**Power BI Portfolio Project: Analyzing the FlyingWhale Airline Case Study**

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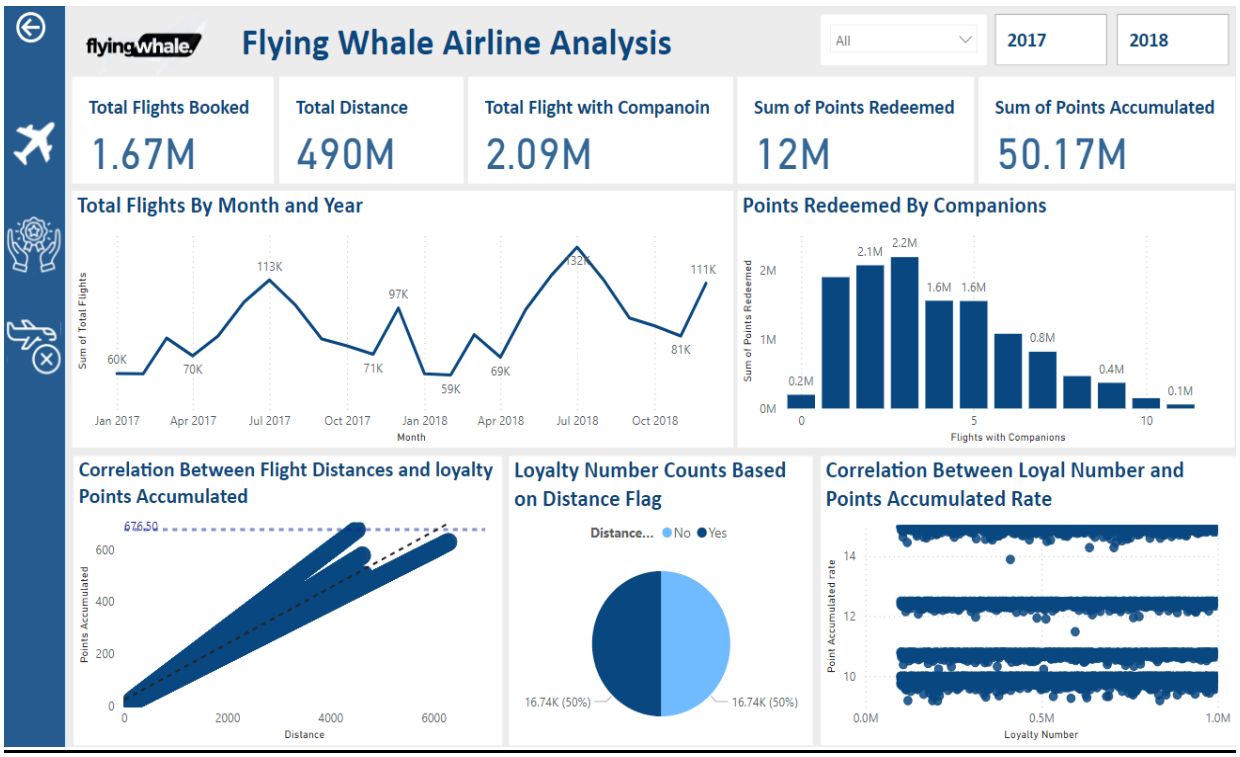
**Flying Whale Airline Case Study Report**

This case study is about a standout fictitious airline that intends to analyze the flight activity of its customers and their relative loyalty history. By doing so, it wants to improve the overall experience of its customers and see what the airline can do to maintain their loyal customers. The company also wants to understand the travel patterns of different types of customers. Moreover, the analysis will reveal trends in the data such as the relationship between flight distance travelled and loyalty points gained. Lastly, the analysis will show the company the areas where they lack and the areas where it can improve.

**Data Preparation:**

Since the data was already clean, no steps were taken to clean and prepare it. However, an additional column for the date was added as there were only month and year columns in the data. Therefore, to create comprehensive visuals, this column was added.

**Dashboard Analysis:**




1. Flight Activity Analysis

1. Total Flights Booked (1.67M): This KPI card provides a quick view of the total number of flights booked by passengers. The large number indicates a considerable volume of airline traffic, showing consistent passenger engagement over the analyzed period.

2. Total Distance (490M): This KPI visual shows the total cumulative distance traveled by passengers across all flights. It emphasizes the airline's reach and highlights the scale of airline operations in terms of miles covered.

3. Total Flights with Companion (2.09M): This metric reflects the number of flights that were booked with companions. It shows the popularity of companion bookings, which can be useful for loyalty program analysis or planning future promotions.

4. Sum of Points Accumulated (50.17M): This visualization displays the total loyalty points earned by passengers. This indicates customer loyalty and the frequency of flights of these loyal customers over the given time.

