



Starluck Airlines Service Touchpoint Analysis

PERFORMANCE AND IMPORTANCE INSIGHTS TO DRIVE
SERVICE EXCELLENCE

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Background

The Customer Experience Team at Starluck Airlines has identified stakeholder feedback indicating that the airline's passenger experience is viewed less favorably than competitor offerings. This analysis focuses on determining which touchpoints along the customer journey are underperforming and which factors most strongly influence overall satisfaction.

Objective

The objective of this analysis is to evaluate customer satisfaction data to identify weaknesses, understand key drivers, and develop actionable strategies for improvement. Ultimately, the analysis seeks to achieve the following:

1. Service Weakness Identification — Determine which touchpoints across the customer journey (e.g., check-in, onboard service, baggage handling) consistently underperform and contribute to passenger dissatisfaction.
2. Satisfaction Driver Analysis — Identify and quantify which service factors most strongly influence a customer to rate their experience as "Satisfied," enabling Starluck Airlines to focus improvements where they will deliver the greatest impact.
3. Targeted Improvement Strategy — Translate satisfaction patterns into actionable, segment-specific strategies that address weaknesses, reinforce strengths, and enhance the overall passenger experience in ways that strengthen competitive positioning.

Problem Statement

A customer satisfaction survey was conducted across multiple touchpoints of the passenger journey, including digital services, airport service, cabin comfort, and inflight service. The analysis seeks to address the following questions:

1. *Which specific touchpoints are rated consistently lower and higher than others?*
2. *Which touchpoint satisfaction scores most strongly influence whether a customer rates their overall experience as "Satisfied"?*
3. *What is the relative weight of each touchpoint, and how can this guide the responsible departments in taking targeted action?*

Dataset

The dataset used for this analysis is the 'satisfied_2015.xlsx' from Kaggle.

Source link: <https://www.kaggle.com/datasets/johnddddd/customer-satisfaction>

Data Cleaning

Missing Value

Noticed that there are missing values in 'Arrival Delay in Minutes'. For analysis purpose, the zeros will not be replaced because this column will be ignored for this predictive model based on the correlation matrix done during EDA. On top of that, the sample size for null value is significantly small compared to the dataset.

Dropping & Renaming Columns

As mentioned previously we will be dropping the Arrival Delay in Minutes due to the high correlation to the target (i.e. satisfaction outcome of “satisfied” or “neutral/ dissatisfied”)

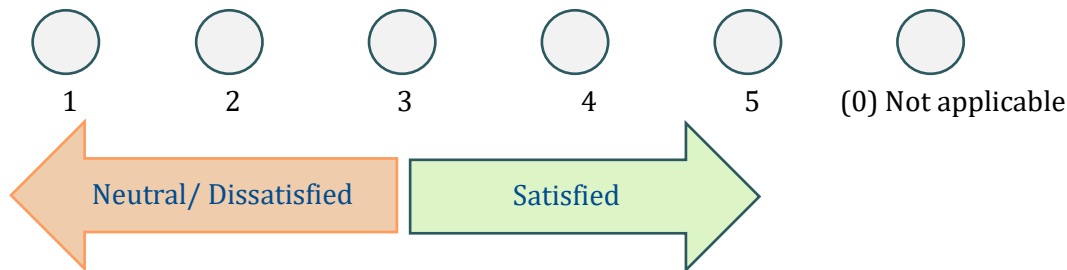
Name	Update	Justification
"satisfaction_v2"	"satisfaction_result"	Replaced "v2" with "results" as it is insignificant to the analysis.
'Ease of Online booking'	'Online Booking'	Removing the "Ease of" to simplify the name of variable for ease of analysis
'Online boarding'	'Online Check-in'	Updating the phrase to commonly used terms to avoid misunderstandings.
'Loyal Customer" 'disloyal Customer' - Input for "Customer Type" -	"Frequent Flyer" "Infrequent Flyer"	To update the definition of a loyal and disloyal customer: Loyal Customer -> Frequent Flyer Disloyal Customer -> Infrequent Flyer <ul style="list-style-type: none">- Frequent Flyer: Customer who flew with Starluck Airline more than 3 times within the last 12 months of completing the survey.- Infrequent Flyer: Customer who flew with Starluck Airline 3 times and less within the last 12 months of completing the survey.

Data Dictionary

Data	Type	Dictionary
satisfaction_result	Text	Satisfaction Outcome "Satisfied" and "Neutral/ Dissatisfied"
Gender	Integer	Gender of the passengers (Female, Male)
Customer Type	Text	The customer type (Frequent Flyer, Infrequent Flyer)
Age	Integer	The actual age of the passengers
Type of Travel	Text	Purpose of the flight of the passengers (Personal Travel, Business Travel)
Class	Text	Travel class in the plane of the passengers (Business, Eco, Eco Plus)
Flight Distance	Integer	The flight distance of the surveyed journey in Mile
Inflight wifi service	Integer	Satisfaction rating of the inflight wifi service (rating of 1-5, 0 = Not Applicable)
Departure/Arrival time convenient	Integer	Satisfaction rating of the Departure/Arrival time convenient
Online Booking	Integer	Satisfaction rating of the Online Booking
Gate location	Integer	Satisfaction rating of the Gate location
Food and drink	Integer	Satisfaction rating of the Food and drink
Online Check-in	Integer	Satisfaction rating of the Online Check-in
Seat comfort	Integer	Satisfaction rating of the Seat comfort
Inflight entertainment	Integer	Satisfaction rating of the Inflight entertainment
On-board service	Integer	Satisfaction rating of the On-board service
Leg room service	Integer	Satisfaction rating of the Leg room service
Baggage handling	Integer	Satisfaction rating of the Baggage handling
Checkin service	Integer	Satisfaction rating of the Check-in service
Inflight service	Integer	Satisfaction rating of the Inflight service
Cleanliness	Integer	Satisfaction rating of the Cleanliness
Departure Delay in Minutes	Integer	Minutes delayed when departure
sat_binary	Integer	Satisfaction result outcome of 1 = "Satisfied" and 0 = "Neutral/ Dissatisfied"
Inflight wifi service_satisfaction	Text	Satisfaction result outcome Inflight wifi service
Departure/Arrival time convenient_satisfaction	Text	Satisfaction result outcome Departure/Arrival time convenient
Online Booking_satisfaction	Text	Satisfaction result outcome Online Booking
Gate location_satisfaction	Text	Satisfaction result outcome Gate location
Food and drink_satisfaction	Text	Satisfaction result outcome Food and drink
Online Check-in_satisfaction	Text	Satisfaction result outcome Online Check-in
Seat comfort_satisfaction	Text	Satisfaction result outcome Seat comfort
Inflight entertainment_satisfaction	Text	Satisfaction result outcome Inflight entertainment
On-board service_satisfaction	Text	Satisfaction result outcome On-board service
Leg room service_satisfaction	Text	Satisfaction result outcome Leg room service

Baggage handling_satisfaction	Text	Satisfaction result outcome Baggage handling
Checkin service_satisfaction	Text	Satisfaction result outcome Checkin service
Inflight service_satisfaction	Text	Satisfaction result outcome Inflight service
Cleanliness_satisfaction	Text	Satisfaction result outcome Cleanliness

Q: How was your experience with [*Touch Point*']?



