

FLYINGWHALE AIRLINE CASE STUDY REPORT



Made By:
Wasif Maqsood

Introduction:

Scenario

FlyingWhale Airline, a leading international airline, is facing challenges in maintaining customer loyalty and optimizing its loyalty programs. Despite a growing customer base, an increasing number of cancellations and shifting customer behavior are raising concerns. The airline wants to strengthen its business intelligence by analyzing Customer Flight Activity and Loyalty History to enhance the customer experience, improve retention, and better understand loyalty trends.

Data Overview

The data for this analysis was sourced from two CSV files on GitHub, covering the years 2017 and 2018. Key variables include **Loyalty Number** as a unique customer identifier, **Demographics** such as country, province, gender, education, salary, and marital status, as well as **Enrollment and Cancellation Details** that capture dates related to loyalty program participation. Additionally, the dataset includes **Flight Activity**, indicating customer flight frequency, **Loyalty Card Tier**, which categorizes membership levels into Aurora, Nova, and Star, and **Customer Lifetime Value (CLV)**.

Data Cleaning

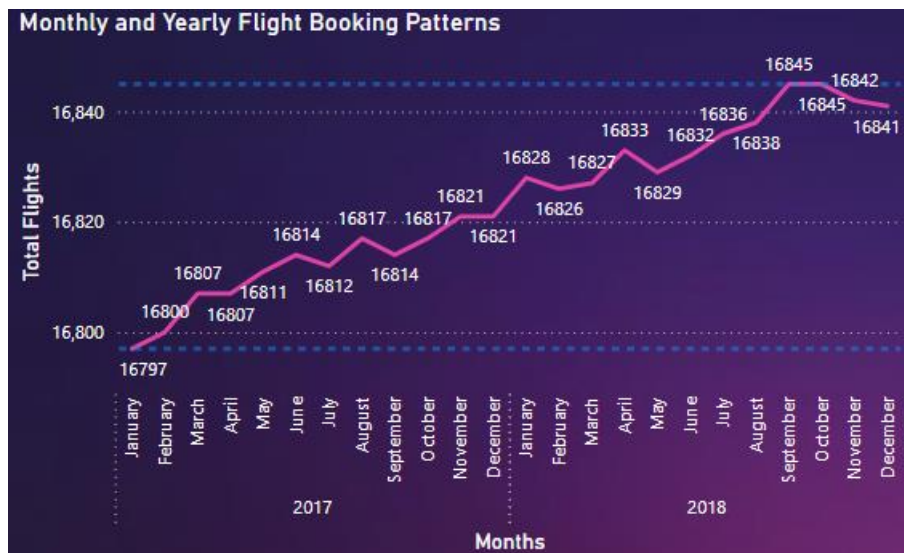
The data cleaning process ensured accuracy by removing over 1,000 duplicate entries from the Flight Activity CSV, correcting data types for proper analysis, and creating new columns such as **Enrollment Duration** and **Cancellation Month Number** to enhance insights into customer behavior.

KPIs

1. A total of 16.74k customers have enrolled and flown with FlyingWhale Airlines.
2. The airline has covered a total distance of 490 million kilometers.
3. Over 2 million flights have been booked with FlyingWhale.
4. The average Customer Lifetime Value (CLV) stands at 7.99k Canadian dollars.

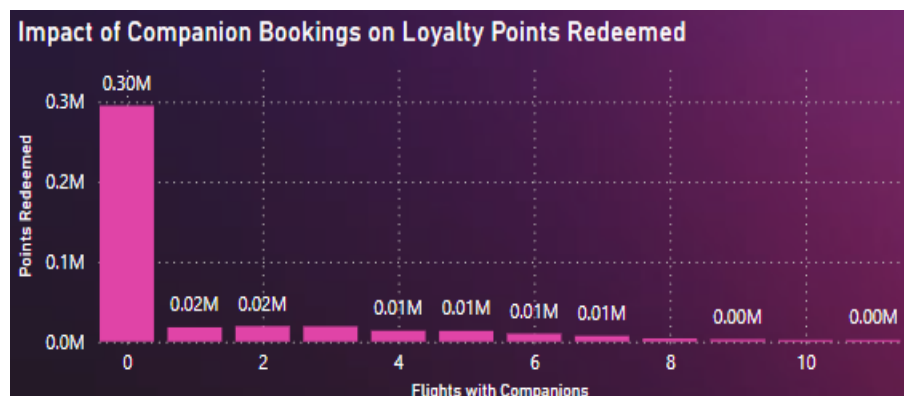
Flight Activity Analysis:

