



UNITED AIRLINES CUSTOMER EXPERIENCE ANALYSIS

ANALYZING INFLIGHT SERVICE AND CUSTOMER FEEDBACK



INTRODUCTION

As United Airlines is on its journey to becoming the largest airline in the world, our focus continues to be on what our customers think of our products and service and ensuring they are taken care of in the friendly skies.

In this analysis report, we aim to boost United Airlines' Food & Beverage (F&B) service satisfaction by identifying customer pain points and inventory planning challenges through data analysis. We'll start with a descriptive analysis, uncovering patterns, and then explore key drivers of customer satisfaction, offering data-backed recommendations for improvement.



PROJECT TIMELINE

Data
Understanding



Data Cleaning and
Data Analysis



Presentation and
Sharing



DATA CLEANING



01 Duplicate values were deleted based on primary keys in different data sets

02 Null Values were replaced by appropriate values

03 Data Types of certain column were changed based on requirements during analysis

INFLIGHT SERVICE: INVENTORY DATA

Highlight key columns: flight_number, entree_code, planned_entree_count, consumed_entree_count

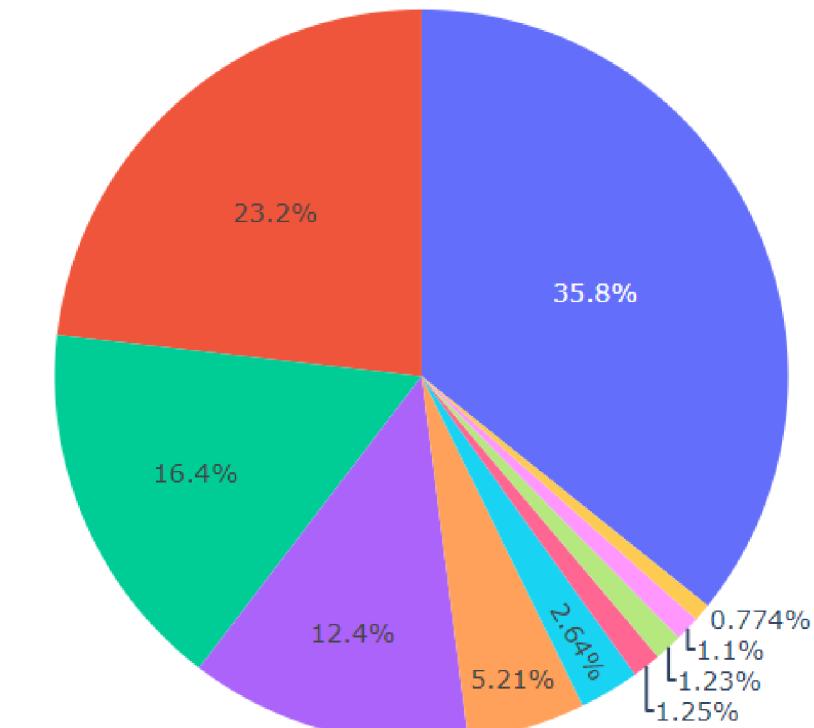
01 Summary Statistics

	planned_entree_count	consumed_entree_count	difference_count
count	61264.000000	61264.000000	61264.000000
mean	7.355462	3.155687	4.199775
std	6.738911	4.664401	5.745516
min	0.000000	-7.000000	-15.000000
25%	3.000000	0.000000	1.000000
50%	6.000000	1.000000	2.000000
75%	10.000000	5.000000	6.000000
max	193.000000	100.000000	193.000000

