Business Intelligence

Mini project report

Telecom Customer Churn

I. Project Description

We chose to study the churn prediction of Telecom customers in the American state of California to study the primary reasons for customers not renewing contracts and leaving for other competitor brands and finding potential solutions that would improve customer retention.

In this project, we used a dataset containing 2 tables:

1. The Customer Churn table: contains information on all 7,043 customers from a Telecommunications company in California in Q2 2022. Each record represents one customer and contains details about their demographics, location, tenure, subscription services, and more.
2. The Zip code Population table: contains complimentary information on the estimated populations for the California zip codes in the Customer Churn table.
3. Plus, a data dictionary that gives a general description of what each column entails.

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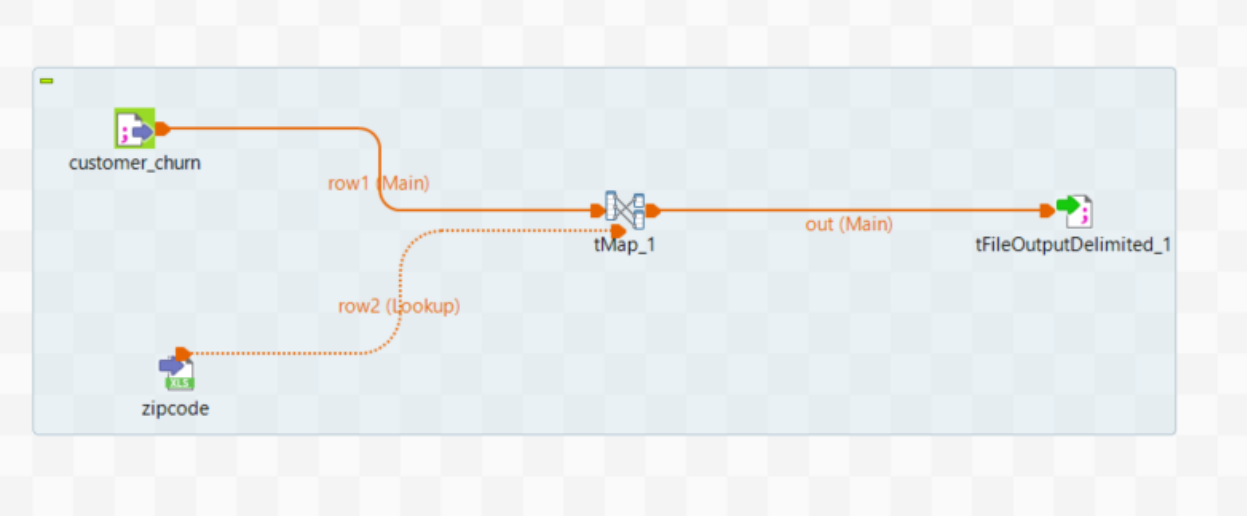
II. Dataset modification

Using Talend:

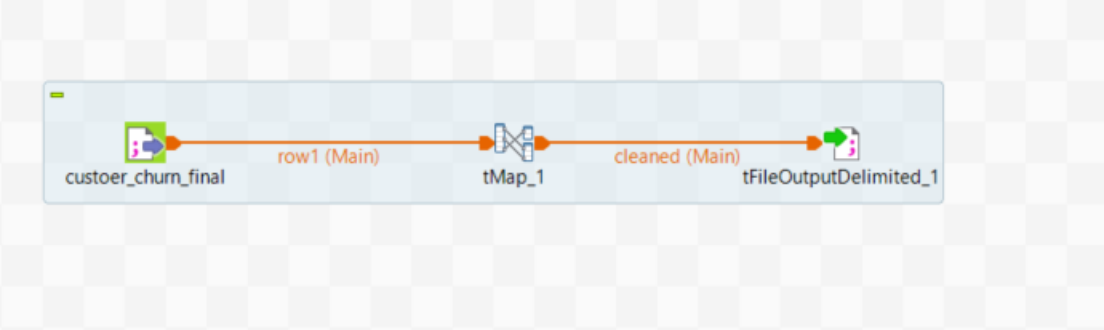
Step 1: Data integration:

We introduced both tables "telecom_customer_churn.csv" and "Telecom_zipcode_population.xlsx" into the Talend interface and using the tMap component we were able to fuse the 2 tables to get a table that contains the combined columns.