5. Sum of Points Redeemed (12M): This card displays the total points redeemed by passengers, which helps assess how much of the accumulated points are being utilized. A significant gap between points accumulated and redeemed may suggest either high savings by customers or low redemption options.

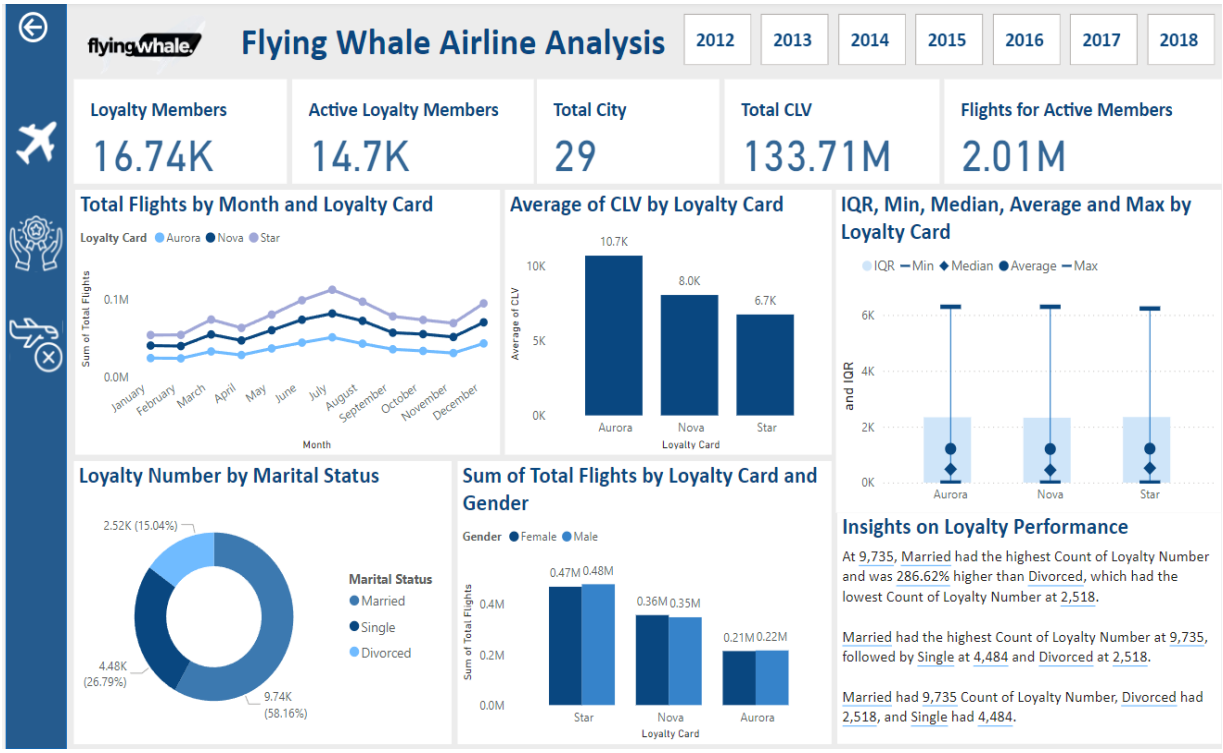
6. Total Flights by Month and Year: This line graph tracks the number of total flights on a monthly basis for both 2017 and 2018. There is a clear seasonal trend, with spikes during specific months like July 2017 (113K flights) and July 2018 (132K flights), likely reflecting peak travel periods. There is also a dip in early and late months, such as January 2018 (59K).

7. Points Redeemed by Companions: This bar chart shows the relationship between the number of flights with companions and points redeemed. The majority of points are redeemed on flights with up to 5 companions (around 2.1-2.2M points), and the trend sharply declines beyond 5 flights, suggesting companion flights are highly popular for points redemption.

8. Correlation Between Flight Distances and Loyalty Points Accumulated: The scatterplot presents a positive correlation between flight distance and points accumulated. As expected, longer flights accumulate more points, represented by a steep upward trend, which reinforces the airline's distance-based loyalty system.

9. Loyalty Number Counts Based on Distance Flag: This pie chart divides the number of loyalty members based on whether they have taken a flight marked by the "distance flag" (which could represent a specific amount of distance). Both segments, "Yes" and "No", are equally distributed (50%), meaning half of the loyalty members have achieved this flag.

10. Correlation Between Loyalty Number and Points Accumulated Rate: This scatterplot shows how the loyalty number (possibly an indicator of how frequent or loyal a customer is) correlates with the rate of points accumulation. There is no clear pattern, as data points are scattered across all loyalty numbers, indicating a varied range of point accumulation rates across different loyalty levels.