Some difference in planned and consumed count is coming out to be negative

02 Entree Code Distribution

Top 10 Planned Food Categories

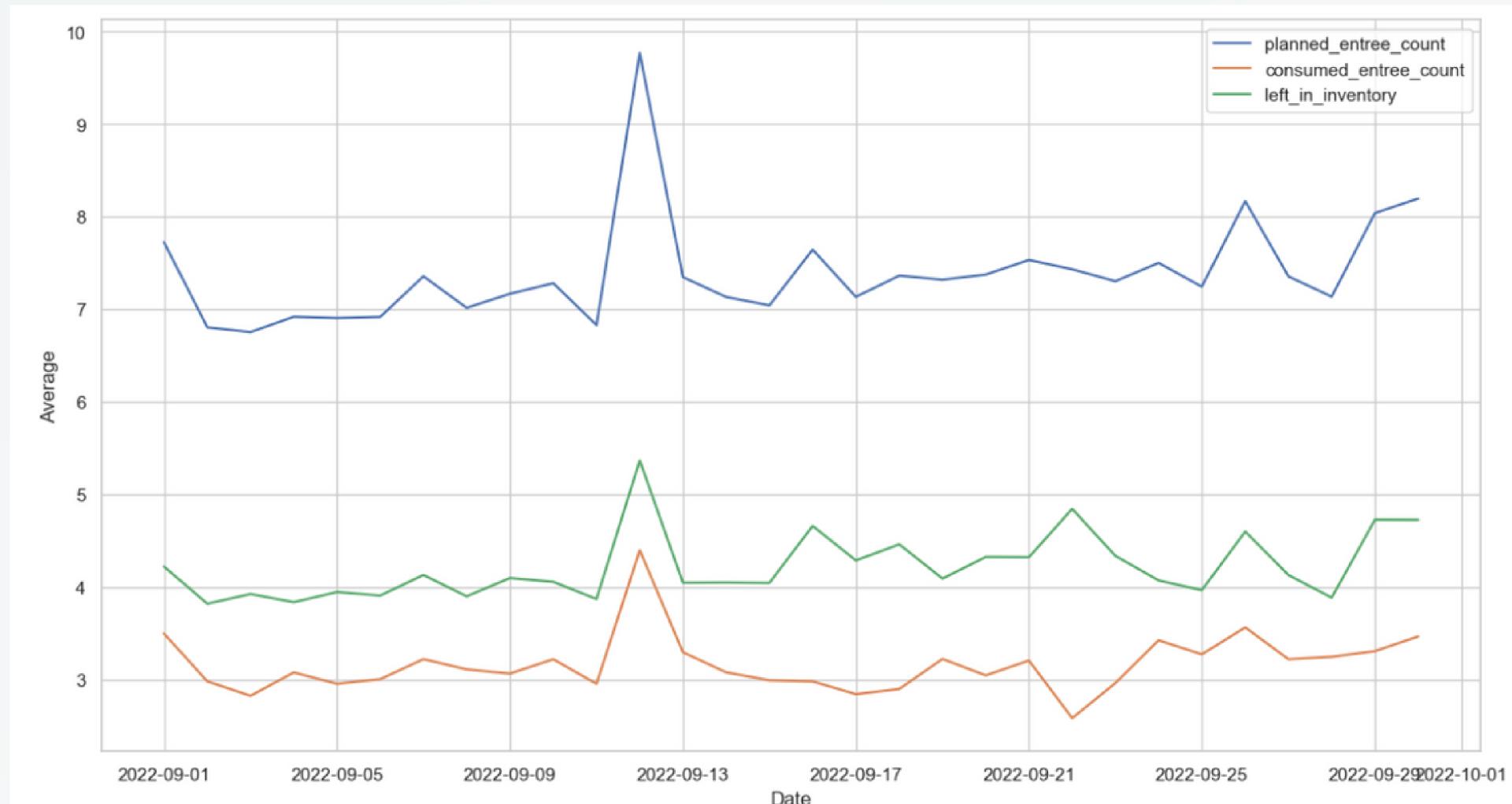


Legend: C, V, O, WF, B, E, O2, FT, OM, P

INFLIGHT SERVICE: INVENTORY DATA

03

Time Analysis:



- Here we can see the trend in planned and consumed entrees with time
- We can see that the inventory is well managed and also there is no overall shortage