Step 2: Data reduction and cleaning:

In this step, we selectively eliminated rows keeping only those containing "customer_status = churned" by imposing conditions on the tMap and we were successful in reducing the number of rows from 7,043 to 1,587.



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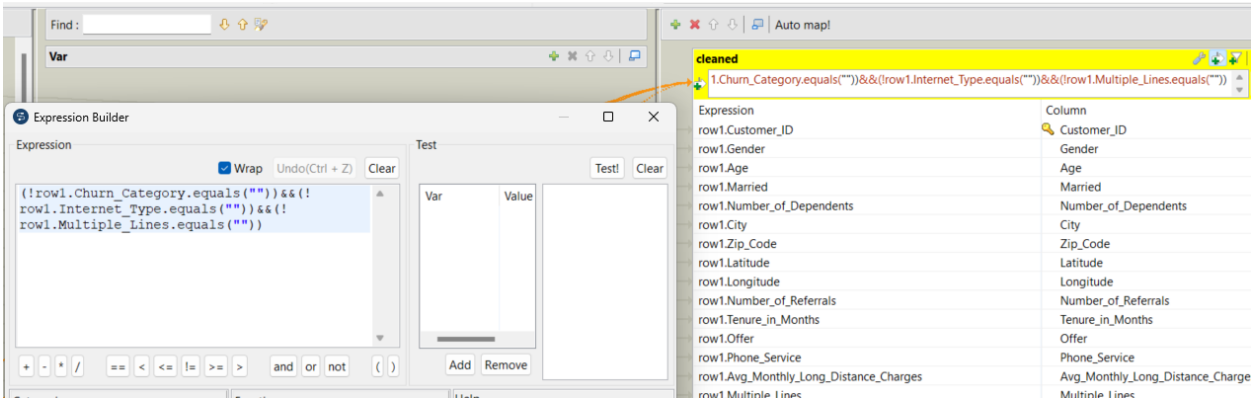
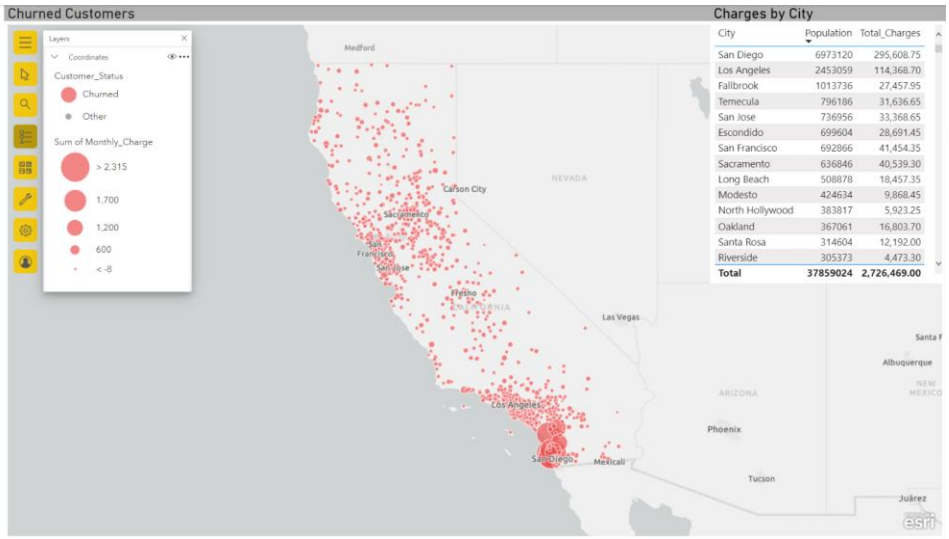


III. Data visualization

Page 1:

The 1st report page is a map that gives a general overview of the number of customers who churned due to the high charge rate of Telecom on its services. It shows a very high dispersion rate across the state of California with an especially high concentration in Los Angeles, San Diego, and San Francisco. Plus, a table holding the populations and total charges on telecom services for each city shows again the area of concentration of the churn movement.



