

Sun Country Airlines Analysis

Case Summary:

The case revolves around Sun Country Airlines, a small regional airline based in Minnesota, and its efforts to harness the power of data to enhance its operations and competitiveness. Sun Country faced challenges as it operated in a volatile airline industry, and it needed to differentiate itself from larger competitors. Michael Warnken, the Senior Director of e-Commerce, and Roselie Vaughan, the Director of Customer Digital Experience, were tasked with leveraging data and analytics to gain a deeper understanding of their customers and drive business growth.

Objectives:

Data Usability: Assess the usability of the data provided by Sun Country, which includes information on 1.52 million customers and 1.86 million trips from 2013 to 2014. Determine steps to make the data usable and reliable, both for the initial project and for the airline's long-term data strategy.

Customer Segmentation: Explore the data to identify different ways to segment Sun Country's customer base. Evaluate which segmentation approaches provide the most valuable insights for the airline and how these insights can be utilized to improve the business.

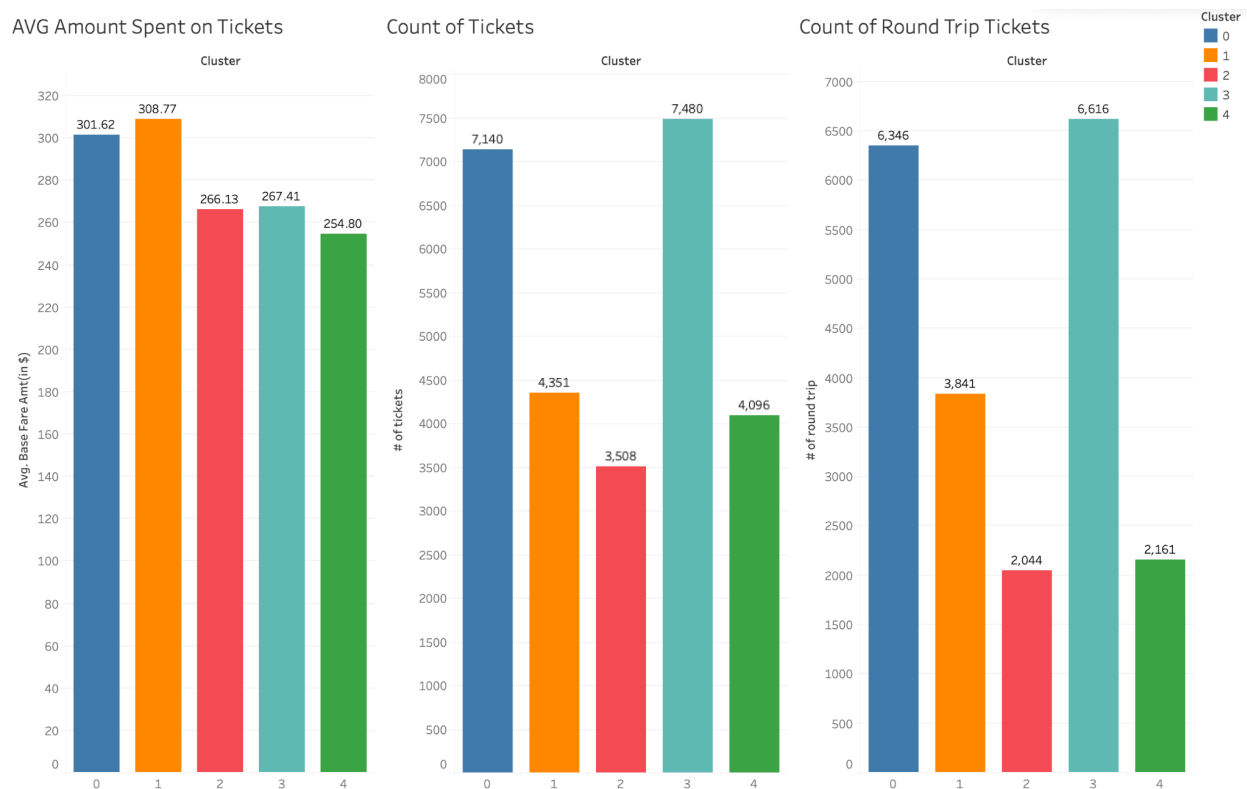
Data Visualization and Presentation: Develop effective data visualization techniques to present the insights derived from the data analysis. Consider how to connect these insights to the business objectives of Sun Country, particularly focusing on strategies for marketing, customer experience enhancement, and loyalty program growth.