2. Loyalty Segmentation

1. Loyalty Members (16.74K): This KPI represents the total number of loyalty members, reflecting how many passengers are part of the airline's loyalty program. This figure helps check customer engagement and retention.

2. Active Loyalty Members (14.7K): This metric shows how many loyalty members are actively engaging with the airline, suggesting high activity rates among loyalty customers.

3. Total City (29): This card shows the number of cities in which the airline operates, reflecting the geographic distribution and operational scale.

4. Total CLV (133.71M): This card displays the total Customer Lifetime Value (CLV) of loyalty members. CLV is a key indicator of the overall financial value that loyalty members bring to the airline.

5. Flights for Active Members (2.01M): This KPI highlights the total number of flights taken by active loyalty members, further emphasizing the importance of this customer segment to the airline's flight activity.

6. Total Flights by Month and Loyalty Card: This line graph compares the number of flights taken each month by passengers holding different loyalty cards (Aurora, Nova, Star). The trends are fairly consistent across the months, with a slight peak around summer months (July to September) and a dip in January. The summer months are typically months in which families and individuals prefer to take a vacation as they are most likely to be on holiday from their jobs or schools.

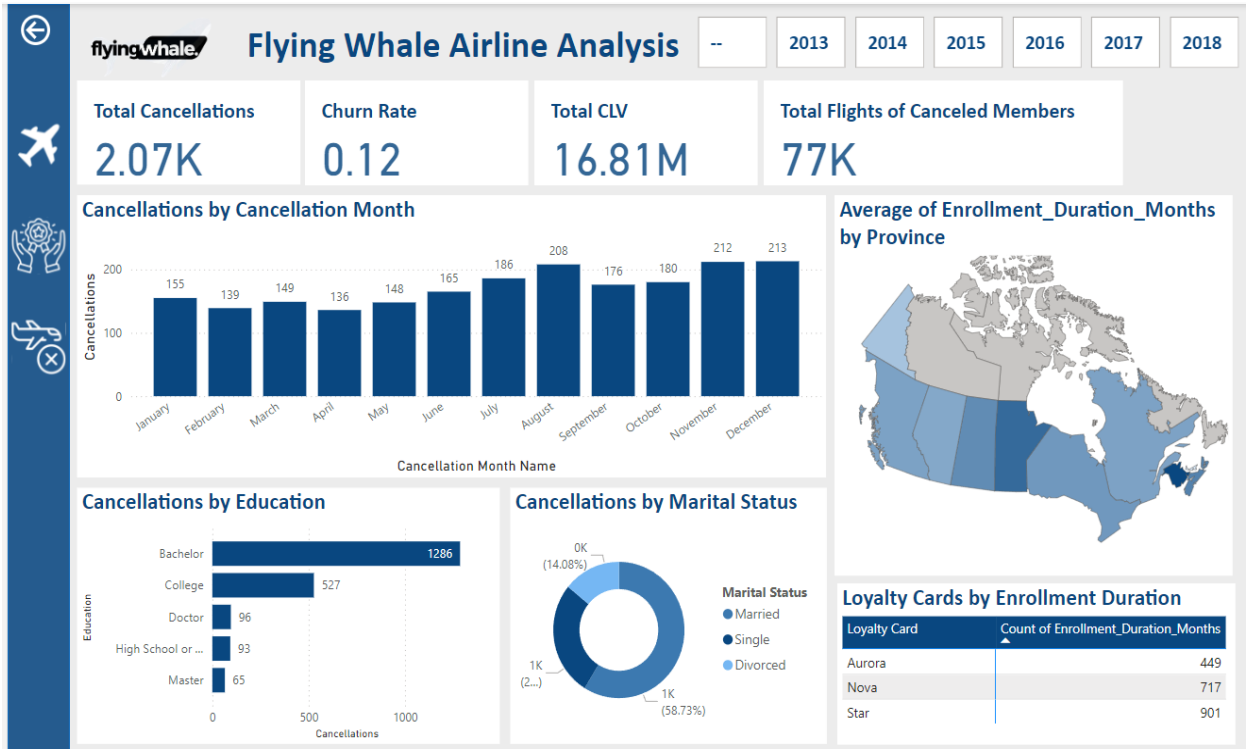
7. Average of CLV by Loyalty Card: This bar chart shows the average Customer Lifetime Value (CLV) for each loyalty card tier. Aurora cardholders have the highest average CLV (10.7K), followed by Nova (8K) and Star (6.7K), suggesting that Aurora members contribute the most value to the airline and that this type of loyalty card is either used the most by customers or that customers with this card take more flights than the other card holders.