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Page 2: Customer preferences

1. Pie Chart 1: shows the cause of customer churn in relation to the amount of money they are charged for Telecom services: It can be summarized as the customers seeking other service providers which are competitors of Telecom that charge their services for cheaper and give more additional offers and add-ons while the other reasons are equal such as the dissatisfaction of customers.
2. Bar chart: refers to the number of referrals per customer filtered by age: (number of referrals being the number of times a current customer referred a potential customer to the services) We see that the dominant majority has an average referral rate of less than 1 which can be an indicator on the popularity of the services between customers but also we can see a high rate comparison for some age groups especially young adults at the age of 24.
3. 3rd and 4th charts go hand-in-hand to show the efficiency of the offers that Telecom provides (offer from A to E) when it comes to the revenue they generate as well as how much Telecom charges for said offer; it is clear that Telecom's offers don’t go well with its customers as shown by offer E's high charging costs and its low revenue generation followed closely by offer D which is less costly but is equally inefficient of generating good revenue. As for the pie chart, we can clearly see that customers don't invest in these offers but customize their service plan thus 57% of customers did not choose any offer.

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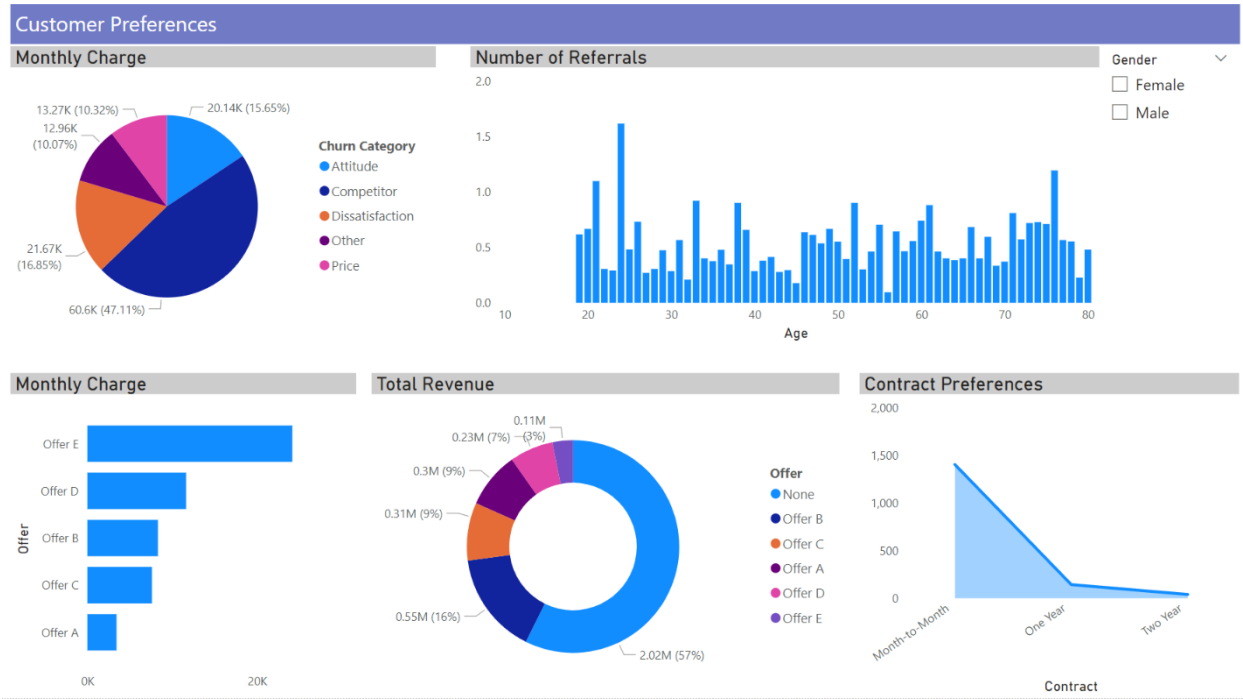
4. The 5th air graph shows which of the 3 contract strategies are most popular among customers. It shows that the month-to-month contract plan is the go-to plan for most customers, which is not a good indicator as there are not much long term customers who will keep being loyal to the Telecom services.