Understanding Data's Power: Reflect on the significance of understanding and exploring data. Discuss the balance between using complex models and the practicality of actionable insights. Consider the potential downsides of overemphasizing advanced analytics without a solid foundation of data understanding.

In essence, the case challenges students to transform raw data into actionable insights that can drive Sun Country's strategic decisions, customer engagement, and overall competitiveness in the airline industry.

Cluster Segmentation:

In order to define meaningful customer clusters for Sun Country Airlines, we established a robust ranking system based on three pivotal factors crucial to the airline's success. These factors included the average amount spent on airline tickets by each customer, the total number of tickets purchased, and the total number of round trip tickets purchased. These three factors directly contribute to Sun Country Airlines revenue and are considered important to the company. Each of these factors was assigned a ranking from 1 to 5, with 5 indicating the highest value or significance. The clustering process then involved computing the average ranking across these three factors for each customer segment. This meticulous approach allowed us to categorize and prioritize customer segments according to their overall importance to Sun Country, ensuring that the resulting clusters were well-defined and aligned with the airline's strategic objectives.



Based on the three factors mentioned above, the clusters should be segmented into a ranking system that signifies their value to Sun Country Airlines. It is important to note that the information regarding the Customers' status is kept private. Their "value" and the corresponding marketing suggestions will be private information and will exclusively be used by the company

Although the company has segmented based on “value”, each cluster has its own unique characteristics, and this system allows Sun Country Airlines to provide better insights and strategies for each cluster..

The Ranking System is as follows:

Diamond Status -> Cluster 3

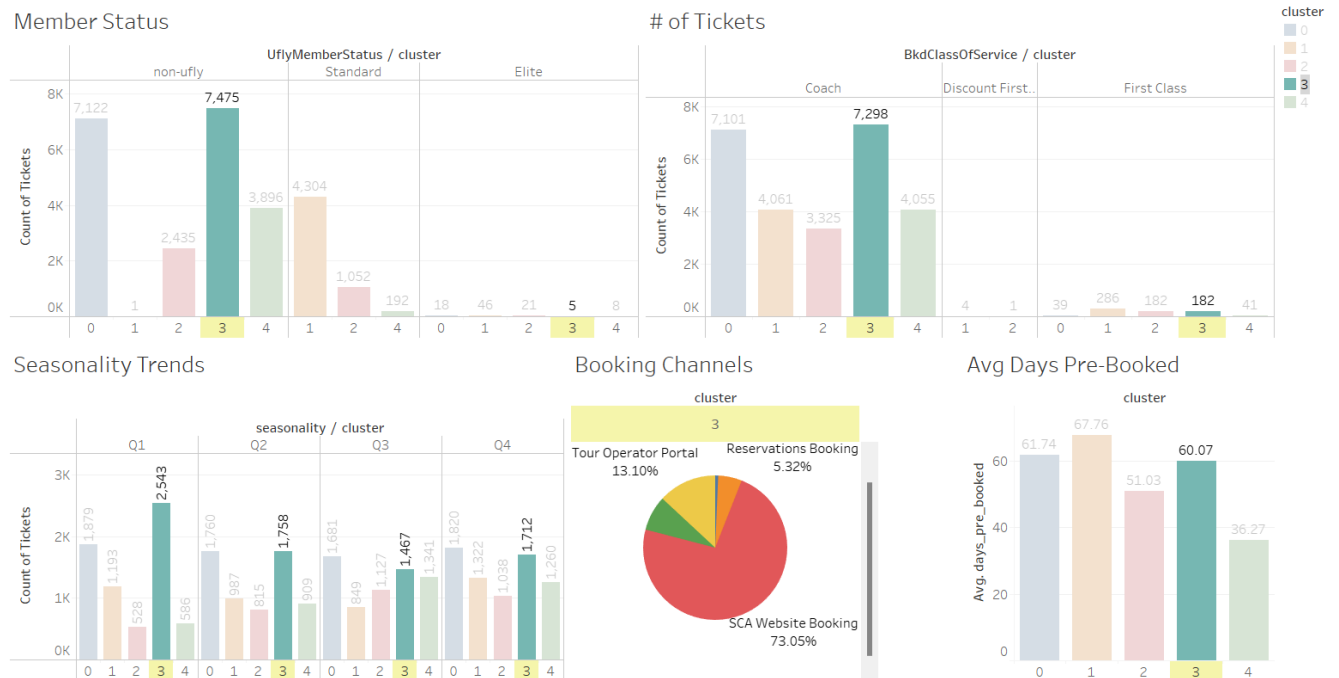
Platinum Status -> Cluster 0

Gold Status -> Cluster 1

Silver Status -> Cluster 4

Bronze Status -> Cluster 2

Diamond Status Cluster Characteristics:



- Almost all “Diamond” cluster (3) members are non-fly member status
- Most customers in “Diamond” prefer to fly in the coach class
- For “Diamond” cluster, the Q1 peak and Q3 trough in bookings may reflect seasonal patterns in the airline industry

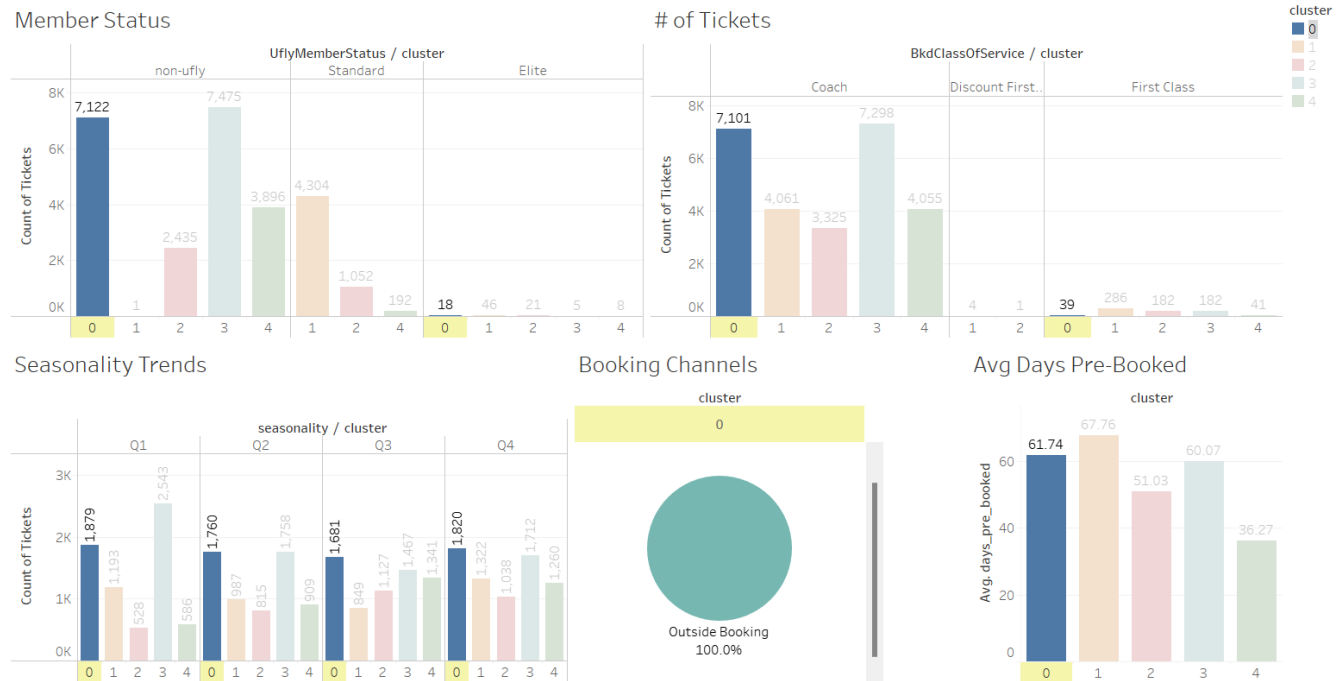
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- The fact that most passengers in the “Diamond” cluster prefer the official website for booking is a positive indicator for the airline. Passengers likely trust the airline's official platform for reliability and accurate information.
- “Diamond” cluster books 60 days in advance, indicative of passengers who like to secure their travel plans well ahead of time, possibly to ensure they get preferred flight schedules or seats.