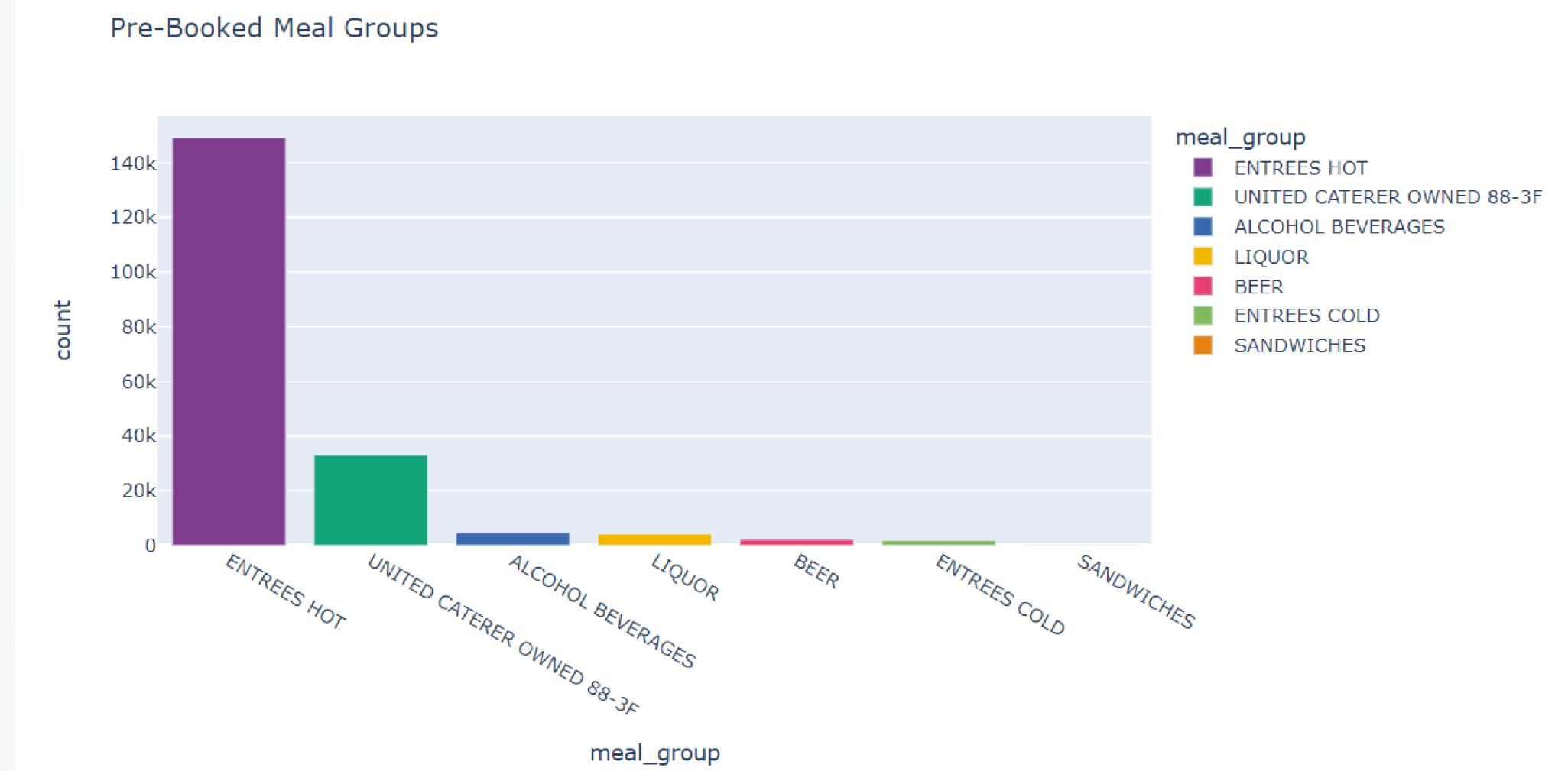
INFLIGHT SERVICE: PREORDER DATA

Highlight key columns: scheduled_departure_dtl,cabin_code,meal_group, is_entree, pre_order_qty

01 Summary Statistics

pre_order_qty	
count	194997.000000
mean	1.305856
std	0.810122
min	0.000000
25%	1.000000
50%	1.000000
75%	1.000000
max	44.000000