This is a sample question of the survey. Rating from 1-3 is categorized as Neutral Dissatisfied, and rating 3-5 is categorized as satisfied

Assumption:

1. The service feature ratings (1–5) are assumed to be accurate reflections of passenger perceptions, and 0 values are treated as missing/no response, which is excluded, not imputed from this analysis
2. Each row represents a unique passenger survey, independent of others, and no duplicate or repeated responses from the same passenger.
3. The satisfaction outcome (“satisfied” vs “neutral or dissatisfied”) is assumed to come directly from survey responses and not derived from service features.

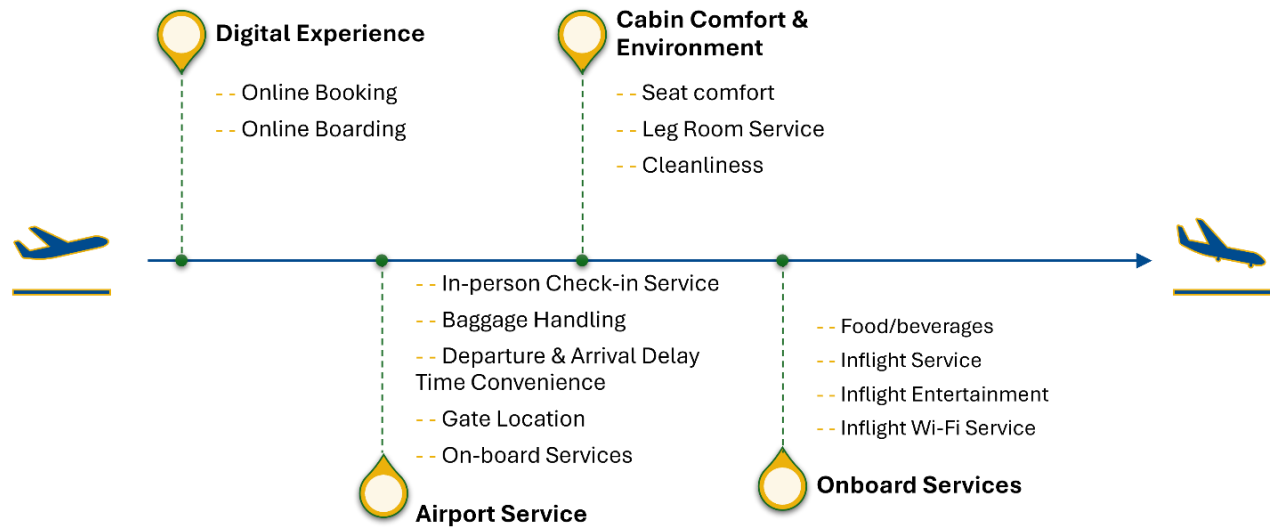
Holdout Dataset & Working Dataset

The dataset is sufficiently large ($n = 123,386$) to be divided into two groups: a working dataset and a holdout dataset. The working dataset, comprising 95% of the original dataset, was used for exploration data analysis to identify patterns in passenger satisfaction, as well as for training the predictive models. This process allowed us to uncover trends and develop a predictive model capable of identifying satisfied or dissatisfied customer journey experience based on the importance of weightage of each touch point.

To ensure reliable evaluation of model performance, 5% of the data ($n = 6,494$) was set aside as a holdout dataset. This holdout set was not used during model training, serving instead as an independent benchmark to test the model's predictive accuracy. By comparing the predicted outcomes on the holdout set against the actual satisfaction ratings, we were able to validate the robustness of the models using key metrics such as Accuracy Score and ROC-AUC. This separation safeguards against overfitting and ensures that the results reflect the model's ability to generalize beyond the training data.

Exploratory Data Analysis (EDA)

As part of the methodology, exploratory data analysis (EDA) was conducted on each feature to assess its distribution, identify patterns, and evaluate potential influence on passenger satisfaction, while also detecting anomalies or outliers for data quality assurance. The features were organized into four main categories: Digital Experience, Airport Service, Cabin Comfort & Environment, and Onboard Service.