Page 3: Services & Revenues

It is a showcase of the different services offered by Telecom:

The pie chart ranks these services from most popular to least popular services and the bar charts show the approval of customers on the three most popular services (Unlimited Data, TV Streaming, Music Streaming) and the least popular services (Premium Technical Support, Online Security) and their respective revenues.

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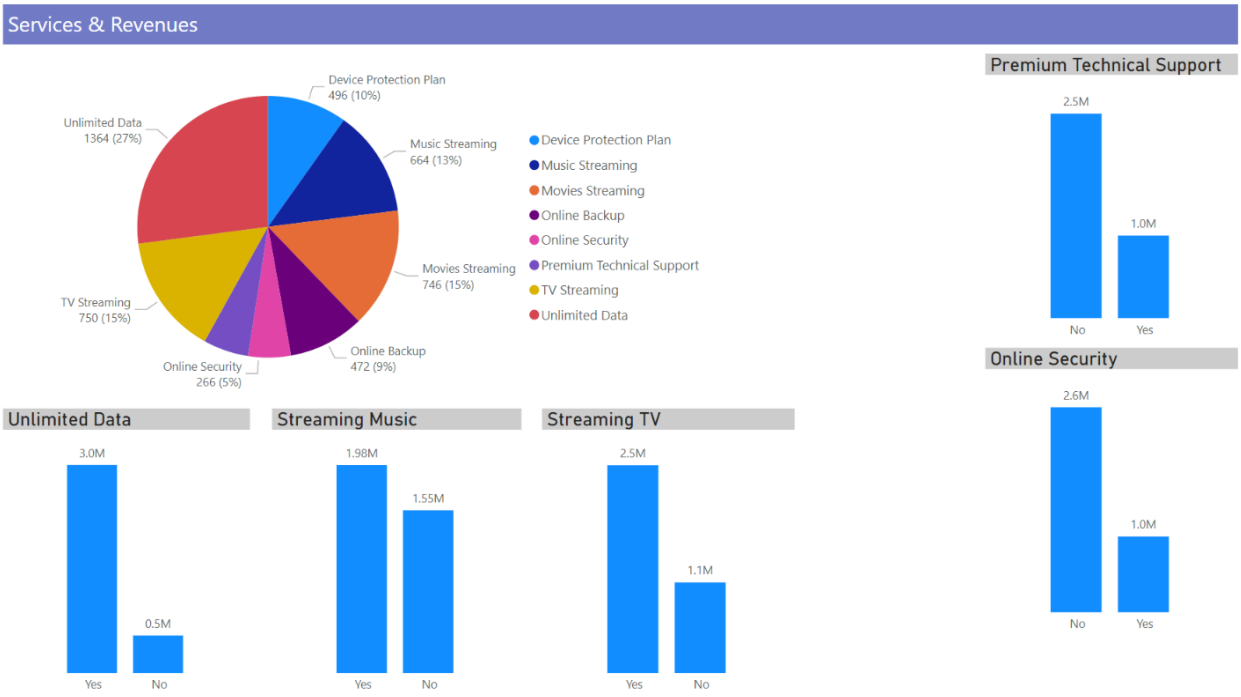

Page 4:

It is a set of indicators that MIGHT predict customer behavior towards Telecom services:

The Internet type greatly affects the payment method used by customers which is then reflected in the air graph down below where Bank withdrawal the most popular Internet type also affects the tenure rate of the customers.