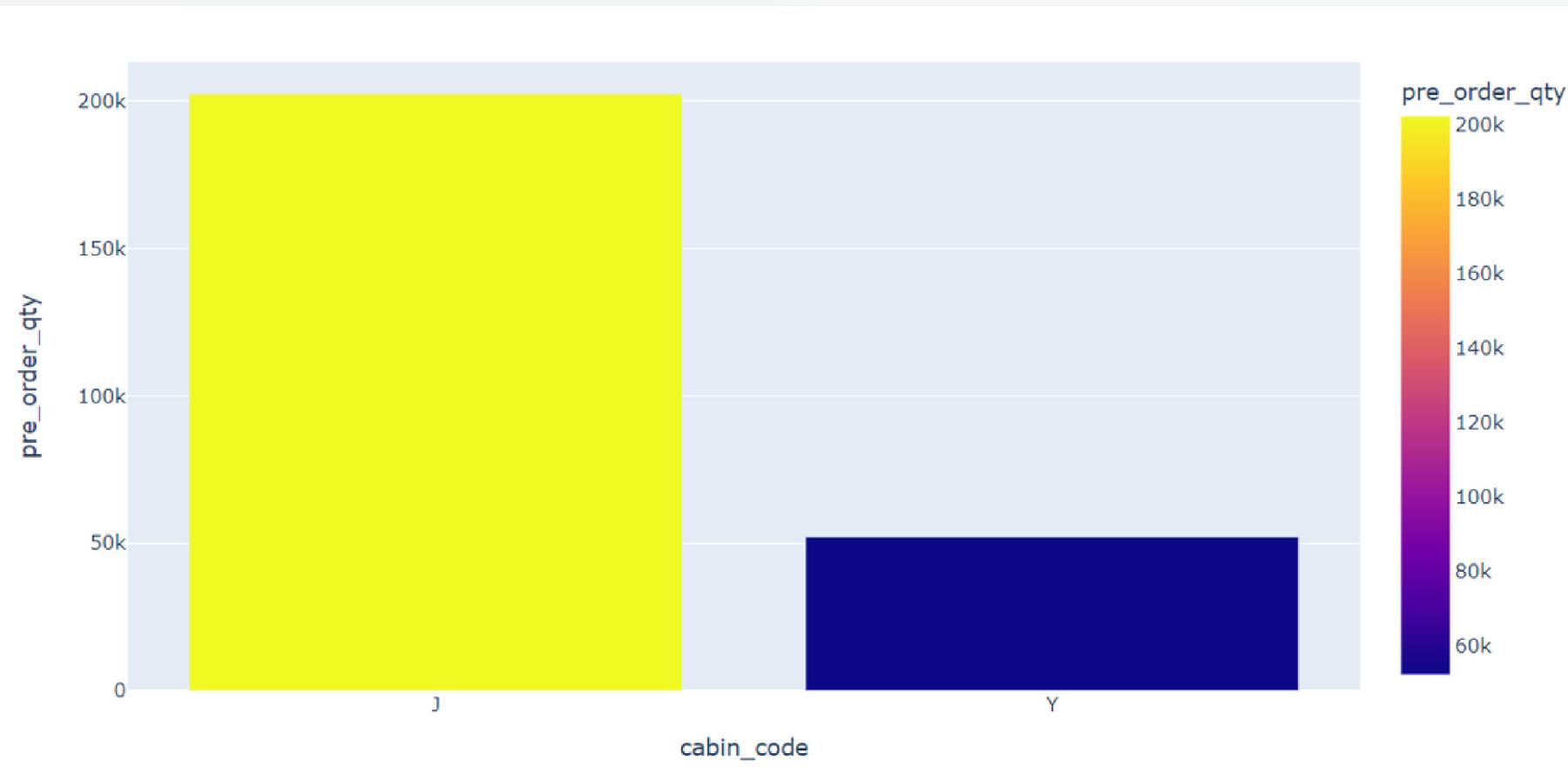
02 MealGroups Distribution



INFLIGHT SERVICE: PREORDER DATA

03

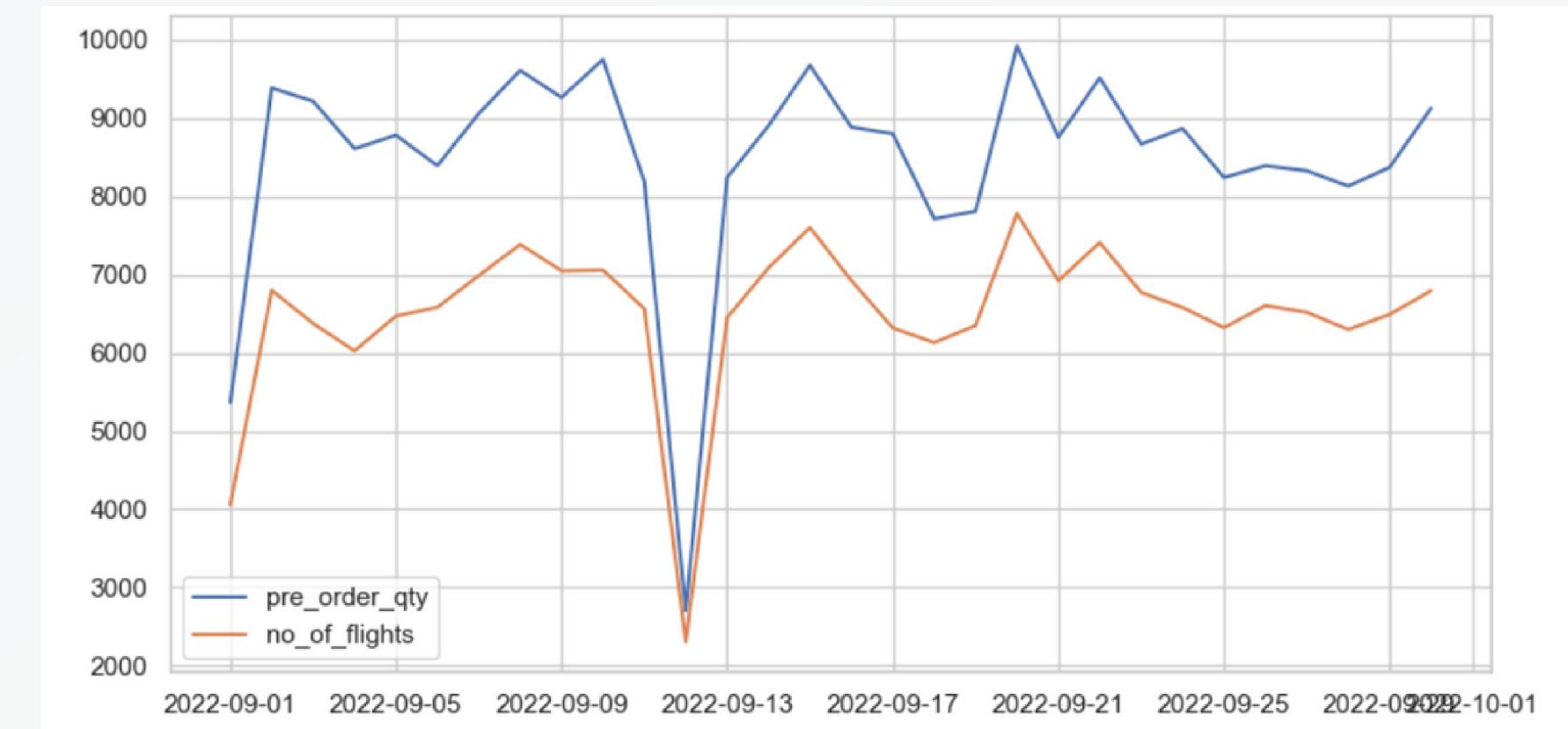
Cabin Code Distribution



- Business Class People tend to prebook the meal more than Economy

04

Time Series



- Here we can see the trend in pre-ordered quantities over time
- There is a decrease in quantity due to decrease in number of flights

INFLIGHT SERVICE: PREORDER DATA

03

Meal Onboard:

	is_entree	meal_group	pre_order_qty