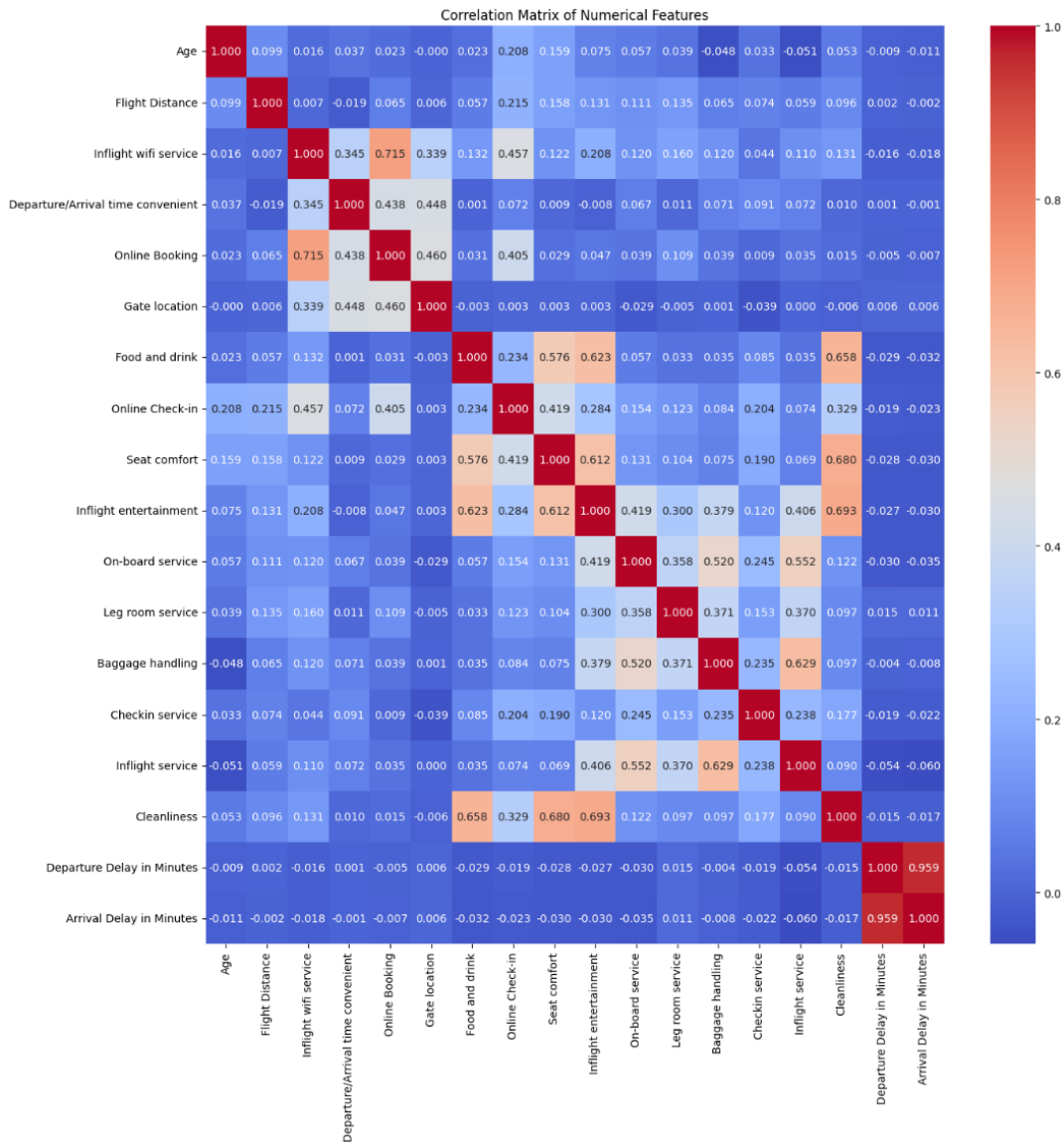


Demographic and flight-related attributes were treated as secondary variables; while not central to the outcome analysis, they were retained to provide precedence for future deep-dive analyses.

Individual Demographic	Flight Attributes
<ul style="list-style-type: none">AgeGenderCustomer Type	<ul style="list-style-type: none">ClassFlight DistanceType of TravellingDeparture/ Arrival Delay in Minutes

Correlation Matrix

The matrix shows the correlation between each variable, with the highest correlation of ~0.959 between Departure Delay in Minutes and Arrival Delay in Minutes. Hence, the Arrival Delay in Minutes variable is removed from this model.



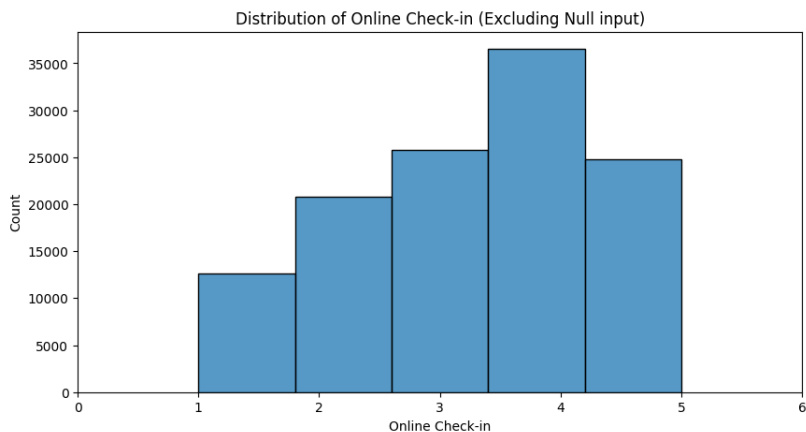
Digital Experience

Passenger feedback on Digital Experience shows mixed results: Online Booking is rated most often as neutral with a mean score of 2.9, suggesting the process is functional but leans toward dissatisfaction. In contrast, Online Check-in performs better with a mean score of 3.3 from a substantial sample, indicating a generally positive experience with room to elevate more passengers to “very satisfied.”

Online Booking

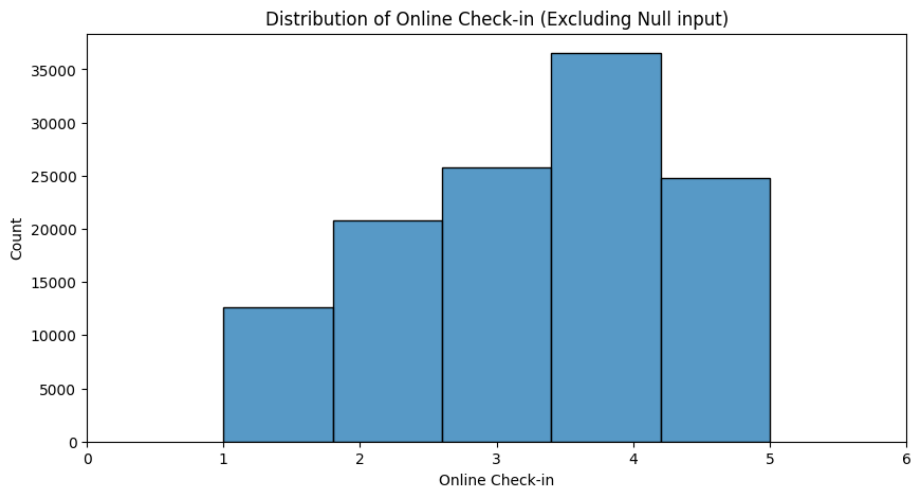
For Online Booking, the most common rating is 3 at 24.5% of the total responses (n= 117,999). Out of these valid responses, the mean satisfaction rate is 2.9, which is slightly below the Neutral point. The distribution indicates that the passenger is ranking the Online Booking processes more

towards Dissatisfied than Satisfied. With the high responses that sit at the neutral level, combining the mean score of less than 3, this suggests that the process is functional, but may be lack of features on ease of use for customer.



Online Check-in

For Online Check-in, the most common rating is 4, with 30.4% of the 120,468 responses. The mean score is 3.3 is above the Neutral midpoint, indicating that majority of the passengers are somewhat satisfied with their Online Check-in experience, with room to improve for passages to be “very satisfied” with their online check-in journeys.



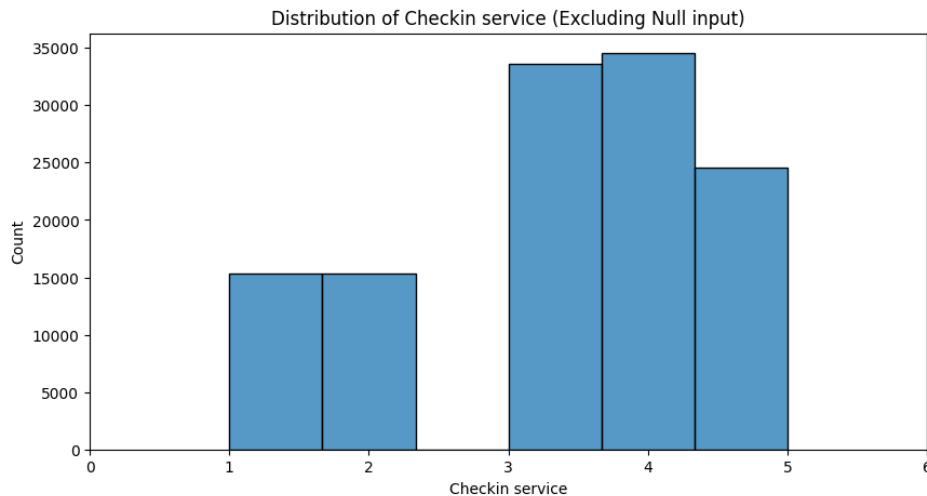
Airport Service

Passenger feedback on Airport Service reflects generally positive but varied experiences. In-person Check-in mirrors Online Check-in, with a mean score of 3.3 and 28% rating it “Satisfied,” slightly below the digital option of 30%. Baggage Handling performs strongly with a mean of 3.6 and 36% satisfied. Gate Location sits at the midpoint with a mean of 3.0, while On-board Service

(covering the journey from check-in until boarding) shows a mean of 3.4, indicating mostly satisfied passengers but with some inconsistency in experience. Finally, Departure & Arrival Delay has the smallest sample size but still records a mean of 3.2, suggesting passengers remain somewhat satisfied even when delays occur.

