NORTHERN LIGHTS AIR DASHBOARD

Marital Status
Divorced | Married | Single

Education
Bachelor | College | Doctor | High School or Below | Master
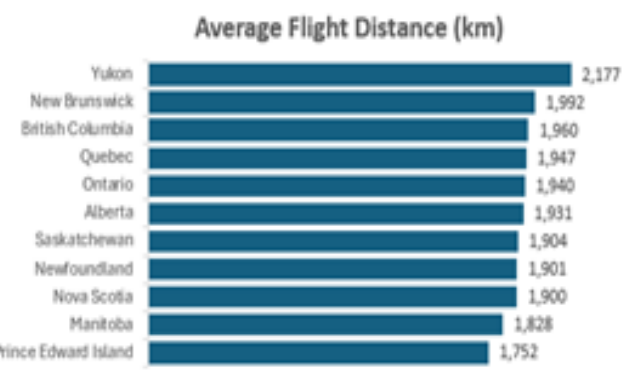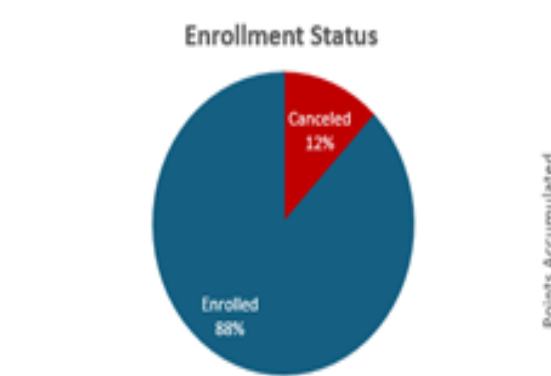
Loyalty Card
Aurora | Nova | Star

Customer Rates
■ Enrollment Rate ■ Cancellation Rate

Province	Enrollment Rate	Cancellation Rate
New Brunswick	89.5%	10.5%
Yukon	89.1%	10.9%
Nova Scotia	88.8%	11.2%
British Columbia	88.2%	11.8%
Saskatchewan	87.8%	12.2%
Ontario	87.5%	12.5%
Quebec	87.5%	12.5%
Alberta	87.4%	12.6%
Newfoundland	85.3%	14.7%
Manitoba	84.8%	15.2%
Prince Edward Island	83.3%	16.7%

Customer Trend
■ Enrolled ■ Canceled
(area chart, 2012–2018, 0 to 3.0K)

Customer Growth
Net Customers — Running Total
(line chart, 2012–2018, 0 to 14K)

Average CLV Trend
(line chart, 2012–2018, 0 to 14K)

Total Flights Booked
Province	Flights
Ontario	164,105
British Columbia	135,178
Quebec	99,973
Alberta	29,468
New Brunswick	19,960
Manitoba	19,175
Nova Scotia	15,514
Saskatchewan	12,278
Newfoundland	7,635
Yukon	3,699
Prince Edward Island	1,823

Enrollment Days Distribution
Category	Number of Customers
Enrolled	14,670
0-500	1,469
500-1,000	287
1,000-1,500	202
1,500-2,000	105
2,000-2,500	4

Enrollment Status
Canceled 12%
Enrolled 88%

Loyalty Points Trend
Points Accumulated — Points Redeemed
(2017–2018)

Average Flight Distance (km)
Province	Distance
Yukon	2,177
New Brunswick	1,992
British Columbia	1,960
Quebec	1,947
Ontario	1,940
Alberta	1,931
Saskatchewan	1,904
Newfoundland	1,901
Nova Scotia	1,900
Manitoba	1,828
Prince Edward Island	1,752

Salary Distribution
Category	Number of Customers
Unemployed	4,238
$0-$100K	10,978
$100K-$200K	1,227
$200K-$300K	285
$300K-$400K	8
$400K-$500K	1