0	N	ALCOHOL BEVERAGES	3056
1	N	BEER	2383
2	N	LIQUOR	4808
3	N	UNITED CATERER OWNED 88-3F	39646
4	NA	ALCOHOL BEVERAGES	2295

- This table signifies the prebooked meals are not present on-board which is a concern as it may lead to negative scoring by customers

INFLIGHT SATISFACTION SCORE

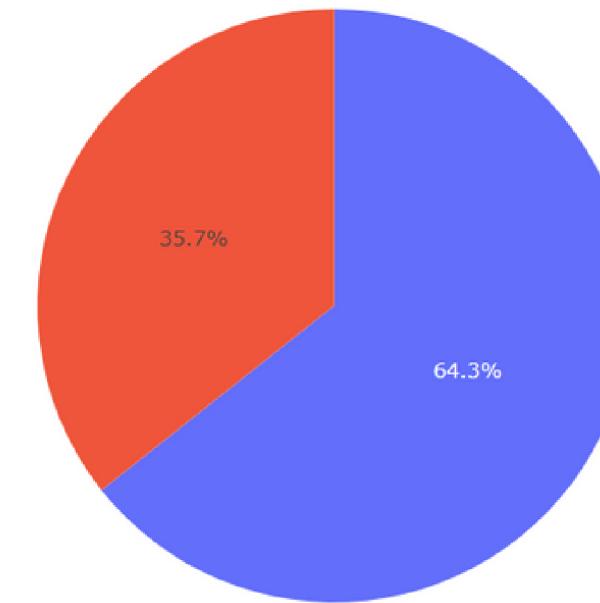
Highlight key columns: score, satisfaction_type, arrival_delay_group, flight_number, scheduled_departure_date, generation, loyalty_program_level, cabin_code_desc