In-person Check-in Service

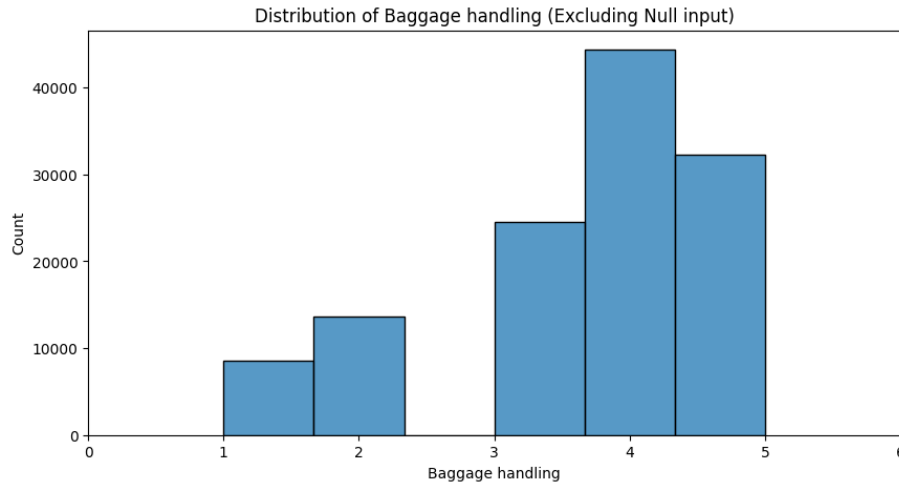
For In-person Check-in Service, the median is 4 at 28% of the 123,385 total responses. The mean score is 3.3 which is slightly above the Neutral midpoint.



When comparing to Online Check-in service, both check-in services showed similar satisfaction patterns, with most common rating being 4 (Satisfied) and average of 3.3. However, the slightly higher proportion of “Satisfied” responds in Online Check-in (30%) compared to In-Person Check-in (28%) suggested that passengers may find the digital option marginally more convenient.

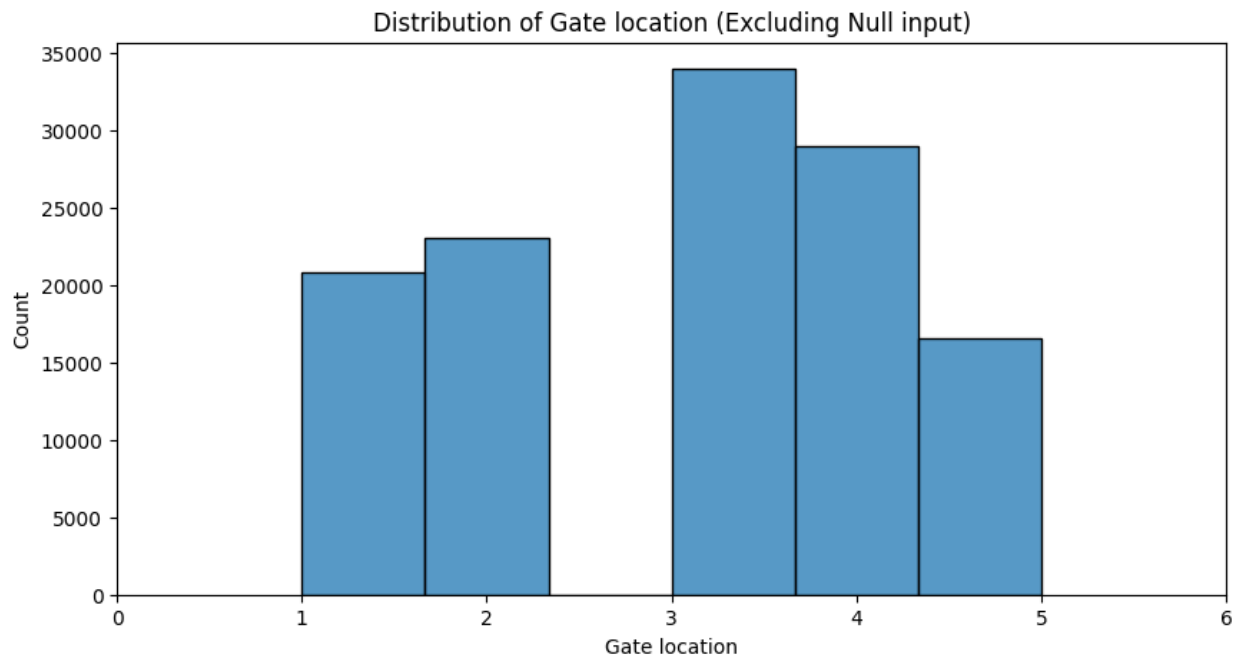
Baggage Handling

For baggage handling, the most common rating is 4, with 36% of the 123,386 responses. The mean score is 3.6, which is above the Neutral midpoint. Interestingly, very few passengers rated the service as strictly neutral, suggesting that baggage handling tends to evoke more divergent experiences — with most passengers satisfied, but a smaller group expressing dissatisfaction.



Gate Location

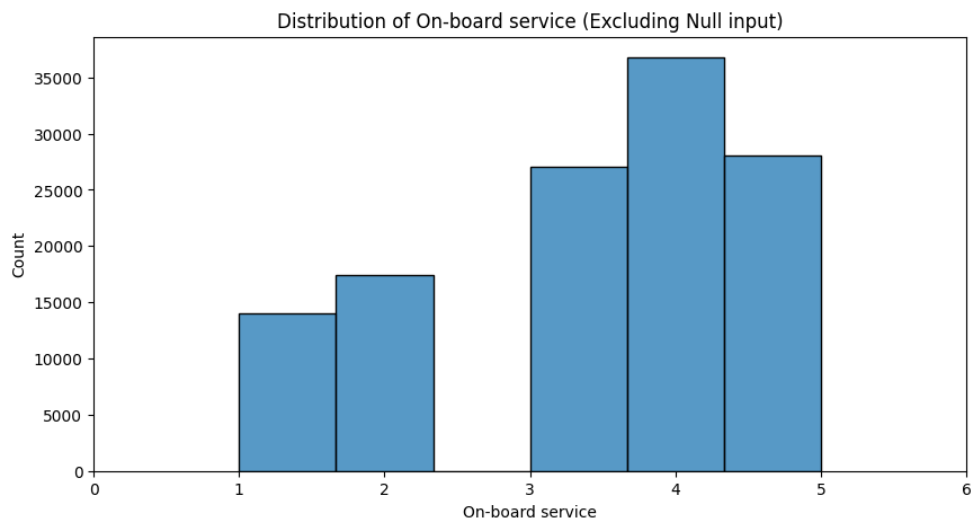
For Gate Location, the most common rating is 3, with 28% of the 123,385 responses. The mean score is 3.0, which is above the Neutral midpoint. Interestingly, very few passengers rated the service as strictly neutral, suggesting that baggage handling tends to evoke more divergent experiences — with most passengers satisfied, but a smaller group expressing dissatisfaction.