Monthly and Yearly Flight Booking Patterns



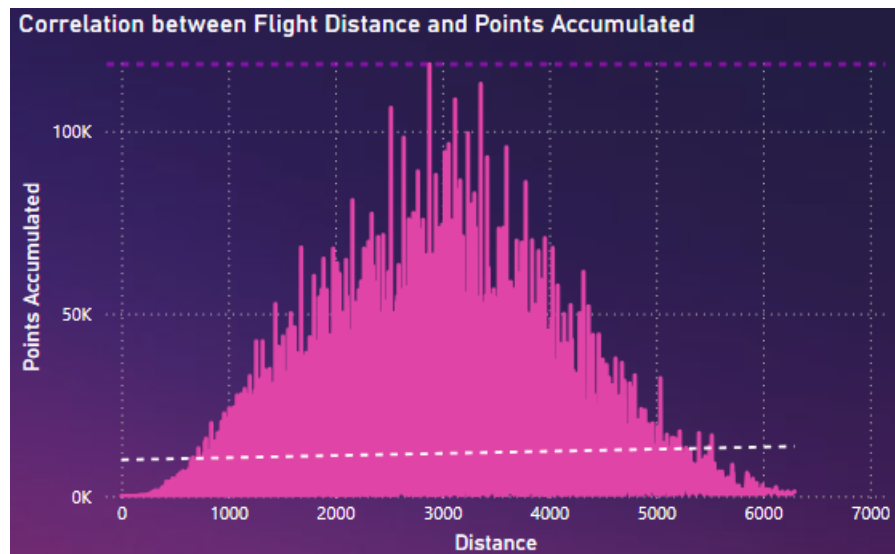
From 2017 to 2018, flight bookings displayed a clear upward trend, indicating an overall increase in demand, with notable seasonal fluctuations. The highest number of flights booked in 2018 was in December, while January recorded the lowest bookings in 2017.

Impact of Companion Bookings on Loyalty Points Redeemed



The chart shows that the highest number of points is redeemed when there are no companion bookings, indicating that members redeem the most points with zero companions. This suggests a negative correlation between companion bookings and loyalty points redeemed, potentially due to factors such as point-earning structures, companion discounts, or different travel patterns. Airlines can leverage this insight to optimize their loyalty programs and balance the advantages of companion bookings with their effect on points redemption.

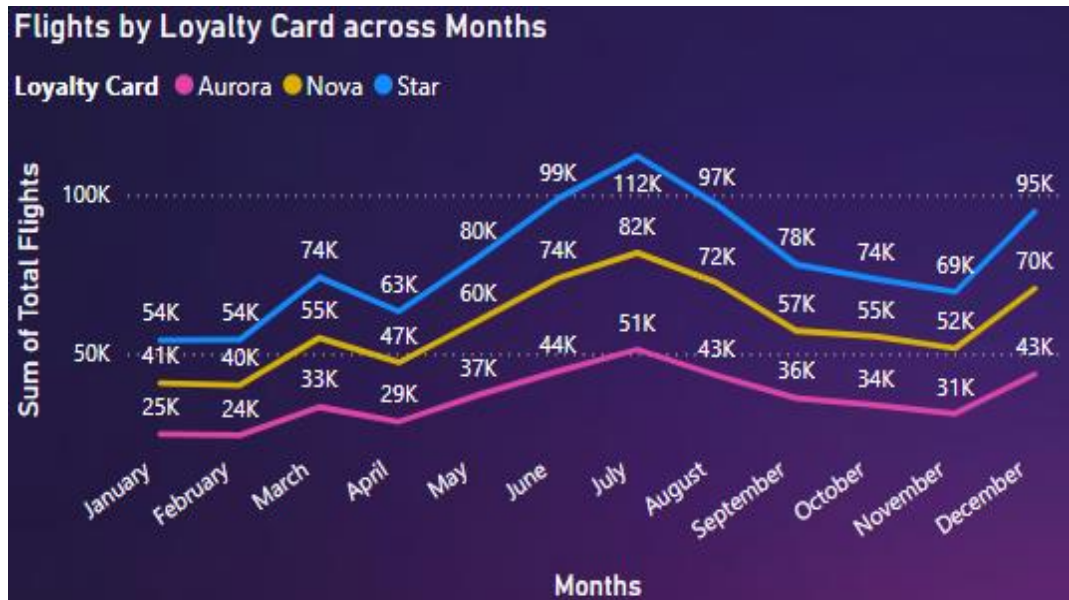
Correlation between Flight Distance and Points Accumulated