01 Summary Statistics

	score	arrival_delay_minutes	number_of_legs	actual_flown_miles
count	28769.000000	28769.000000	28769.000000	28769.000000
mean	2.880288	-1.394696	1.372867	1961.184122
std	1.418211	38.908883	0.514232	1688.509271
min	1.000000	-104.000000	1.000000	45.000000
25%	2.000000	-18.000000	1.000000	733.000000
50%	3.000000	-9.000000	1.000000	1400.000000
75%	4.000000	3.000000	2.000000	2556.000000
max	5.000000	907.000000	3.000000	8440.000000

02

Satisfaction type Distribution

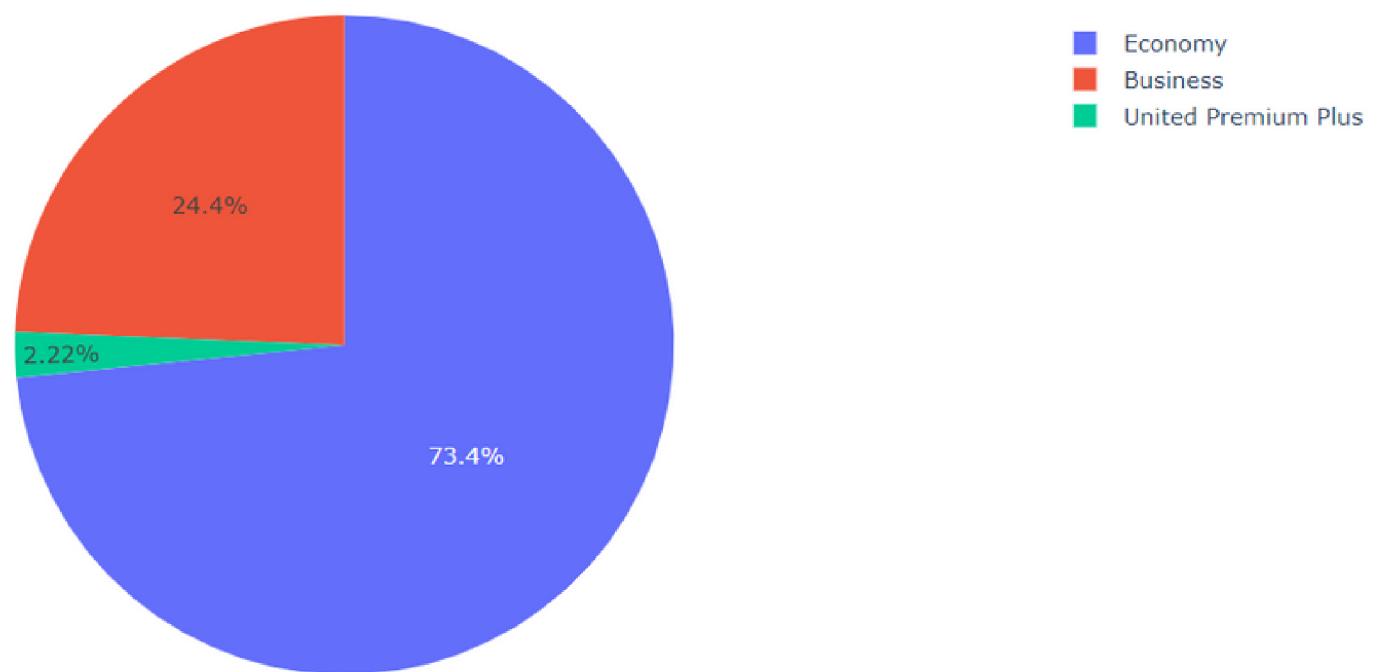


Dissatisfied
Satisfied

INFLIGHT SATISFACTION SCORE

03

Dissatisfied Customers Cabin Distribution

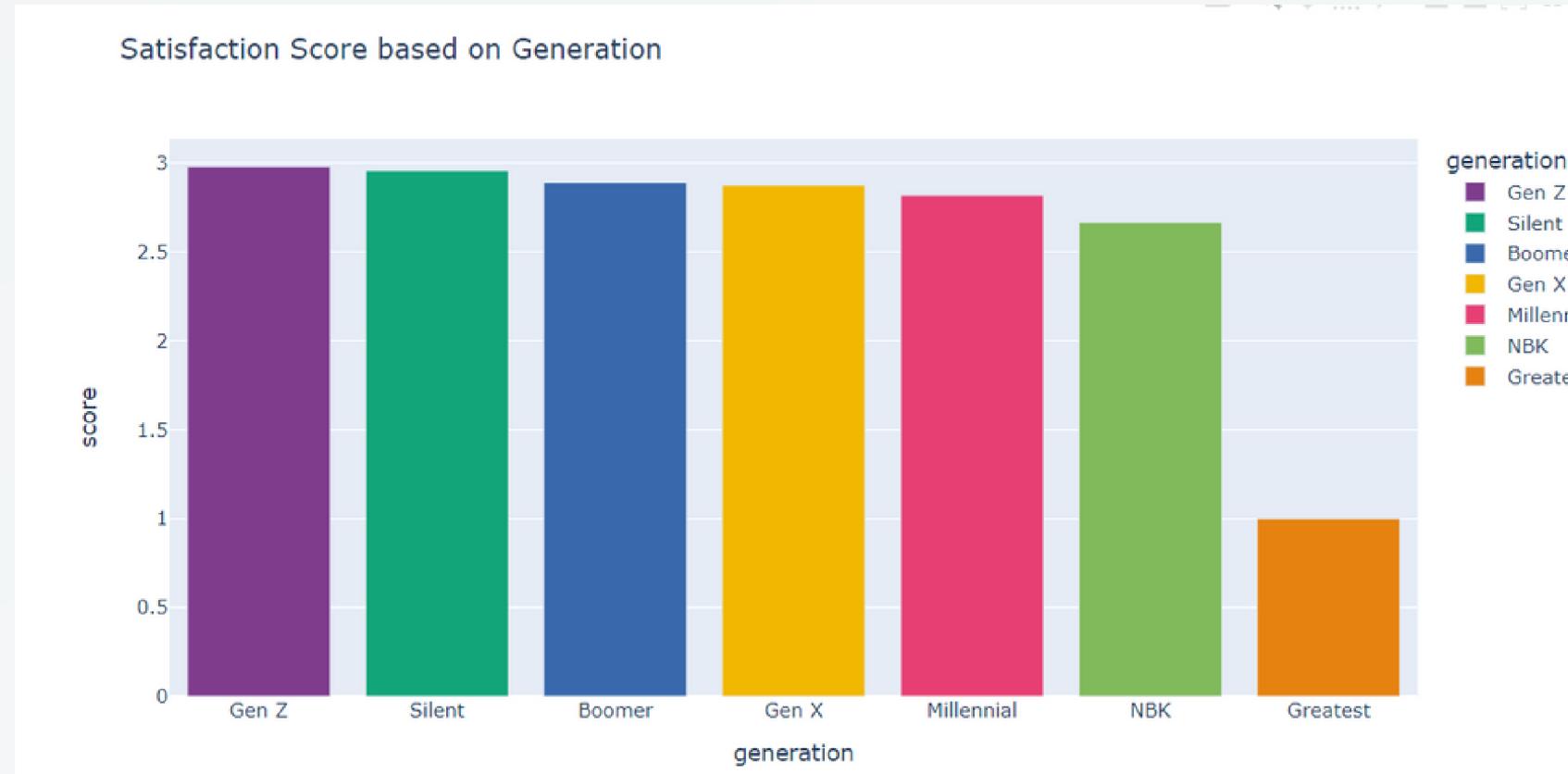


Mostly Dissatisfied Customer
belong to Economy class

INFLIGHT SATISFACTION SCORE

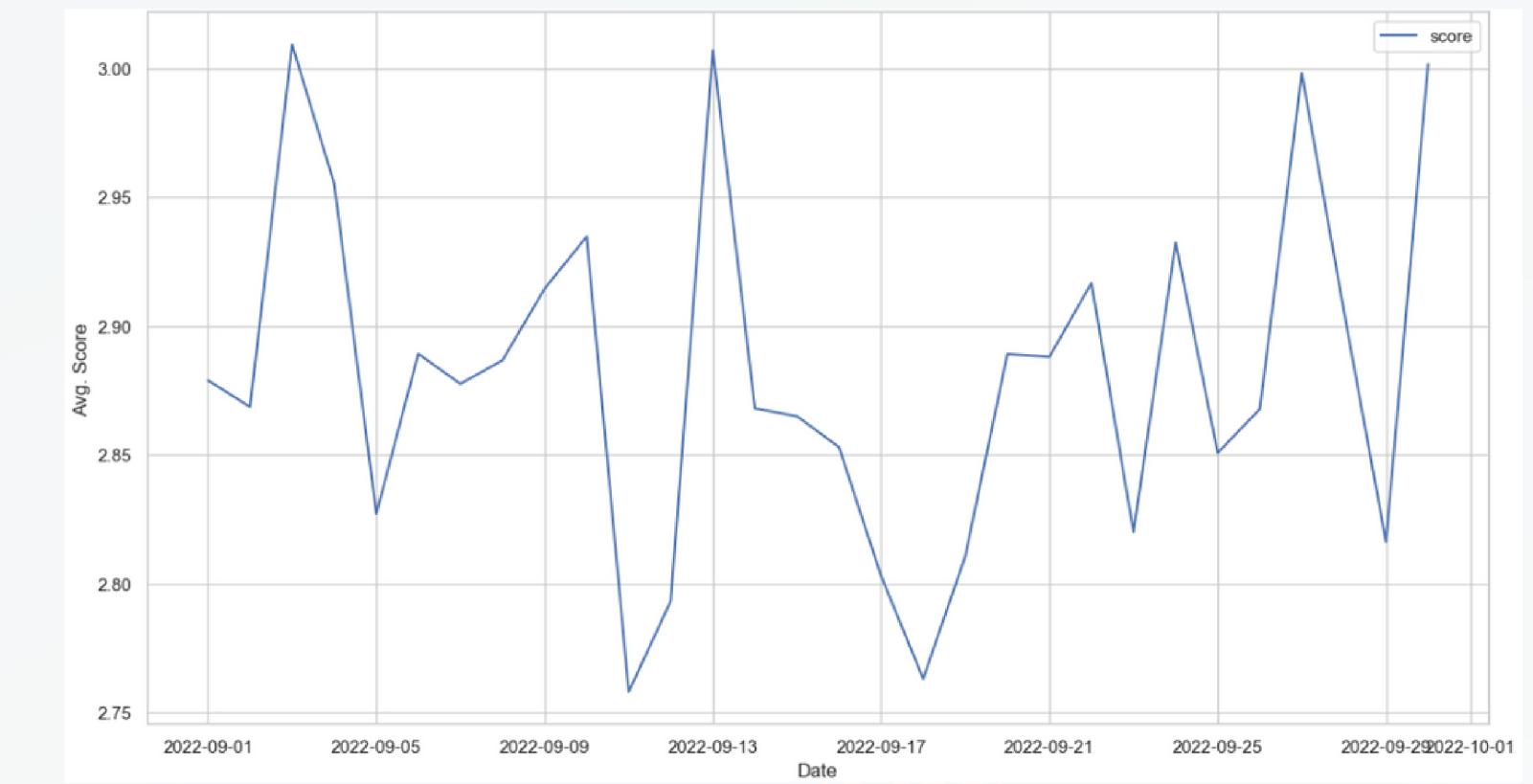
04

Satisfaction Score Distribution



05

Time Series



- 'Greatest' Generation people tend to be less satisfied

- Distribution of score with Time
- During the middle of month the satisfaction score decreases