On-board service

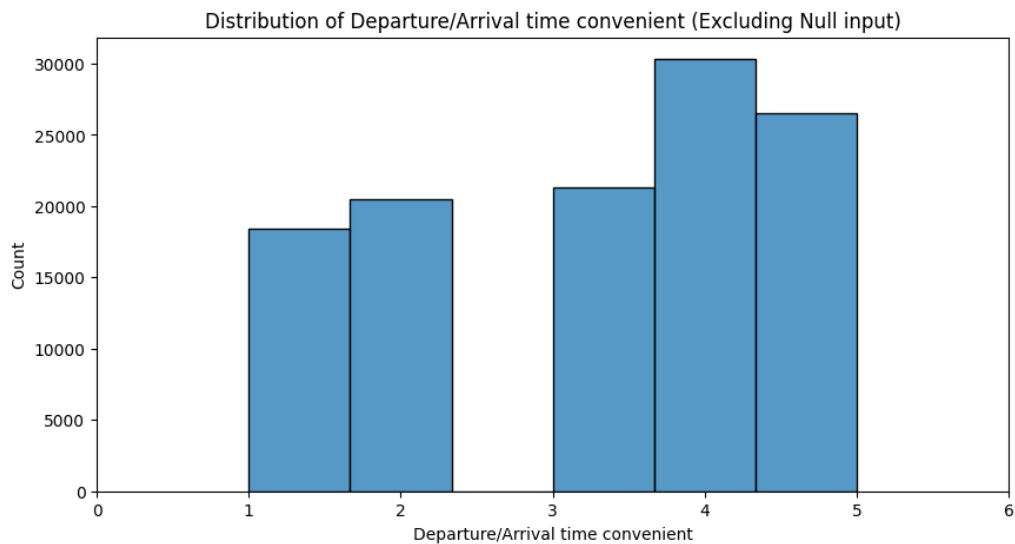
For On-board Service (i.e. covering the passenger journey from after check-in until boarding the plane), the most common rating was 4 (Satisfied), chosen by 30% of respondents out of 123,382 valid inputs. The mean score is 3.4, which is above the Neutral midpoint. Very few passengers rated the service as strictly neutral, suggesting customers are experiencing more contrast than a

consistent experience — with most passengers rated satisfied, and a smaller group expressing dissatisfaction.



Departure and Arrival Time Convenience

For Departure & Arrival Time Convenience, the most common rating is 4 (Satisfied) with a 26% responds rate out of 117,048. This variable has the lowest sample size out of all variables, likely many passengers did not encounter delays and therefore no rating recorded (i.e. 0 or left blank) The mean is 3.2, suggesting that despite customers experienced delays, they were still somewhat satisfied with our services.

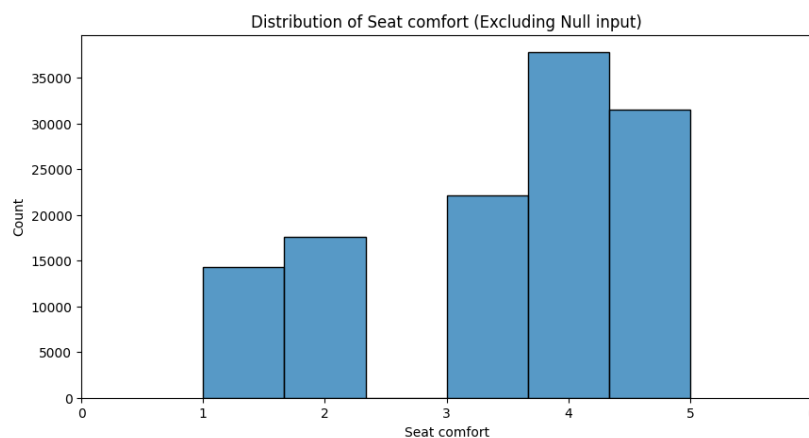


Cabin Comfort & Environment

For Seat Comfort, Leg Room and Cleanliness, the median ratings are the same across all at a rating 4, meaning that customers are rating the cabin comfort and environment higher than Neutral midpoint. With an average of 3.3 to 3.4 (Seat Comfort = 3.4; Leg Room = 3.4; Cleanliness = 3.3), this indicates that most of the responses are somewhat satisfied with the cabin comfort and the plane environment.

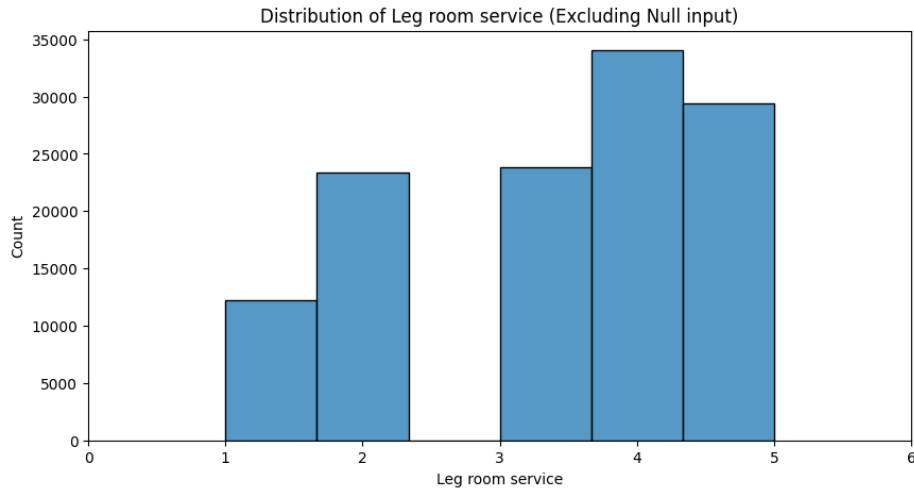
Seat comfort

For Seat Comfort, the most common rating was 4 (Satisfied), rated by 31% of 123,371 responses. The mean score of 3.4 is above the neutral midpoint (3.0), indicating that passengers are generally satisfied with the comfort of the seats on flights.