Employment Status
Unemployed 25%
Employed 75%

Dollar Cost Points Redeemed Trend
(line chart, 2017–2018, 0 to 1.4M)
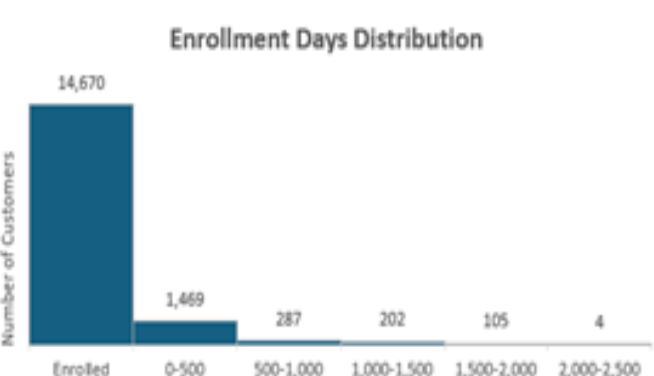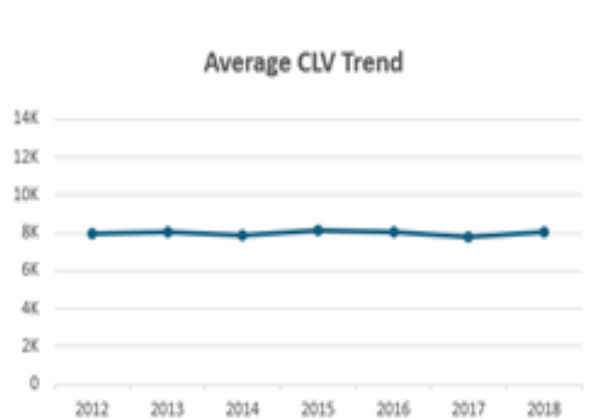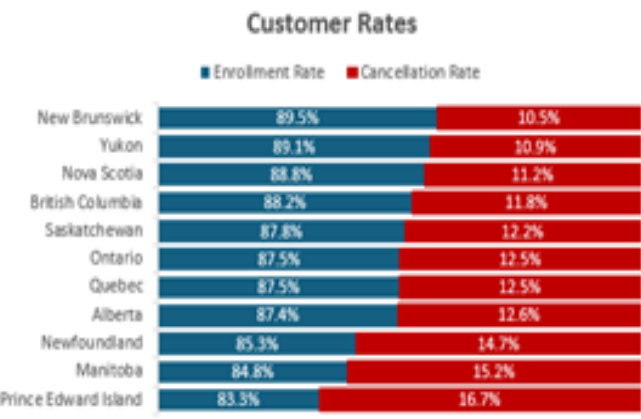
Objective

- I have just been hired as the Lead Marketing Analyst for Northern Lights Air (NLA), a Canadian airline looking to boost enrollment for their loyalty program.

- NLA ran a promotion from Feb 1st – Apr 30th, 2018, offering 1.5x loyalty card points to new members for flights booked through the remainder of the year.

- My task is to analyze the promotion's success by providing insights into loyalty program enrollments, cancellations, and flights booked during the campaign's duration.

- I will also provide recommendations to the NLA leadership team for how to run future promotions.

Approach

▶ I performed a customer segmentation analysis to determine customer loyalty.

▶ I used Excel and PowerPivot to create a dashboard and relational data model.

▶ I have uploaded all the files for this project onto my GitHub.

Scope of Analysis

▶ My customer segmentation analysis includes the following customer information:

  ▶ Enrollment and Cancellation rates

  ▶ Enrollment and Employment Status

  ▶ Salary Distribution

  ▶ Total Flights

  ▶ Average Flight Distance

  ▶ Loyalty Points Accumulated and Redeemed

  ▶ Dollar Cost Points Redeemed

  ▶ Marital Status

  ▶ Education

  ▶ Loyalty Card

Questions

- To determine the success of the promotion, my analysis aims to answer the following questions:

  - What was the customer profile for the NLA customers?

  - Did the promotion increase customer enrollments?

  - Did the promotion decrease customer cancellations?

  - Did the promotion increase enrollment duration?

  - Did the promotion increase customer lifetime value on average?

Assumptions

- There were employee salaries with null values.
  - I assumed that these employees were unemployed.
- There were negative employee salaries.
  - I assumed that the negative was a user input error.
  - So, I removed the negative values from the salaries.

About the Dataset

- The dataset for this project consists of the following tables:
  - Customer Flight Activity
    - A fact table containing information about each customer's flight activity.
  - Customer Loyalty History
    - A dimension table containing information about each customer's loyalty history and personal data.