The chart demonstrates a clear positive correlation between flight distance and loyalty points earned. An upward-sloping trend line emphasizes this relationship, showing that as flight distances increase, the number of points accumulated also rises. Additionally, a maximum points threshold is marked, indicating that the highest point accumulation occurs within the 3,000 to 4,000 km range. In summary, the chart highlights that customers tend to earn more loyalty points on longer flights.

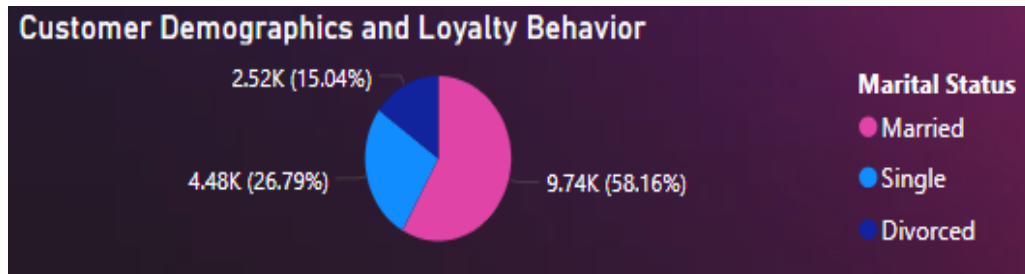
Loyalty Segmentation:

Flights by Loyalty Card across Months



1. **Aurora:** Cardholders have the lowest total number of flights compared to the other groups.
 2. **Nova:** Cardholders exhibit a moderate level of flight activity.
 3. **Star:** Cardholders demonstrate the highest total number of flights, indicating they are the most active flyers.
- In July, the highest number of flights was recorded for all three cardholders, with Star leading at 112,000 flights, followed by Nova with 82,000 and Aurora with only 51,000.
 - The chart highlights distinct loyalty segments based on flight activity, with Star cardholders being the most active and valuable customers, while Aurora cardholders show the least engagement. This insight allows the airline to tailor its loyalty programs and marketing strategies to effectively retain and acquire customers.

Customer Demographics and Loyalty Behavior by Martial Status



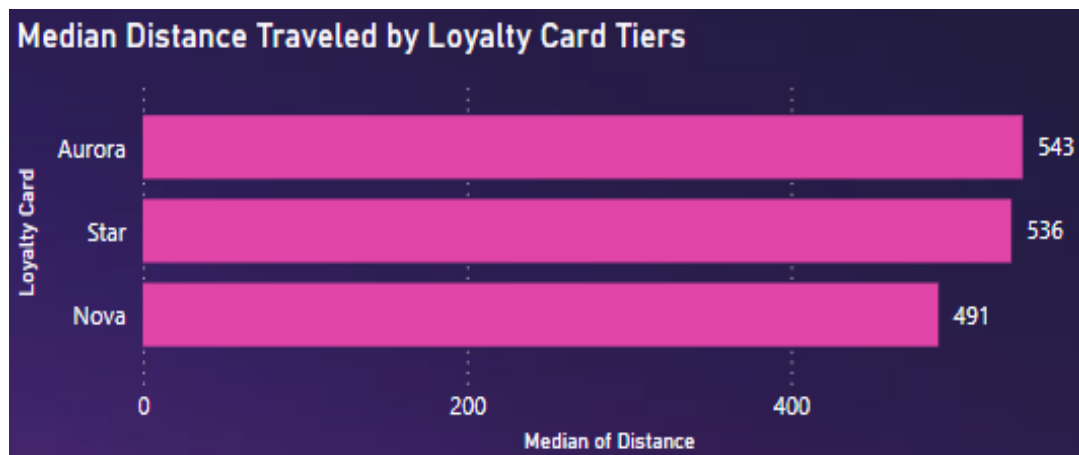
1. **Married:** 2,520 members (15.04%)
 2. **Single:** 9,740 members (58.16%)
 3. **Divorced:** 4,480 members (26.79%)
- Total:** 16,740 members
- Most of the customers were married.
 - Most of the married customers hold star loyalty cards.