Diamond Status Cluster Marketing Suggestions:

1. **Elite Membership Promotion:** Create an exclusive Elite Membership program for the Diamond cluster members who are currently non-Ufly members. Offer complimentary enrollment or fast-track to elite status for a limited time. Highlight the benefits of elite status, such as priority boarding, lounge access, and bonus miles.
2. **Coach Class Upgrade:** Promote coach class as an elevated travel experience for non-Ufly Diamond cluster members. Emphasize the value of coach class amenities and services. Offer special discounts or exclusive services like dedicated check-in counters.
3. **Seasonal Travel Savings:** Develop seasonal travel packages tailored to non-Ufly Diamond cluster members. Provide discounts and added perks for booking during peak seasons (Q1) and during troughs (Q3) to incentivize travel throughout the year.
4. **Website Trust-Building:** The airline can further enhance its website by improving user interface, offering personalized promotions, and providing a mobile-friendly experience to capture even more bookings.
5. **Early Planner Rewards:** Recognize the preference of non-Ufly Diamond cluster members to book 60 days in advance. Offer early planner rewards, such as additional baggage allowance, priority security screening, or preferred seating options, to enhance their travel experience.

Platinum Status Cluster Characteristics:



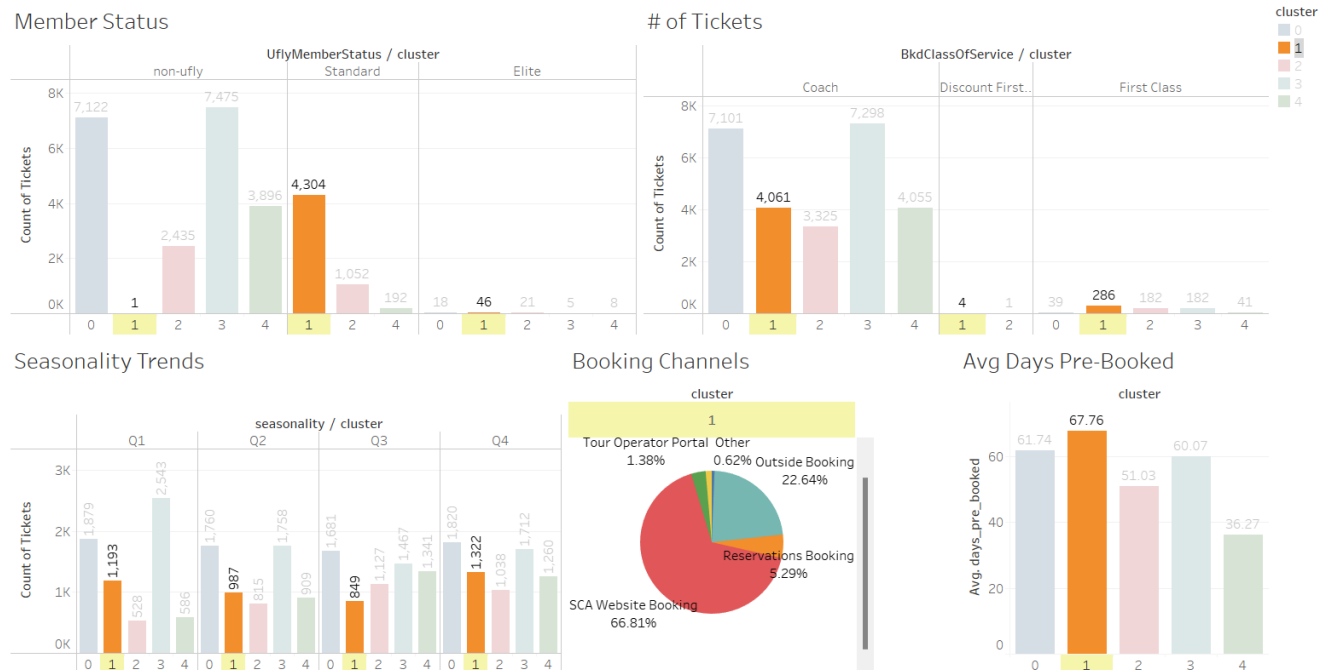
- The majority of individuals within the "Platinum" cluster are not enrolled in the membership program.
- Coach class is the preferred choice of travel for the "Platinum" cluster, with a significantly lower preference for First class bookings.
- Travel patterns of the "Platinum" cluster do not display notable seasonality trends.
- The "Platinum" cluster only utilizes the Outside booking platform
- On average, the "Platinum" cluster reserves their tickets 62 days in advance.