Data Cleaning Strategy

- I added the following calculated columns to the Customer Flight Activity Table:
  - **Flight Booked Start of Month** (the starting date of when customers started flying)
- I added the following calculated columns to the Customer Loyalty History Table:
  - **Enrollment start of Month** (the starting date of when customers enrolled)
  - **Cancellation start of Month** (the date when the customer canceled their membership)
  - **Enrollment Days** (the number of days that a customer was enrolled with NLA)
  - **Enrollment Status** (a flag indicating whether a customer is enrolled or not)
  - **Employment Status** (a flag indicating whether a customer is employed or not)
- I created the following DAX measures:
  - **Enrolled** (the number of customers that are enrolled with NLA)
  - **Canceled** (the number of customers that canceled their membership to NLA)
  - **Enrollment Rate** (the ratio of enrolled customers to the sum of enrolled and canceled customers)
  - **Cancellation Rate** (the ratio of canceled customers to the sum of enrolled and canceled customers)
  - **Net Customers** (the difference between enrolled and canceled customers)

Data Model
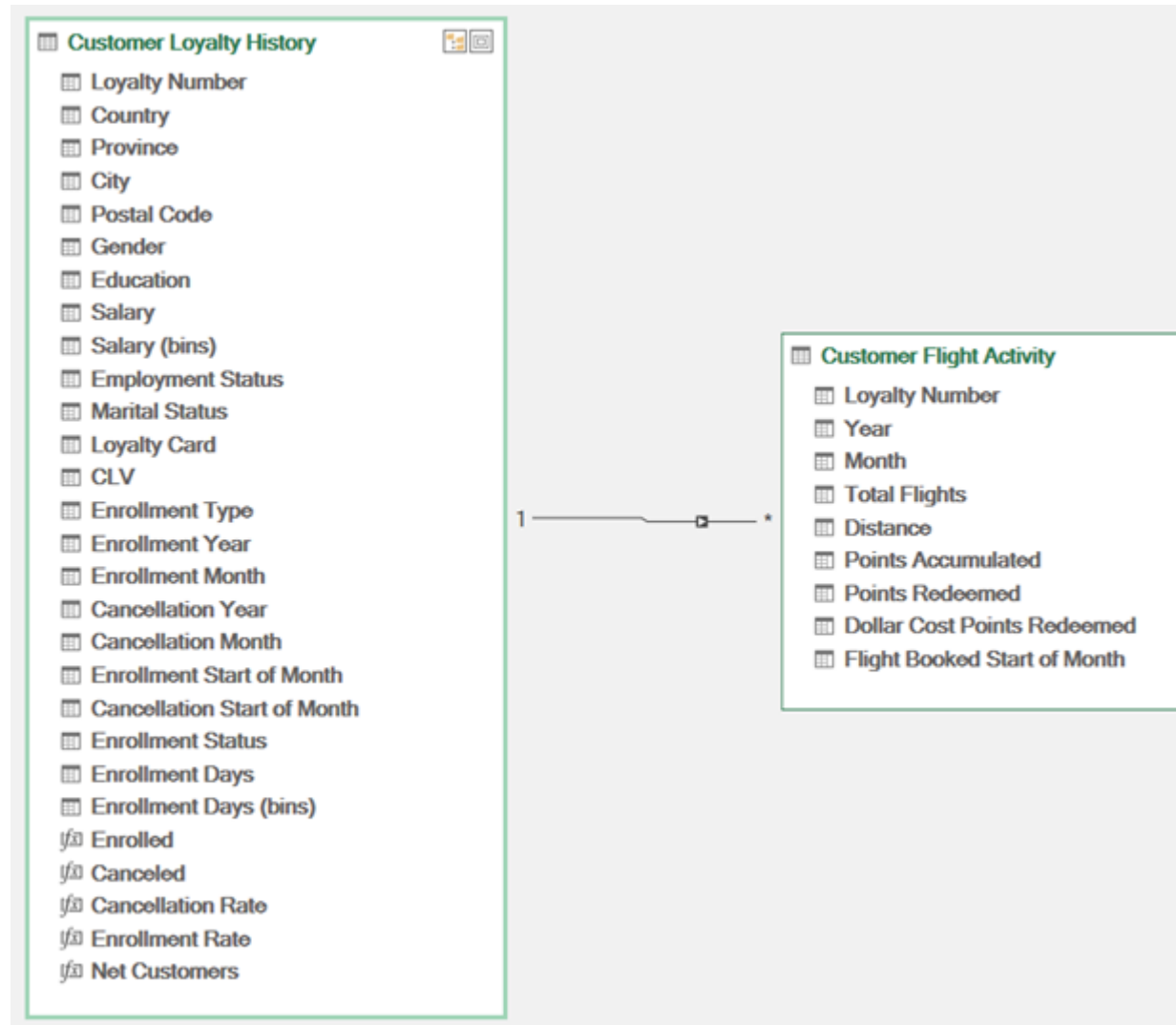
Customer Growth Insights

- Customers from these two provinces had the highest and lowest enrollment rates:
    - New Brunswick: enrollment rate (89.5%), cancellation rate (10.5%)
    - Prince Edward Island: enrollment rate (83.3%), cancellation rate (16.7%)
- The number of net customers has been increasing from years 2012-2018.
    - The number of customers enrolling has been substantially higher than the number of customers canceling during this span.
    - The years 2012-2013 saw a considerable increase in both customers enrolling and customers canceling.
    - The number of customers enrolling and canceling remained relatively constant during the years 2013-2017.
    - The promotion years (2017-2018) saw a significant spike in the number of customers enrolling and a significant drop in customers canceling.

Customer Profile Insights (All Customers)

- Top 3 provinces where customers were from that booked a flight:
  - Ontario (164,105 flights)
  - British Columbia (135,178 flights)
  - Quebec (99,973 flights)
- Flights booked by customers from Yukon had the longest average flight distance (2,177 km)
  - Although flight distances from all provinces were almost about the same (~2,000 km).
- 12% of all customers canceled their NLA membership.
  - Most customers who canceled their membership (1,469) were enrolled for no more than 500 days.
- 75% of all customers are currently employed.
  - Most employed customers (10,978) make no more than $100K per year.
