

Report of Business Intelligence Case Study: FlyingWhale Airline

Background:

FlyingWhale Airline, a prominent (fictional) international airline, is seeking to enhance its business intelligence capabilities by analyzing Customer Flight Activity and Customer Loyalty History. The airline is committed to optimizing customer experience, understanding travel patterns, and maximizing the effectiveness of its loyalty programs.

Data: You have access to two key datasets:

1. Customer Flight Activity:
 - Loyalty Number: A unique identifier for each customer's loyalty account.
 - Year and Month: Period details for analysis.
 - Flights Booked: Number of flights booked by the member during the period.
 - Flights with Companions: Number of flights booked with additional passengers.
 - Total Flights: Combined total of Flights Booked and Flights with Companions.
 - Distance: Flight distance traveled in kilometers during the period.
 - Points Accumulated: Loyalty points earned in the period.
 - Points Redeemed: Loyalty points redeemed during the period.
 - Dollar Cost Points Redeemed: Dollar equivalent for points redeemed in Canadian Dollars (CDN).
2. Customer Loyalty History:
 - Loyalty Number: A unique identifier for each customer's loyalty account.
 - Demographics: Country, Province, City, Postal Code, Gender, Education, Salary, Marital Status.
 - Loyalty Card: Current loyalty card status
 - Customer Lifetime Value (CLV): Total invoice value for all flights ever booked by the member.
 - Enrollment Details: Enrollment Type (Standard / 2018 Promotion), Enrollment Year, Enrollment Month.
 - Cancellation Details: Cancellation Year and Month if applicable.

Business Scenarios:

1. **Flight Activity Analysis:**
 - Analyze monthly and yearly flight booking patterns.
 - Tips:
 - Make sure months are named properly
 - Make sure months are sorted properly
 - Explore the correlation between flight distances and loyalty points accumulated.
 - Include a trend line and a max line
 - Assess the impact of companion bookings on loyalty points redeemed
 - What is the number of companions where members are redeeming the most points?

Insights:

- Flying Whale Airline has almost 16.74K customers.
- Flights data is available for the year 2017 and 2018.
- Almost 2 Million flights have been booked by customers in the given time period.
- A similar trend can be seen in flight bookings for both years.
- 787410 flights have been booked in 2017 (47.17% of total flights).
- 881754 flights have been booked in 2018 (52.83% of total flights).
- There is a positive correlation between distance covered and points accumulated. With the increase in the flight distance, points accumulated also increase.
- Maximum points accumulated by a customer are 676.5 at a distance of 4518 km.
- There is a gradual increase in the number of flights from January till July and then a gradual decrease in flights from July till November followed by a sudden increase in December.

- The highest number of flights are in July for both years.
- Apart from the pattern, there is a significant increase in the number of flights in March as well as compared to its adjacent months.
- The number of flights with companions shows the same pattern in point's redemption. All flights booked with companions show maximum points redemption.

2. Loyalty Segmentation:

- Segment customers based on loyalty card status.
 - Show Total number of flights by Loyalty Card across months
- Analyze the demographics and behaviors of customers
 - Depict Number of loyalty members by marital status
 - Show flights booked by loyalty card and broken up by gender
 - Show median distance travelled by different loyalty card tiers
 - Use the Narrative visual to autogenerate insights. Make sure to remove insights that may not be useful.
- Identify trends in Customer Lifetime Value (CLV) across loyalty segments.
 - Answer the question: Which credit card tier on average has customers with the highest Customer LifetimeValue?

Insights:

- Married customers form the largest loyalty segment.
- 58.16% of the loyalty members are married, 26.79% are single and 15.04% are divorced.
- Highest number of flights have been booked by Star card holders and lowest number of flights have been booked by Aurora card holders.
- More flights have been booked by male customers holding Star and Aurora cards and by female customers holding Nova card. Overall, more flights have been booked by male customers but there is no significant difference between the number of flights booked by males and females as the numbers are close to each other.
- All three loyalty card holders (Star, Nova, Aurora) have covered almost similar median of distance with 519 km being covered by Star card holders, 480 km by Aurora card holders and 450 km by Nova card holders. • Aurora card holders have the highest average CLV (Customer Lifetime Value) which is around 10.7k followed by Nova card holders with an average CLV of 8.0k. Star card holders have the lowest average CLV which is around 6.7k.
- There is a similar pattern in flights booked by different loyalty card holders across months. Lowest number of flights have been booked by Aurora card holders during each month of the year followed by Nova and highest number of flights have been booked by Star card holders.