Platinum Status Cluster Marketing Suggestions:

1. **Loyalty Program:** Since the "Platinum" cluster are mostly non-ufly members, Sun Country can introduce a loyalty program tailored to their preferences. To incentivize membership, we should highlight the benefits of becoming a member, by offering exclusive discounts, early booking privileges, and accumulating points for future travel.
2. **Early Booking Promotions:** Given their preference to book tickets before 62 days on average Sun Country can offer early booking promotions. This can include reduced fares for those who book well in advance or access to exclusive offers for early bookers.

3. **Exclusive Website Offers:** To effectively motivate the “Platinum” cluster to use Sun Country’s website, Sun Country should provide exclusive offers and promotions that are only available on your website. Highlight these special deals to promote customers to book through the company’s official channel.

Gold Status Cluster Characteristic:

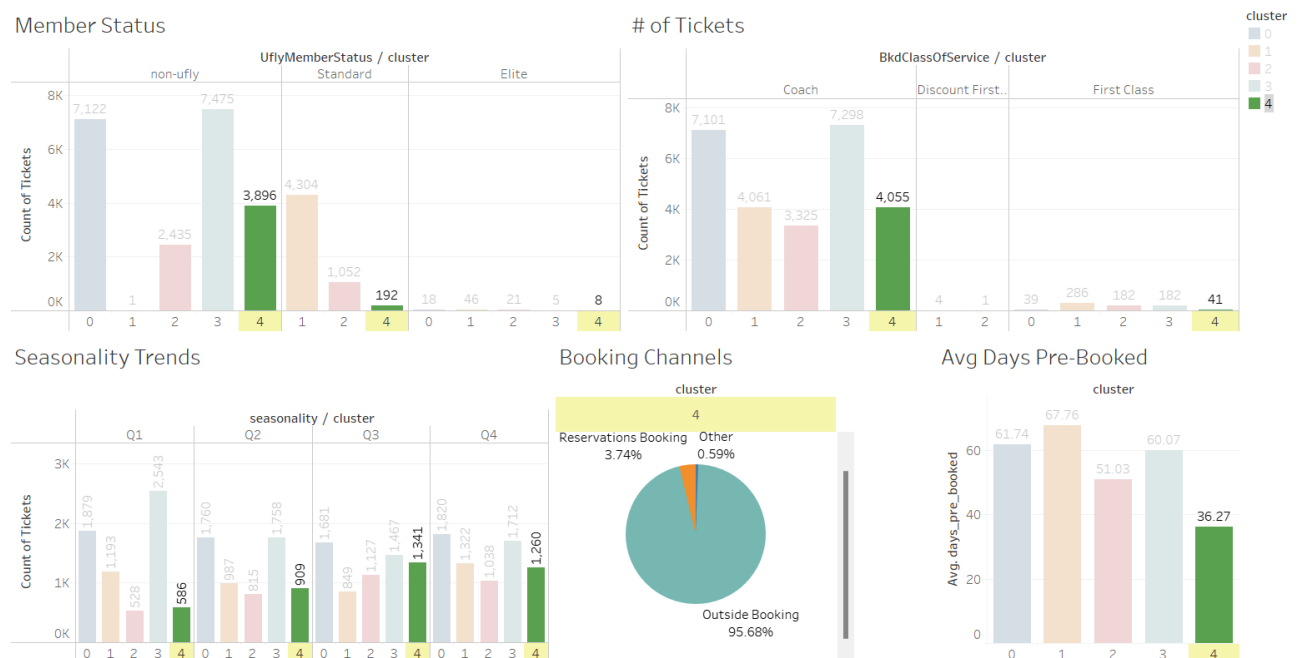


- The “Gold” cluster displays the highest number of Standard Membership subscriptions among the five clusters. Accordingly, we could propose an enhanced promotion as an incentive for them to upgrade to the Elite tier.
- “Gold” cluster predominantly utilizes the SCA booking platform.
- The high volume season for this customer segment is quarter 1 and quarter 4. These customers also tend to buy tickets on average 67 days before they travel, presenting an opportunity to implement targeted marketing campaigns on this specific website two months before the peak season.
- “Gold” cluster exhibits the highest volume of First-Class ticket purchases among all clusters, suggesting a notable potential for continued interest in First-Class tickets in the future.

Gold Status Cluster Marketing Suggestions:

- Points-based loyalty program:** To fortify customer loyalty and incentivize higher spending, we recommend the implementation of a points-based loyalty program. Customers would accumulate points in direct proportion to their expenditure, with the opportunity to attain “Elite” status upon reaching specific spending thresholds.
- Exclusive discount on First-Class tickets for Elite members:** From all the aspects that have been discussed above, we recommend implementing a promotion strategy for “Gold” cluster customers, while they are offered incentives to upgrade to the Elite tier for exclusive discounts on First-Class tickets. More specifically, Elite members would gain access to exclusive privileges, notably including substantial discounts on our premium First-Class tickets. This strategic initiative, seamlessly integrated into our customer engagement strategy, aims to foster enduring customer relationships, elevate satisfaction, and boost revenue.
- Marketing campaign at the SCA booking website:** This approach complements our specific marketing efforts on the SCA booking website 2 months before the peak season, which in this case, from September to December.

Silver Status Cluster Characteristics:



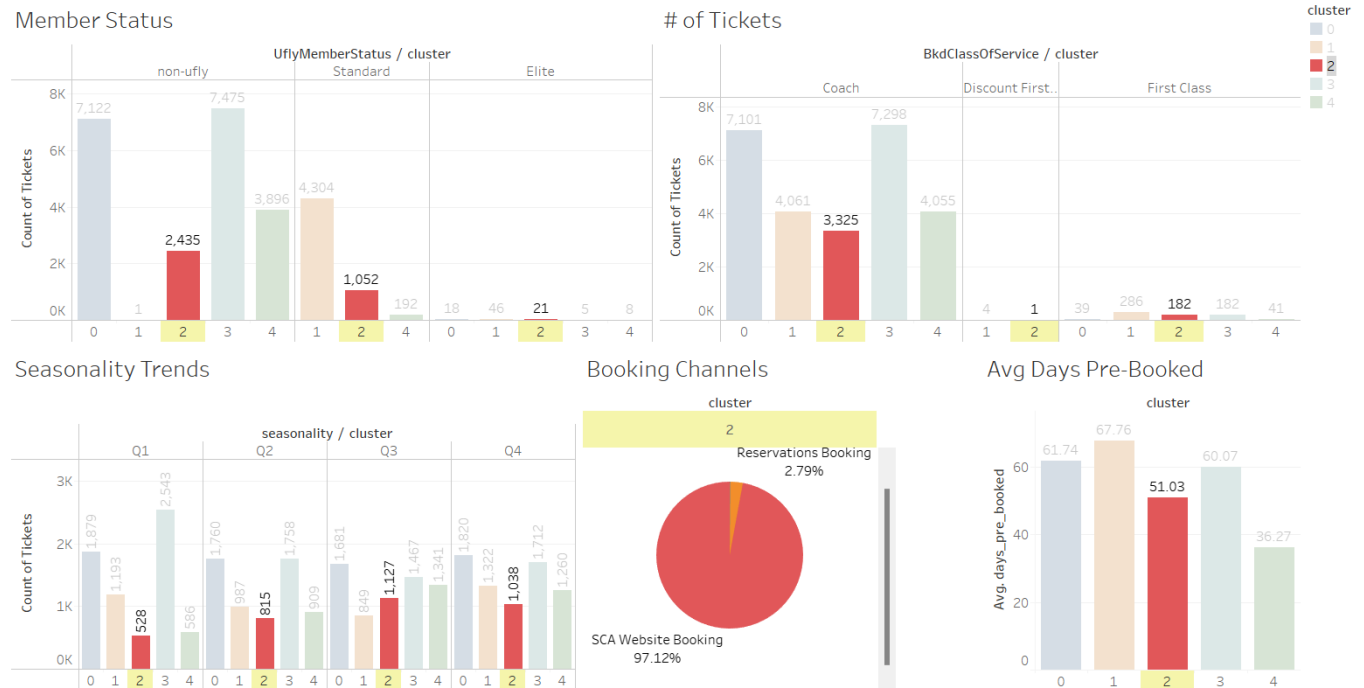
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- **Booking Habits:** Silver Cluster passengers predominantly book their flights about a month in advance.
- **Flying Preference:** The majority of them choose to fly coach, indicating budget-conscious behavior.
- **Loyalty Engagement:** Most are not enrolled in the loyalty program and frequently use third-party platforms for booking.

Silver Status Cluster Marketing Suggestions:

1. **In-flight Discounts:** Offer limited-time discounts on in-flight food, beverages, and entertainment.
2. **Service Bundling:** Consider bundling food, beverages, and entertainment, promoting them at the time of booking to cater to budget-conscious travelers.
3. **Last-Minute Seat Upgrades:** Provide last-minute discounts on unsold first-class or premium economy seats to encourage customers to upgrade, thus bringing in additional revenue and enhancing their travel experience.
4. **Travel Packages:** Collaborate with car rental agencies and hotels to create comprehensive travel packages for a seamless travel experience.
5. **Rewards Program Membership:** As many customers are not part of the airline's rewards program, promote membership by showcasing the exclusive deals and bundled offers available only on the airline's official website.
6. **Increased Flight Frequencies in Q3 & Q4:** Given the high travel preference during these quarters, increase flight frequencies to better accommodate traveler needs and can offer special discounts during off-seasons to stimulate demand and increase revenue.

Bronze Status Cluster Characteristics:



- The “Bronze” Cluster predominantly comprises non-Ufly members and standard Sun Country Airlines customers
- The “Bronze” Cluster exhibits a pronounced preference for Coach tickets, consistently ranking as the lowest ticket volume purchaser among the identified clusters.
- The “Bronze” Cluster exhibits a strong inclination to utilize the SCA Website for booking purposes, with a substantial focus on Quarter 3 and 4 bookings, and an average lead time of approximately 51 days prior to departure.

Bronze Status Cluster Marketing Suggestions:

1. **Promote Special Offers:** Since the "Bronze" cluster appears to prioritize cost-effective travel options, Sun Country could create and promote special offers, discounts, or bundled packages specifically targeted at this segment. For example, offer discounted fares for Coach tickets or package deals that include extras like checked baggage or in-flight amenities.
2. **Early Booking Incentives:** Given that this cluster tends to book flights around 51 days in advance, Sun Country can introduce early booking incentives. Encourage customers to

book well in advance by offering lower prices, seat selection benefits, or loyalty points for those who plan their trips ahead.