Average Customer Lifetime Value by Loyalty Card Tier



- **Decreasing CLV with Higher Tiers:** The Average Customer Lifetime Value (CLV) decreases as the loyalty card tier increases, with Aurora tier customers having the highest CLV, followed by Nova, and then Star.
- The chart indicates a clear trend of decreasing CLV with higher loyalty card tiers. This suggests that customers in the Aurora tier are the most valuable to the business.

Median Distance Traveled by Loyalty Card Tiers



Passengers with the Aurora Loyalty Card have a median distance traveled of 543 Km, making them the most frequent travelers. The Star Loyalty Card holders follow closely with a median travel distance of 536 Km, while Nova Loyalty Card members have the shortest median distance at 491 Km. In summary, Aurora cardholders tend to travel the farthest on average, followed by Star, with Nova members traveling the least.

Flights Booked by Loyalty Card and Gender



For the Star Loyalty Card, male passengers booked approximately 0.48M flights, while female passengers booked around 0.47M, showing nearly equal participation with a slight lead for males. In the case of the Nova Loyalty Card, male passengers booked around 0.35M flights, and female passengers booked about 0.36M, indicating that females slightly outnumber males in this tier. For the Aurora Loyalty Card, male passengers booked approximately 0.22M flights, while female passengers booked around 0.21M, resulting in a nearly even distribution of bookings between genders. In conclusion, the distribution of flights booked is relatively balanced across different loyalty card tiers, with only minor variations between genders.

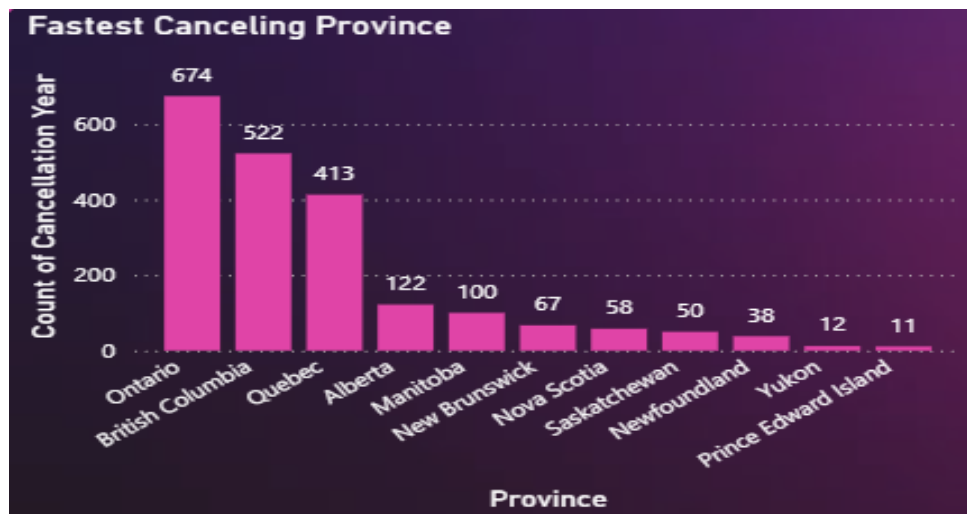
Enrollment and Cancellation Trends:

Average Enrollment Duration of Canceled Members by Province

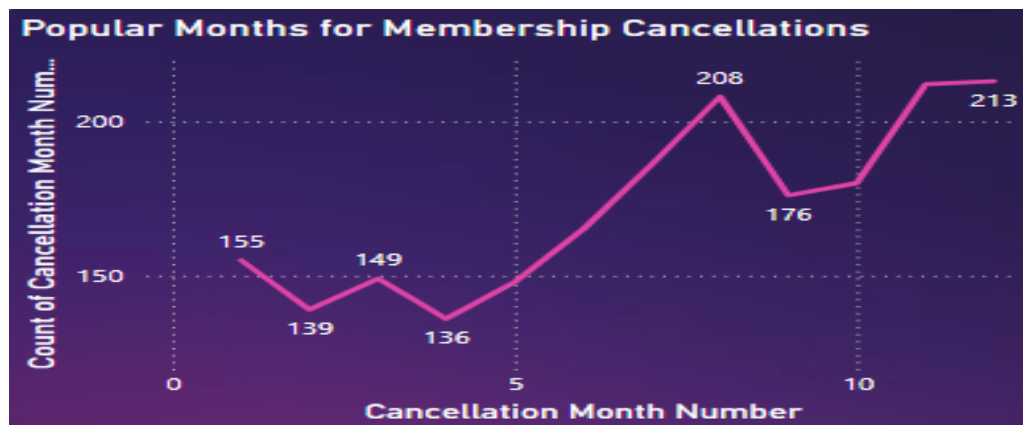


- The provinces with the fastest member cancellations were British Columbia, Ontario, and Quebec.

To validate the above findings:

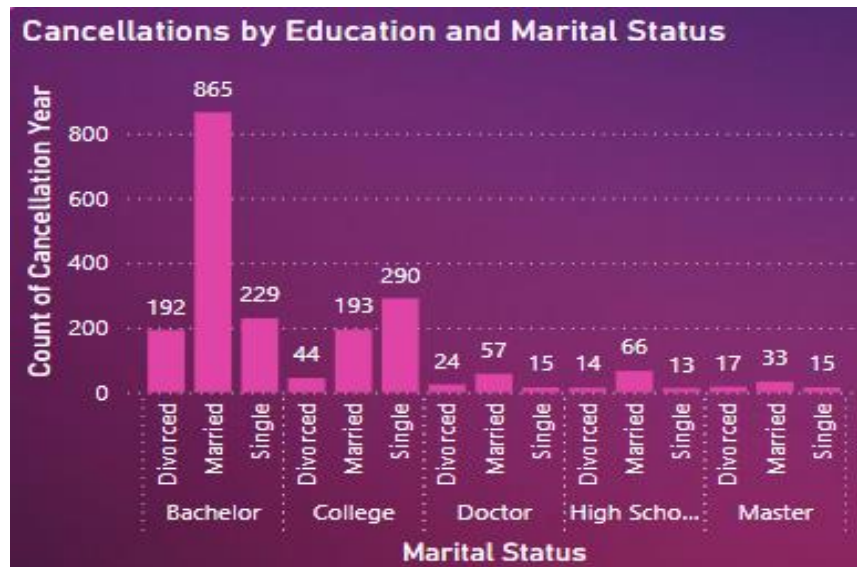


Popular Months for Membership Cancellations



The most popular months for cancellations are December (213 cancellations), June (208 cancellations), and August (176 cancellations), indicating significant spikes during these periods. In contrast, April (136 cancellations) and May (139 cancellations) experienced the lowest activity, along with February, which had 149 cancellations. Overall, there is an upward trend in cancellations starting in April, peaking in June, followed by a slight decline and subsequent increases in August and December. This fluctuation suggests that cancellations tend to rise as the year progresses, particularly at the beginning and mid-points.

Cancellations by Education and Marital Status



1. Highest Cancellations:

- Married individuals with a Bachelor's degree have the highest cancellations, totaling 865.
- Single individuals with a College degree follow, accounting for 290 cancellations.

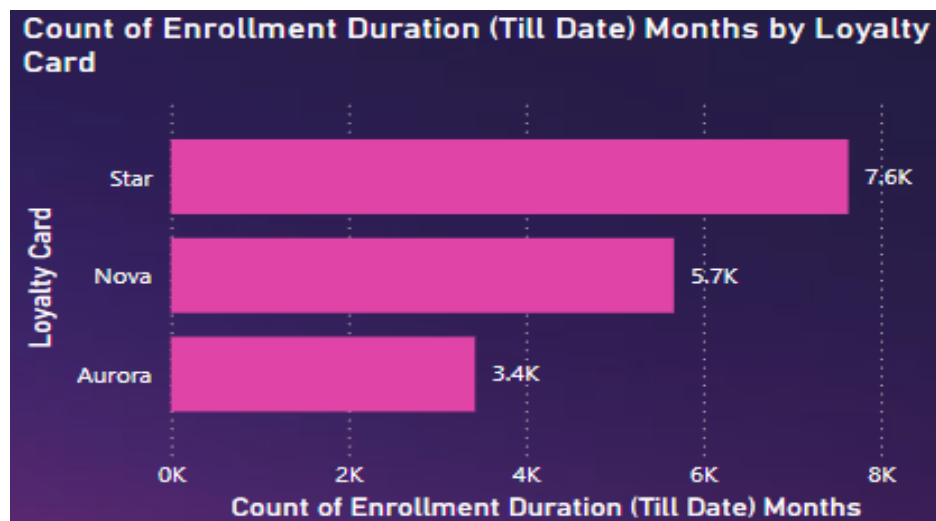
2. Bachelor's Degree Holders:

Cancellations are notably high among Bachelor's degree holders:

- Married individuals: 865 cancellations
- Divorced individuals: 192 cancellations
- Single individuals: 229 cancellations

The demographic with the highest cancellation count is Married individuals holding a Bachelor's degree, significantly surpassing other groups. Following them are Single individuals with a College degree. This indicates that educational attainment and marital status play crucial roles in predicting cancellation behavior, with Bachelor's degree holders demonstrating the highest overall cancellation rates.

Lowest Enrollment Duration by Loyalty Card Tier Among Cancellations



1. Aurora cardholders have the shortest enrollment duration among canceled members, totaling **3.4K months**, indicating a tendency to terminate their memberships relatively quickly.
2. Nova cardholders follow with an enrollment duration of **5.7K months**, suggesting a moderate commitment level before cancellation.
3. Star cardholders have the longest enrollment duration at **7.6K months**, highlighting their stronger loyalty and longer engagement with the airline.

Members holding the Aurora card demonstrate the lowest enrollment duration before cancellation, which indicates they are more likely to discontinue their memberships sooner compared to Nova and Star cardholders. This insight suggests that the airline may need to explore factors influencing Aurora cardholders' decisions to cancel, as well as strategies to enhance their loyalty and retention.

Recommendations:

To enhance customer loyalty and optimize loyalty programs at FlyingWhale Airline, the following recommendations are proposed based on the data analysis and key findings:

1. Targeted Loyalty Programs:

- Develop tailored loyalty programs that cater to the specific behaviors and preferences of different loyalty card holders. Given that Aurora cardholders demonstrate a tendency to cancel sooner, targeted retention strategies should be implemented for this group, such as personalized offers or incentives for continued membership.

2. Customer Feedback Mechanism:

- Implement a robust feedback mechanism to understand the reasons behind cancellations, especially among Aurora cardholders. Surveys or focus groups could be used to gather insights that will inform strategies to improve customer satisfaction and address pain points.

3. Enhanced Marketing Strategies:

- Utilize customer demographic data to create targeted marketing campaigns. For instance, promotional efforts can focus on married individuals with Bachelor's degrees, who exhibit high cancellation rates, by offering family-oriented travel packages or rewards.

4. Seasonal Retention Strategies:

- Since cancellations peak in December, June, and August, it's crucial to implement retention strategies during these months. Promotions, loyalty bonuses, or special events can be organized to encourage customers to maintain their memberships during high-cancellation periods.

5. Improve Enrollment Duration:

- Investigate the factors contributing to the short enrollment duration of Aurora cardholders. Consider offering a grace period or loyalty bonuses that reward longer engagement, encouraging these members to remain active for a more extended period.

6. Companion Booking Incentives:

- Address the negative correlation between companion bookings and loyalty points redemption by developing incentives for companion bookings. This could encourage members to travel with companions, ultimately benefiting the airline's revenue and customer engagement.

7. Flight Distance Rewards:

- Given the correlation between flight distance and points accumulation, consider offering bonus points or rewards for longer flights. This could motivate customers to choose longer trips with FlyingWhale Airline over competitors.

8. Data-Driven Decision Making:

- Continuously analyze customer flight activity and loyalty history to identify emerging trends. Utilizing advanced analytics and business intelligence tools can help the airline make data-driven decisions that enhance customer experience and loyalty.

9. Customer Education on Loyalty Benefits:

- Increase awareness of the benefits and features of the loyalty program among customers, particularly those with lower engagement levels. This could involve informative campaigns highlighting how to maximize points and rewards through frequent flying.