- the total loyalty points and dollar cost points both increased during 2017-2018.
- The average CLV has remained relatively constant from 2012-2018.

Customer Profile Insights (Marital Status)

- Divorced and single customers had the highest enrollment rates.
  - Single customers from Prince Edward Island had significantly lower enrollment rates (61.5%) compared to customers from other provinces (~90%).
- Most enrolled customers are married (8,521).
- Unemployment is highest among single customers (54%).

Customer Profile Insights (Education)

- Customers with master's degrees had the highest enrollment rates.
  - Customers from New Brunswick and Nova Scotia with master's degrees had significantly lower enrollment rates (~75%) compared to customers from other provinces (~90%).
- Most enrolled customers have bachelor's degrees (9,189).

Customer Profile Insights (Loyalty Card)

- Customers with Aurora and Nova Loyalty Cards had the highest enrollment rates.

  - Customers from Prince Edward Island with Aurora Loyalty Cards had significantly lower enrollment rates (66.7%) compared to customers from other provinces (~90%).

- Most enrolled customers have the Star Loyalty Card (6,736).

- Customers with the Aurora Loyalty Card have the highest CLV on average (~12,000).

Conclusion

- The Loyalty Card Promotion was successful in increasing customer loyalty.
  - The customer growth trend discussed earlier supports this conclusion.
- The Loyalty Card Promotion did not change the average CLV.
  - The average CLV trend discussed earlier supports this conclusion.
- NLA customers tend to cancel their membership relatively quickly.
  - The number of customers canceling their membership after more than 500 days was rare.
- NLA customers are mostly middle-class employees.
  - The number of customers making more than $100K is rare.
- NLA customers prefer to fly from Ontario, British Columbia, and Quebec for around the same flight distances.
  - The average flight distance statistics discussed earlier support this conclusion.

Recommendations

- Continue using the Loyalty Card Promotion program to attract new customers.
  - The Loyalty Card Promotion was successful, so it is recommended to keep using it.
- Concentrate the promotion program on customers with the following profile:
  - Are from New Brunswick, Ontario, British Columbia, or Quebec
  - Are single or divorced
  - Have a bachelor's or master's degree
  - Make less than $100K
  - Use the Aurora or Star Loyalty Card
- Customers with this profile have the following characteristics:
  - the highest enrollment rates
  - The greatest number of flights booked
  - The largest average CLV