8. IQR, Min, Median, Average, and Max by Loyalty Card: This box-and-whisker plot visualizes the interquartile range (IQR), minimum, median, average, and maximum CLV by loyalty card tier. Aurora has the highest median and maximum values, but the IQR (spread of CLV) is similar across all three cards, indicating varied loyalty levels within each tier.

9. Loyalty Number by Marital Status: This donut chart breaks down the loyalty members by their marital status. Married passengers make up the largest segment (58.16%), followed by single (26.79%) and divorced (15.04%). This distribution could provide insights into targeted marketing strategies for different demographics.

10. Sum of Total Flights by Loyalty Card and Gender: This bar chart shows the distribution of flights taken by gender and loyalty card. For the Star loyalty card, male and female passengers contribute equally (0.47M vs. 0.48M). However, for the Nova and Aurora cards, the numbers are more evenly split, with men and women contributing similarly across tiers.

11. Insights on Loyalty Performance: This text-based insight highlights key findings on the performance of loyalty members. For example, married passengers make up the highest proportion of loyalty members (9.7K), which is 286.62% higher than the divorced group (2.5K). These insights give a deeper understanding of the loyalty base and customer segmentation.




3. Enrollment and Cancellation Trends

1. Total Cancellations (2.07K): This KPI displays the total number of loyalty program cancellations, offering insight into the churn rate of the airline's loyalty members. A total of 2.07K cancellations indicates a segment of members are choosing to leave the loyalty program.

2. Churn Rate (0.12): The churn rate, measured here as 12%, represents the proportion of loyalty members who canceled their memberships. This metric is essential for understanding the health of the loyalty program and whether retention efforts are effective and need to be improved.

3. Total CLV (16.81M): This card shows the total Customer Lifetime Value (CLV) of canceled members. Understanding how much CLV is lost through cancellations can help the airline assess the financial impact of loyalty member churn, analyze what caused the cancellations and steps to be taken to retain more customers.

4. Total Flights of Canceled Members (77K): This KPI highlights the total number of flights taken by loyalty members before they canceled their membership. The significant number of flights (77K) suggests that many cancellations came from active travelers.

5. Cancellations by Cancellation Month: This bar chart breaks down cancellations by month, showing that December (213 cancellations) and August (208 cancellations) have the highest number of cancellations. This seasonal trend could be influenced by travel patterns or shifts in loyalty program benefits.

6. Average of Enrollment Duration by Province: This map visualizes the average duration (in months) that loyalty members from different provinces stayed enrolled in the loyalty program. Provinces like

Nova Scotia (901 months) have a much higher average enrollment duration than others, suggesting stronger loyalty from those regions.

7. Cancellations by Education: This bar chart shows the number of cancellations by educational level, with the majority of cancellations coming from members with a Bachelor's degree (1.3K). Other education levels, such as college and high school, follow at a lower rate, implying that education could be a factor in membership behavior. Some students may have been living abroad for their Bachelor's degree and at the time were part of the loyalty program. The majority of cancellations could have been due to them finishing their degree and going back to their native country, therefore having no need for the program anymore.

8. Cancellations by Marital Status: This donut chart shows the breakdown of cancellations by marital status. Married members account for the largest portion of cancellations (58.73%), followed by single members (27.14%). This insight can be useful for tailoring retention strategies to specific demographics.

9. Loyalty Cards by Enrollment Duration: This table lists the enrollment duration for each loyalty card tier. Members holding the Star loyalty card have the longest average enrollment duration (901 months), followed by Nova (717 months) and Aurora (449 months). These figures reflect different levels of loyalty and engagement depending on the tier of the loyalty card.

**Conclusion:**

In conclusion, the analysis of Flying Whale Airline's loyalty program reveals key insights into customer behavior and opportunities for improvement. While the program demonstrates strong engagement, areas like high cancellations in specific months and among certain demographics suggest a need for specifically targeted retention strategies. The variations in enrollment duration across regions and loyalty tiers highlight potential for tailored offerings to boost loyalty. By addressing these patterns through personalized outreach, enhanced benefits, and regional marketing efforts, the airline can greatly improve both enrollment and retention, ultimately driving higher customer lifetime value.

Several recommendations emerge from the findings of this analysis. To improve enrollment and retention, the airline should target retention efforts during peak cancellation months (December and August) with special offers to retain their customers. Reducing the 12% churn rate could involve personalized outreach to at-risk members. Since most cancellations come from married members and Bachelor's degree holders, tailored promotions for these groups may increase retention and loyalty in the long run. High enrollment durations in regions like Nova Scotia suggest that focusing marketing on similar areas can increase customers. Lastly, enhancing benefits for lower-tier cardholders (e.g., Aurora) who have shorter enrollment durations, could improve satisfaction and reduce early cancellations.