3. Enrollment and Cancellation Trends:

- Analyze the reasons and patterns behind membership cancellations.
 - Tips
 - Create a table Customer Loyalty Cancellation for loyalty members that have cancelled.
 - Create two new columns in the new table Enrollment Duration (e.g. 2 years 1 month) and Enrollment Duration (Months) (e.g. 25)

- Create two new columns in Customer Loyalty History table Enrollment Duration (Till Date) and Enrollment Duration (Till Date) Months
 - These columns should count the time a member has been enrolled till today or till they cancelled whatever comes first
- Answer the following:
 - Provide information for average duration of enrollment among cancelled members by province. Which province sees members cancelling the fastest? Bonus: Depict this information on a map
 - Most popular months for cancellations
 - Cancellations by education and marital status. Which demographic is cancelling the most?
 - Which loyalty card members have the lowest enrollment duration among cancellations
- Recommend strategies for improving enrollment and retention.

Insights:

- The highest average duration of enrollment has been found in New Brunswick and the lowest average duration of enrollment has been found in Prince Edward Island.
- Prince Edward Island members cancel their enrollment fastest as compared to other provinces. Their average enrollment duration is almost 12 months.
- Most of the cancellations have been done by customers in Ontario, British Columbia, and Quebec. Least number of cancellations have been done by customers in Prince Edward Island and Yukon. Highest number of cancellations have been done by married customers.
- Customers with Bachelors education have done the maximum number of cancellations (62.59%) followed by customers with college education (25.3%).

Key Findings:

- A similar trend exists in flight bookings for 2017 and 2018.
- There is a positive correlation between distance covered and points accumulated. With the increase in the flight distance, points accumulated also increase.
- There is a gradual increase in the number of flights from January till July and then a gradual decrease in flights from July till November followed by a sudden increase in December.
- Highest number of flights have been booked by Star card holders and lowest number of flights have been booked by Aurora card holders.
- Overall, more flights have been booked by male customers but there is no significant difference between the number of flights booked by males and females.
- Aurora card holders have the highest average CLV followed by Nova card holders. Star card holders have the lowest average CLV.
- There is a similar pattern in flights booked by different loyalty card holders across months.
- Highest number of cancellations have been done by married customers and customers with Bachelors education.

Recommendations:

1. Enrollment Packages:

Introduce attractive enrollment packages for new members to attract more people and increase the number of customers. These packages could include bonus points upon enrollment, discounts on initial bookings, or exclusive perks such as priority boarding or lounge access for the first few flights.

2. Seasonal Discounts:

Offer special discount packages during July, August and December as July and December are the peak booking months. Maximum cancellations in recent years have also been observed in July and

August.

3. Cancellation Feedback Surveys:

Conduct surveys among customers who have cancelled their enrollment to understand their reasons for doing so. Use this feedback to address any issues related to the quality of flights, flight schedules, crew behavior, pricing, or other factors contributing to cancellations.

4. Retention Bonuses:

Implement a retention bonus program where customers receive additional points or rewards for maintaining their enrollment over time. For example, offer bonus points every six months or one year. There can be multiple strategies like offering additional points as a multiple of their years of enrollment.

5. Family Perks:

Offer special perks and privileges for families, considering that a significant portion of cancellations have been made by married customers. Family-focused bonuses could include discounted group bookings or special offers for family vacations.

6. Student Packages:

Offer student packages targeting customers with Bachelors or college education to increase their retention. These packages could include discounted fares, flexible booking options, or additional benefits tailored to the needs of students.

7. Milestone Rewards:

Create milestone rewards for customers who maintain their enrollment for extended periods. For example, add a 16-month milestone to receive a free flight voucher. You can give another free voucher every 6 months after reaching this milestone to give an incentive for long-term loyalty and retention.

8. Targeted Marketing Campaigns:

Utilize customer segmentation data to create targeted marketing campaigns. Focus on specific demographics, such as married customers or those with higher education levels, who might be more inclined to enroll and stay loyal to the airline.

9. Enhanced Loyalty Programs:

Offer personalized rewards based on customer behavior and preferences to increase engagement and encourage enrollment and retention.

10. Customer Experience:

Invest in improving the overall customer experience both online and offline. This could include seamless booking processes, personalized recommendations, and excellent customer service to foster loyalty.

11. Educational Initiatives:

Provide educational materials or workshops to help customers understand the benefits of loyalty programs and how they can maximize their rewards. This could include tutorials on point redemption options or exclusive benefits for loyal members.

12. Referrals:

Encourage existing members to refer friends and family by offering incentives or rewards for successful referrals.