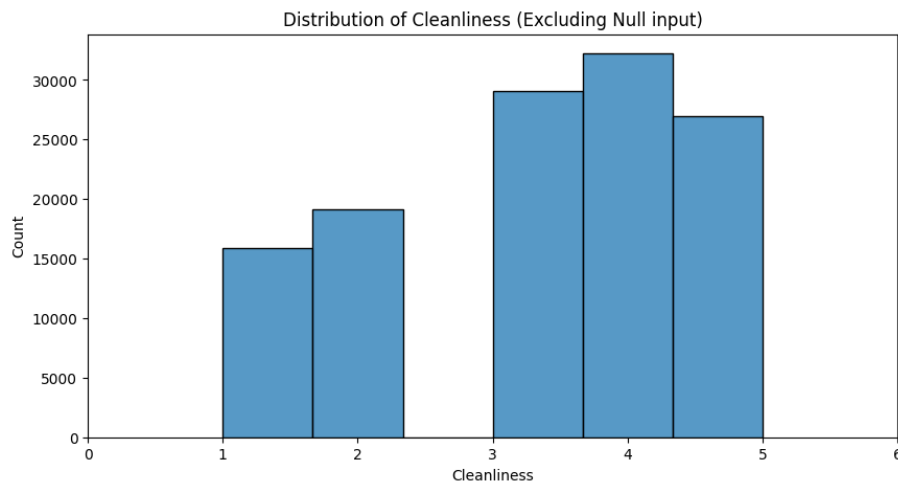
Leg Room

For Leg Room, the most common rating was 4 (Satisfied), rated by 26% of 123,374 responses. The mean score of 3.3 is above the neutral midpoint (3.0), indicating that passengers are generally satisfied with the leg room during their flights.



Cleanliness

For Cleanliness, the respondents are rating the cleanliness of the cabin. The most common rating was 4 (Satisfied), rated by 26% respondent of 123,374 responses. The mean score of 3.3 is slightly above the neutral midpoint (3.0), indicating that passengers are generally satisfied with the leg room during their flights.

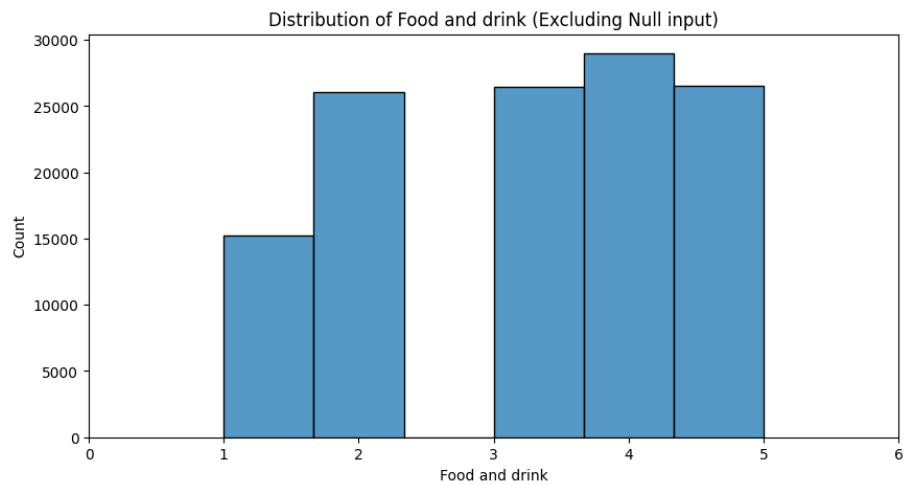


Inflight Services

Compared to other services, Inflight Services (i.e. cabin crew service) stands out as one of the stronger aspects of the passengers' experience with a sizable share of respondents expressing satisfaction. On the other hand, a lot of passengers had expressed their dissatisfaction with the Inflight Wi-Fi service on flight.

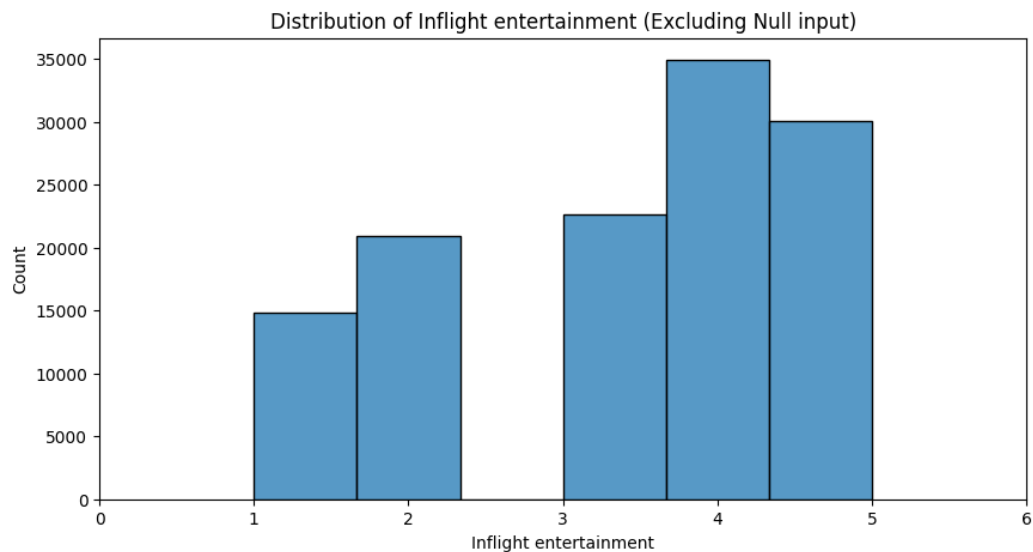
Food and Beverages

For Food & Drink, the most common rating was 4 (Satisfied), selected by 24% of respondents out of 123,265 valid inputs. The mean score of 3.2 is only slightly above the neutral midpoint (3.0), suggesting that while some passengers are satisfied, many others perceive the inflight catering as average or below expectations.



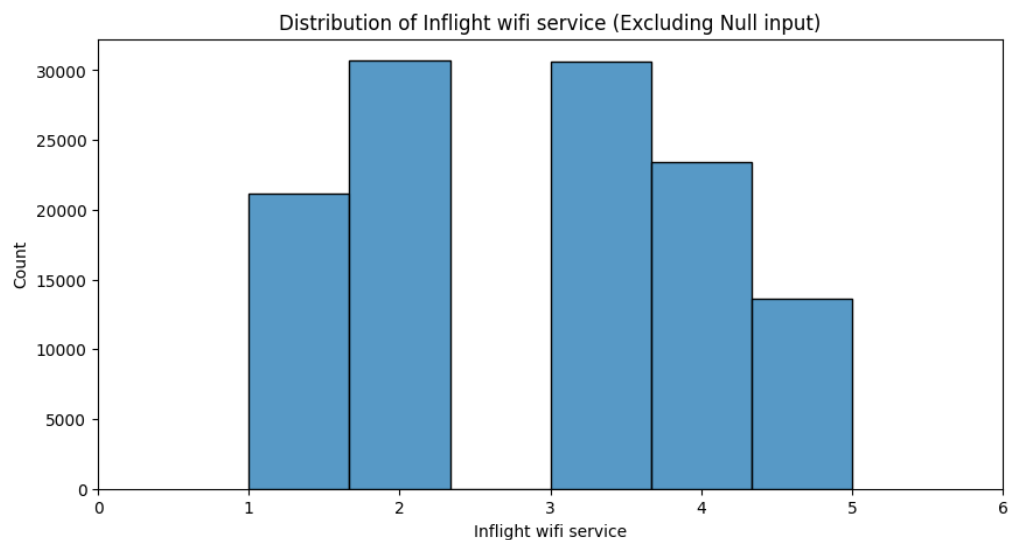
Inflight Entertainment

For Inflight Entertainment, the most common rating was 4 (Satisfied), selected by 28% of respondents out of 123,371 valid inputs. The mean score of 3.4 is above the neutral midpoint (3.0), indicating that passengers are generally satisfied with the existing entertainment system on flights.



