Problems and background

The fictional telecommunications company, serving 7,043 customers in California, faces significant customer churn. The dataset includes customer demographics, location, services, and churn status. However, poor data quality, such as inconsistencies and missing values, could hinder accurate analysis and decision-making. Improving data quality is essential to better understand churn drivers and develop effective retention strategies.

Solution

1. **Data Analysis**:
   Clean and preprocess the dataset to remove inconsistencies, handle missing values, and accurately represent customer demographics and churn status.
2. **Data-Driven Insights**:
   Analyze churn patterns based on customer demographics, service usage, and location. Identify key factors contributing to churn and prioritize those for action.
3. **Stakeholder Engagement**:
   Share findings with relevant teams, including marketing and customer service, to develop targeted retention strategies and improve customer satisfaction based on data insights.

Project scope

Objective: Identify factors contributing to customer churn in the telecom industry.

Process:

- **Data Collection:** Gather customer data including demographics, usage patterns, and churn indicators.
- **Data Cleaning:** Preprocess data to handle missing values and outliers.
- **Exploratory Data Analysis (EDA):** Analyze data to identify trends and patterns related to churn.
- **Predictive Modeling:** Develop models to predict churn and identify high-risk customers.
- **Strategy Development:** Propose actionable strategies to improve retention based on insights.

Timeline:

- **Week 1-2:** Data collection and cleaning.
- **Week 3-4:** EDA and pattern identification.
- **Week 5-6:** Model development and validation.
- **Week 7:** Strategy formulation and report preparation.

Stakeholders:

- **Internal:** Data analysts, marketing team, and customer service team.
- **External:** Customers, telecom service providers, and business executives.

Methodology

Elaborate the processes given with respect to your project

- **Data sources**
1. SQL
2. AWS
3. Data Scraping
4. Local data sources
- **Data wrangling**
1. Data understanding
2. Data cleaning
3. Data merging and joining
4. Data manipulation
- **Data analysis**
1. Finding the trends and patterns
- **Data visualization**

Goals and KPIs

- **Total Revenue:** Measure the overall income generated from customers. **Goal:** Achieve revenue growth of 10%+.
- **Average Charges:** Assess the average amount charged per customer. **Goal:** Maintain or increase the average charges by 5%+.
- **Total Cities:** Track the number of cities where services are offered. **Goal:** Expand into 3 new cities.
- **Total Churn:** Monitor the percentage of customers leaving the service. **Goal:** Reduce churn rate by 15%+.

Technical Processes

VLOOKUP:

- **Use:** Employed to merge customer data from different sources by matching IDs. This process helps consolidate information for comprehensive analysis, such as linking customer demographics with usage patterns.

Pandas Data Cleaning:

- **Use:** Utilized to preprocess and clean customer data. This involves handling missing values, removing duplicates, and correcting data inconsistencies to ensure accurate analysis of churn factors.

Schema Creation for Database:

- **Use:** Developed a structured schema to organize customer data in a relational database. This schema supports efficient data retrieval and management, facilitating detailed analysis and modeling for predicting churn.

Business Concepts Used

Market Understanding:

- **Use:** Analyze market trends and competition to identify factors affecting customer churn. This helps in aligning retention strategies with market demands and improving service offerings.

Customer Demographics:

- **Use:** Examine demographic data (age, income, location) to understand which groups are more prone to churn. This insight aids in tailoring marketing and retention efforts to specific customer segments.

Customer Behavior:

- **Use:** Assess usage patterns, service interactions, and customer feedback to pinpoint behaviors that precede churn. This allows for proactive measures to address issues and enhance customer satisfaction.

Customer Retention:

- **Use:** Implement strategies based on churn analysis to retain existing customers. This includes personalized offers, loyalty programs, and improved customer support to reduce churn rates.

New Customer Acquisition:

- **Use:** Develop targeted campaigns to attract new customers, informed by churn analysis and market understanding. Effective acquisition strategies ensure a steady growth of the customer base while maintaining overall profitability.

Recommended Analysis:

Key Drivers of Customer Churn:

- Competitors had better devices.
- Competitors made better offers.
- Attitude of support person.
- Competitors offered more data.
- Uncertainty or lack of clear reason.

High-Value Customer Retention:

- **Match or Exceed Competitor Offers:** Launch promotions with better devices, competitive pricing, and higher data limits.
- **Improve Customer Service:** Enhance support training and assign dedicated account managers.
- **Launch Loyalty Programs:** Offer exclusive deals, early device upgrades, and special pricing.
- **Invest in Product and Network Quality:** Improve network reliability and product quality.
- **Offer Flexible Pricing Models:** Introduce customizable or tiered pricing options.

Customer Status Percentages:

- Stayed: 67.02% (4,720 customers)
- Churned: 26.54% (1,869 customers)
- Joined: 6.45% (454 customers)

Preferred Payment Method by Churned Users:

- Bank Withdrawal: 71.11%
- Credit Card: 21.29%
- Mailed Check: 7.60%

Top Cities with Highest Churn:

- San Diego: 185 churned customers
- Los Angeles: 78 churned customers

Preferred Churn Offers:

- Offer E: 52.08%
- Offer D: 19.68%
- Offer B: 12.35%
- Offer C: 11.61%
- Offer A: 4.28%

Project owner

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