **CustomerID:** Unique identifier for each customer.
2. **Gender:** Gender of the customer (Male/Female).
3. **SeniorCitizen:** Indicates whether the customer is a senior citizen (1) or not (0).
4. **Partner:** Whether the customer has a partner (Yes/No).
5. **Dependents:** Indicates if the customer has dependents (Yes/No).
6. **Tenure:** The duration (in months) for which the customer has been with Neo Telecom.
7. **PhoneService:** Whether the customer has phone service (Yes/No).
8. **MultipleLines:** Indicates if the customer has multiple lines (Yes/No).
9. **InternetService:** Type of internet service subscribed by the customer (DSL, Fiber optic, No).
10. **OnlineSecurity:** Indicates if the customer has online security service (Yes/No).
11. **OnlineBackup:** Indicates if the customer has online backup service (Yes/No).
12. **DeviceProtection:** Indicates if the customer has device protection service (Yes/No).
13. **TechSupport:** Indicates if the customer has tech support service (Yes/No).
14. **StreamingTV:** Indicates if the customer has streaming TV service (Yes/No).
15. **StreamingMovies:** Indicates if the customer has streaming movies service (Yes/No).
16. **Contract:** Type of contract subscribed by the customer (Month-to-month, One year, Two year).
17. **PaperlessBilling:** Whether the customer prefers paperless billing (Yes/No).
18. **PaymentMethod:** Method of payment chosen by the customer (Electronic check, Mailed check, Bank transfer (automatic), Credit card (automatic)).
19. **MonthlyCharges:** The amount charged to the customer on a monthly basis.
20. **TotalCharges:** The total amount charged to the customer over the tenure.
21. **Churn:** Indicates whether the customer churned (Yes) or not (No).

The dataset named `customer_churn` contains detailed information about Neo Telecom's customers, encompassing various attributes that provide insights into customer behavior and churn propensity.

This dataset provides valuable insights into customer demographics, service usage, contract details, and churn behavior, which will be leveraged to analyze churn patterns, identify churn drivers, and devise effective retention strategies.

# CONCLUSION

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**IN SUMMARY, OUR ANALYSIS AND PREDICTIVE MODELING EFFORTS ARE GEARED TOWARDS UNDERSTANDING CHURN DRIVERS AND IMPLEMENTING EFFECTIVE RETENTION STRATEGIES AT NEO TELECOM. BY UNCOVERING INSIGHTS, WE AIM TO REDUCE CHURN RATE, ENHANCE CUSTOMER SATISFACTION, AND BOLSTER OUR MARKET POSITION. THIS PROJECT SIGNIFIES OUR COMMITMENT TO CUSTOMER-CENTRICITY AND INNOVATION IN THE TELECOMMUNICATIONS INDUSTRY.**

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A photograph of four diverse business professionals in a meeting room. A man on the left wears glasses and a grey turtleneck. A woman in the center has blonde hair and glasses, smiling. A man on the right wears glasses and a maroon sweater over a white shirt. Another man's profile is visible on the far right. They are seated around a table with laptops.

# THANK YOU

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