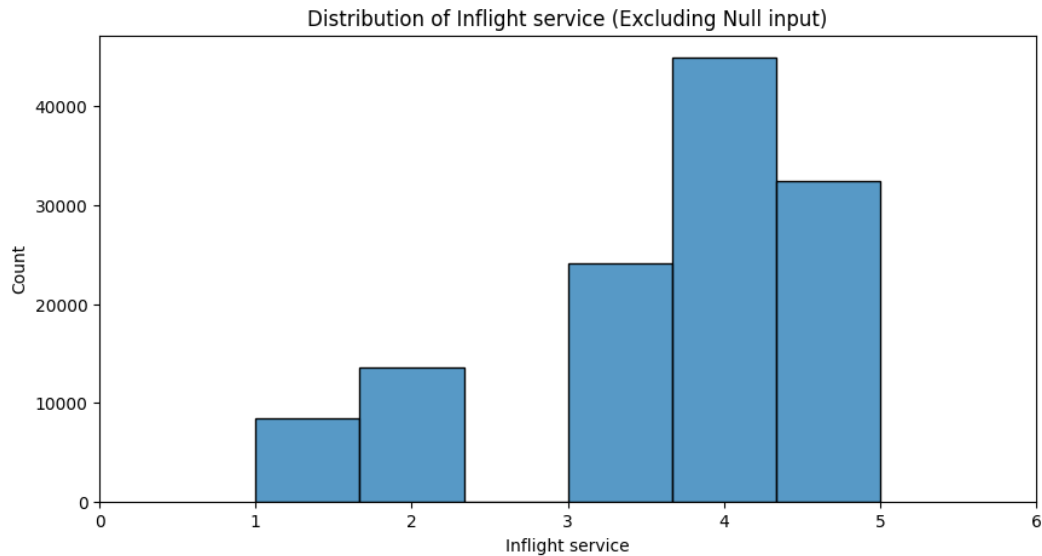
Inflight Wi-Fi

For Inflight Wi-Fi Service, the most common rating was 2 (Dissatisfied), given by 26% out of 119,679 responses. The mean score of 2.8 falls below the neutral midpoint (3.0), highlighting Wi-Fi as one of the lowest-performing inflight features. While Wi-Fi is increasingly viewed as essential amenity, the concentration at the lower end of the satisfaction scale indicates that many passengers found inflight Wi-Fi not reliable or below expectation.



Inflight Service

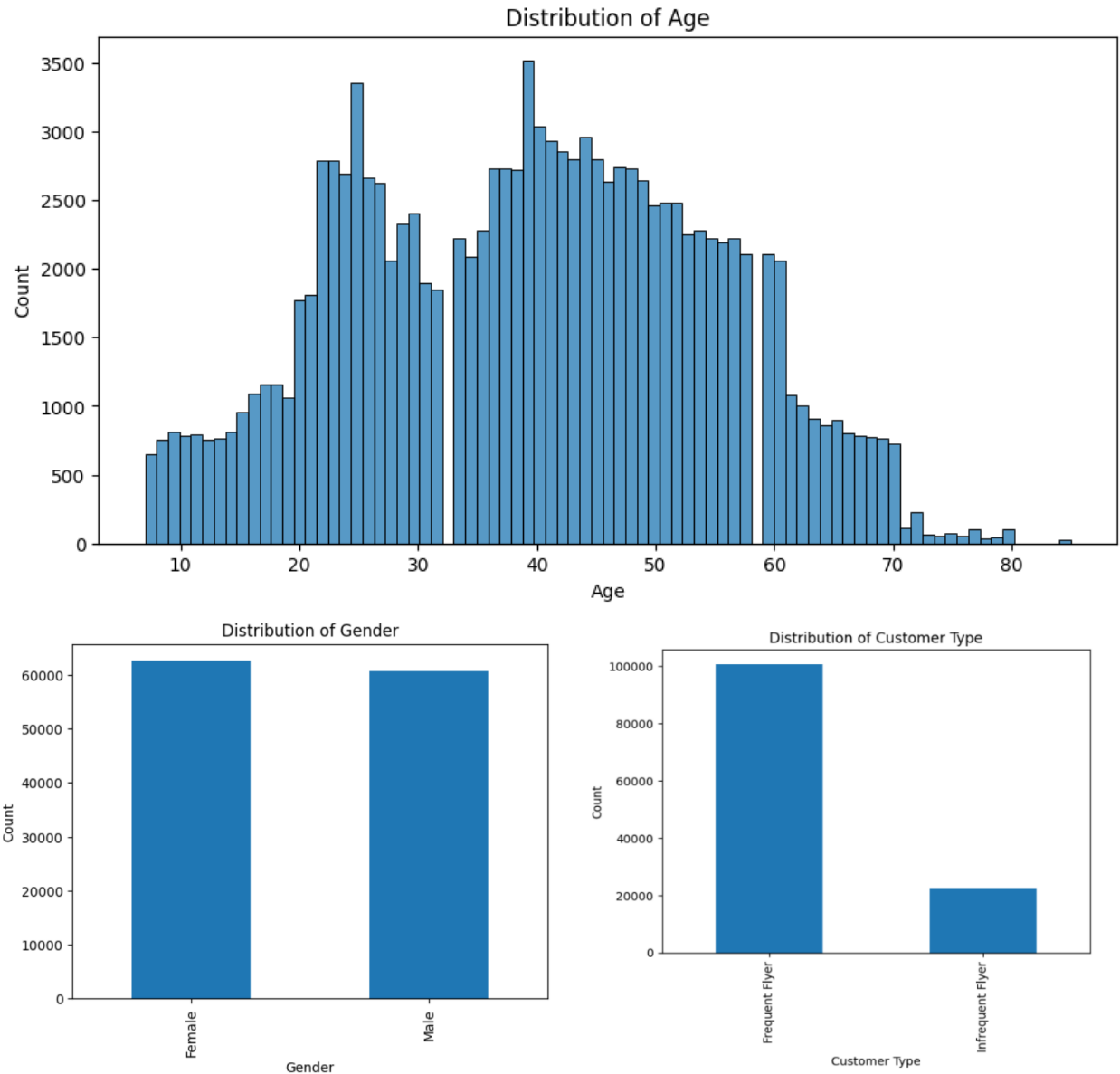
The Inflight Service refers to the inflight cabin services from the cabin crew and flight attendants. For Inflight Service, more than 36% of the 123,382 respondents were rated 4 (Satisfied). With a mean score of 3.6, clearly above the Neutral midpoint, indicating generally positive perceptions of cabin crew performance and attentiveness during the flight.