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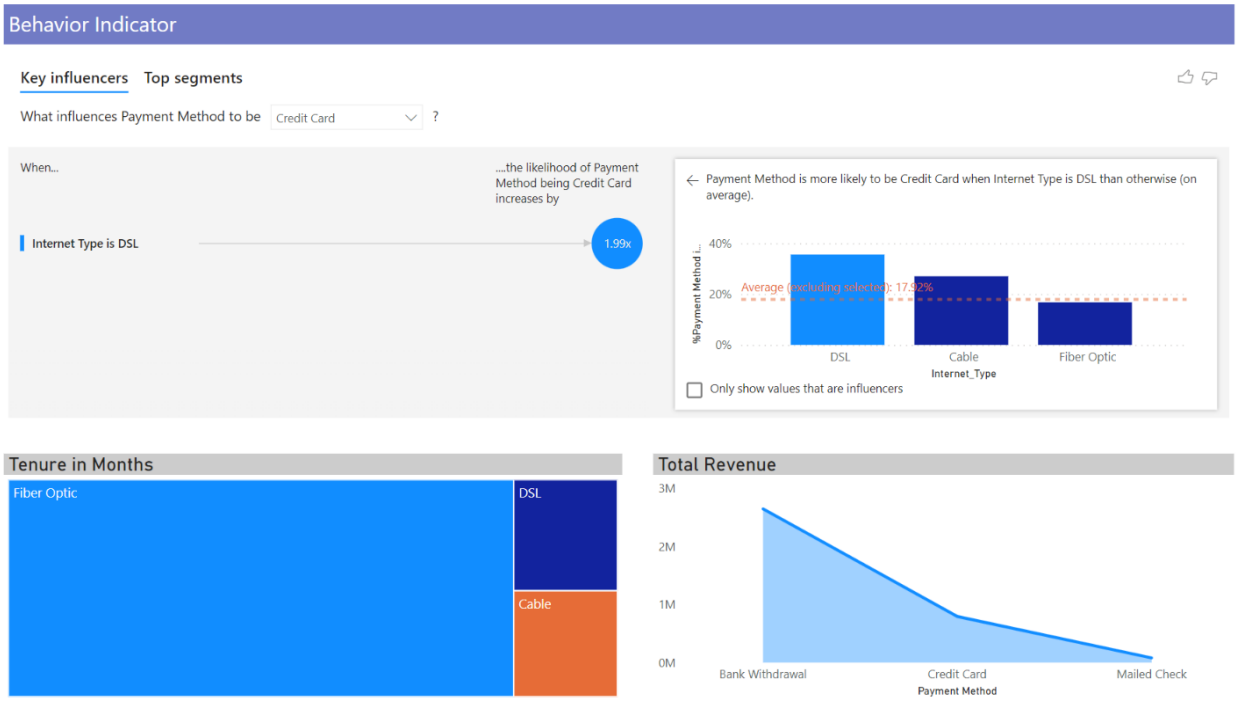

IV. Conclusion :

For Telcom to overcome the problem of customer churn from its services it needs to :

- Research its competitors to figure out what is attracting its customers and compose a strategy that will stop customers from migrating to said competitors and attract new customers.
- Revise the offers that it provides for the customers because they are greatly overlooked now with consumers mostly choosing for themselves what services to get and advertising these new revised offers so they can be picked up. Also, try to minimize the charging cost of these offers to not overwhelm them.

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- Try to upgrade its less used services so people can pick them up and maintain them while maintaining the popularity of its most popular ones.
- Focus on certain cities mainly Los Angeles and San Diego as they are the areas where churned customers are highly concentrated.

- Problems we faced in the Processes:

Dataset search was one of the challenges as well as the irrelevant information that needed to be filtered from the dataset.

PS: All files are included in the attached zip file.

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