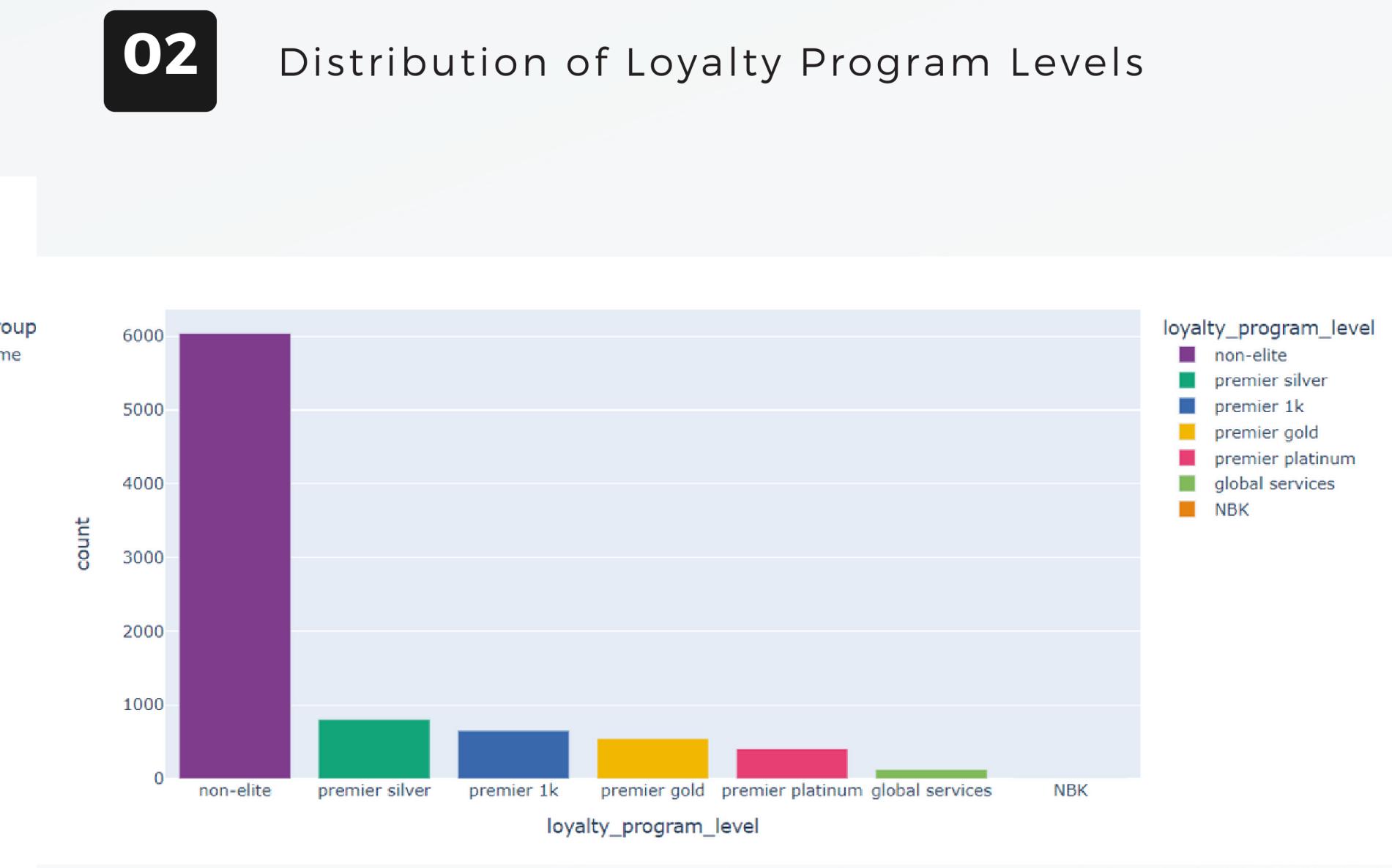
CUSTOMER COMMENTS/FEEDBACK

Highlight key columns: arrival_delay_group, verbatim_text, loyalty_program_level

01 Distribution of Arrival Delay Groups



02 Distribution of Loyalty Program Levels



CUSTOMER COMMENTS/FEEDBACK

03

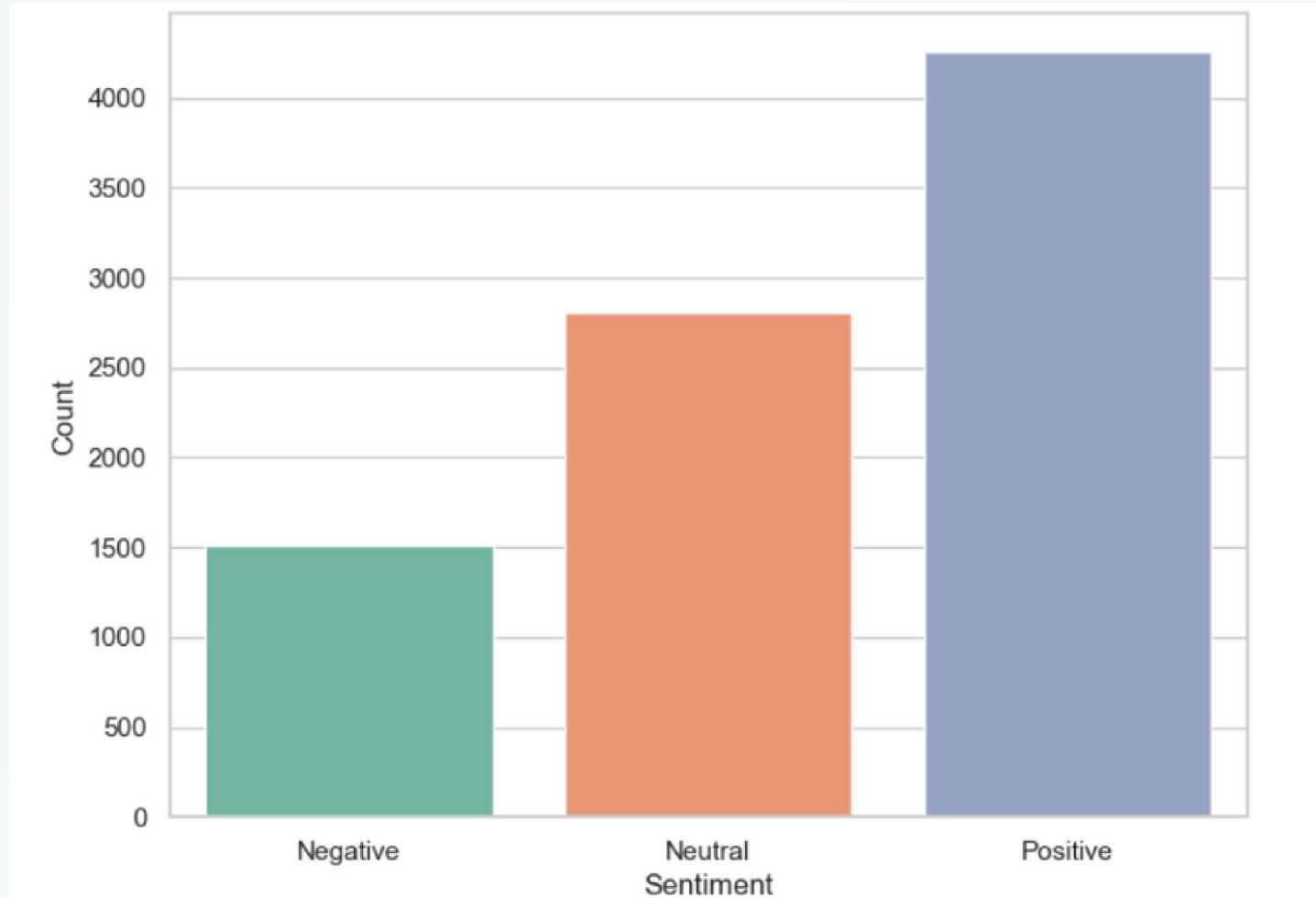
Verbatim Text Word Count



- The words appearing more in number are having a bigger font

04

Sentiment Distribution of Customer Comments



RECOMMENDATIONS

- **Inventory Planning Optimization:**
- Recommendation: Implement machine learning algorithms to optimize inventory planning.
- Analysis of Inflight Service: Inventory Data shows that consumed products should closely match planned quantities to prevent negative feedback. ML algorithms can help achieve this balance.

- **Prioritizing Prebooked Items:**
- Recommendation: Prioritize the availability of pre-booked items.
- Based on insights from Inflight Service: Preorder Data, ensuring pre-booked items are available can enhance customer satisfaction.

RECOMMENDATIONS

- **Complimentary Meals for Economy Class:**
 - Recommendation: Consider offering complementary meals in the Economy class.
 - Findings from Inflight Satisfaction Score data may reveal that complimentary meals enhance the flying experience for Economy class passengers.
- **Enhanced Care for Elderly Passengers:**
 - Recommendation: Implement measures to provide better care for elderly passengers.
 - Insights from the Inflight Satisfaction Score dataset might indicate a need for improved services for older passengers.