### **Problems and background**

This analysis investigates customer churn within a California-based telecom company serving 7,043 customers. By examining demographic, location, service usage, and churn status data, we aim to identify patterns and factors contributing to customer attrition.

### **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.

**Stakeholders:**

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

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### **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**

### **Goals:**

* **Reduce customer churn:** Decrease the rate at which customers discontinue their services.
* **Improve customer satisfaction:** Enhance overall customer satisfaction with the telecom company's products and services.
* **Increase customer lifetime value:** Extend the duration of customer relationships and maximize revenue generated from each customer.

### **KPIs:**

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### **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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