3. **Website Enhancements:** Since the "Bronze" cluster prefers booking through the SCA Website, focus on improving the user experience on the website. Ensure that the booking process is user-friendly, offer transparent pricing, and provide easy access to information about available services and add-ons.
4. **Quarter-Specific Promotions:** Since this cluster tends to book primarily in Quarters 3 and 4, Sun Country can launch quarter-specific promotions. For example, offer seasonal discounts, vacation packages tailored to those seasons, or special perks for holiday travel.
5. **Loyalty Program Engagement:** Encourage members of the "Bronze" cluster to enroll in the Ufly Rewards program by highlighting the benefits of membership, such as earning points for future travel or accessing exclusive offers. Consider offering bonus points or rewards for their first enrollment or flight.
6. **Customer Feedback:** Actively seek feedback from the "Bronze" cluster to understand their specific needs and preferences better. Use surveys, focus groups, or direct communication channels to gather insights and tailor your services accordingly.

Conclusion:

In conclusion, the analysis of customer clusters within Sun Country Airlines has provided a robust foundation for tailored marketing strategies. By segmenting customers into five distinct clusters and understanding their characteristics, preferences, and booking behaviors, Sun Country Airlines can optimize its marketing efforts to engage each group effectively. These strategies include promoting exclusive membership benefits, enhancing the user experience on the airline's website, offering targeted discounts and promotions, and emphasizing the advantages of the loyalty program. The cluster analysis not only helps Sun Country Airlines meet its immediate marketing objectives but also positions the company for long-term success by fostering customer loyalty and revenue growth. This data-driven approach underscores the importance of understanding and exploring data to drive actionable insights and informed decision-making in the competitive airline industry.

Appendix

```
In [1]: import pandas as pd
        from sklearn.cluster import KMeans

In [2]: # Read clustered_data
clustered_data = pd.read_csv('/Users/ejshin/Documents/UCI/Foundation of BA/Group project/Clustering Data.csv')

In [3]: # Check the missing value
missing_values = clustered_data.isnull().sum()
missing_values

Out[3]: uid                                0
        PNRLocatorID                       0
        avg_amt                             0
        round_trip                          0
        group_size                          0
        ..
        UflyMemberStatus_Standard           0
        seasonality_Q1                       0
        seasonality_Q2                       0
        seasonality_Q3                       0
        seasonality_Q4                       0
        Length: 90, dtype: int64

In [4]: # To preserve the original data
c_data = clustered_data.copy()

In [5]: # Check the types of the columns
print(c_data.dtypes)

uid                                object
PNRLocatorID                       object
avg_amt                             float64
round_trip                          int64
group_size                          float64
...
UflyMemberStatus_Standard           int64
seasonality_Q1                       int64
seasonality_Q2                       int64
seasonality_Q3                       int64
seasonality_Q4                       int64
Length: 90, dtype: object

In [6]: # Drop the categorical value
c_data = clustered_data.drop(columns=['uid', 'PNRLocatorID'])

In [7]: # Create clusters by KMeans
kmeans = KMeans(n_clusters=5, n_init='auto')
kmeans.fit(c_data)

clustered_data['cluster'] = kmeans.labels_

In [8]: # Read customer_data
customer_data = pd.read_csv('/Users/ejshin/Documents/UCI/Foundation of BA/Group project/sample_data_transformed.csv')

In [9]: # Delete unnecessary index column of the customer_data
del customer_data['Unnamed: 0']

In [10]: # Merge two dataframes
final_dataframe = customer_data.merge(clustered_data[['uid', 'cluster']], on='uid', how='left')

In [11]: # Export the dataframe to csv file
final_dataframe.to_csv('final_analyze_data.csv')
```