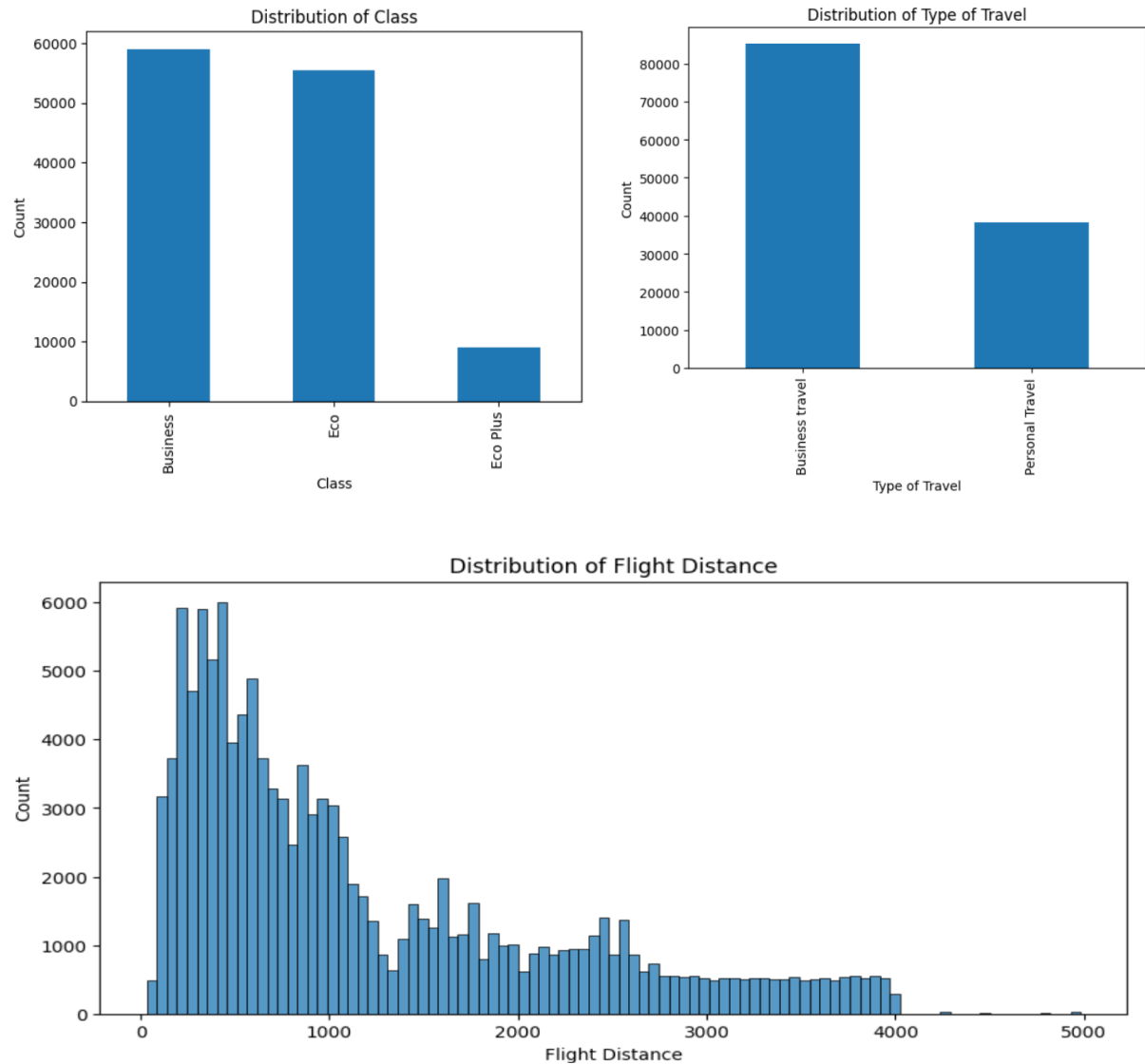
By using mean satisfaction scores as a benchmark of population sentiment, together with statistical models (Logistic Regression, Random Forest, XGBoost) to assess variable importance, the analysis highlights both weak points and high-impact drivers of satisfaction. These findings will guide Starluck Airlines in prioritizing service improvements that maximize customer impact and strengthen its competitive position.

Individual Demographic & Flight-Related Attributes

The demographic profile of respondents reflects a broad age range, from 7 to 85 years old, with a mean age of 39. In particular, the distribution is centered around young to mid-adult travelers, with the most frequent ages being 39 (2.8% of the dataset) and 25 (2.7%). Meanwhile, gender is evenly distributed, with 62,611 female and 60,775 male respondents, providing balanced representation for meaningful insights. In terms of loyalty, Customer Type shows that 82% of passengers are frequent flyers and 18% are infrequent flyers—an imbalance worth noting, but still valuable when analyzed alongside other service features.



Turning to flight-related attributes, Travel Class is dominated by Business (48%) and Economy (45%), with Economy Plus representing only 7% of respondents. The travel purpose highlights the sample's business focus: 69% of respondents traveled for business compared to 31% for personal reasons. Additionally, the average flight distance is close to 1,190 miles, with journeys ranging from 31 miles to nearly 5,000 miles, suggesting that most feedback comes from short- to medium-haul routes.



Taken together, these attributes frame the dataset as broadly representative across age and gender, while emphasizing business travelers and frequent flyers on shorter journeys as the dominant customer segments driving satisfaction insights.

Analysis

We analyzed 14 touchpoints across the airline customer journey using Logistic Regression as the baseline model, alongside Random Forest and XGBoost, to evaluate both the direction of influence (positive or negative) and the relative importance (weightage) of each variable in predicting whether a customer reports being “Satisfied.”

By combining mean satisfaction scores as a benchmark of population sentiment with statistical models to assess feature importance, the analysis identifies both the weaker touchpoints and the high-impact drivers of passenger satisfaction.

Descriptive Analysis

The touchpoints that represent the core strength of customer journey are:

- i. Inflight Service and Baggage Handling are a few of the strongest touch points, with a mean of 3.6 and a most common rating of 4.
- ii. Seat Comfort and Leg Room have reliable touch points with both means of 3.4 and most common rating of 4.
- iii. Online Check-in are the digital touch points with strong satisfaction with a mean of 3.3 and a most common rating of 4.

On the other hand, the touchpoints that represent the weakest part of the customer journey are:

- i. Inflight Wi-Fi Service indicates the weakest feature, with mean of 2.8 and a most common rating of 2.
- ii. Online Booking indicates functional yet deserves improvement, with a mean of 2.9 and a most common rating of 3.
- iii. Gate Location indicates borderline neutral, with mean and most common rating of 3.

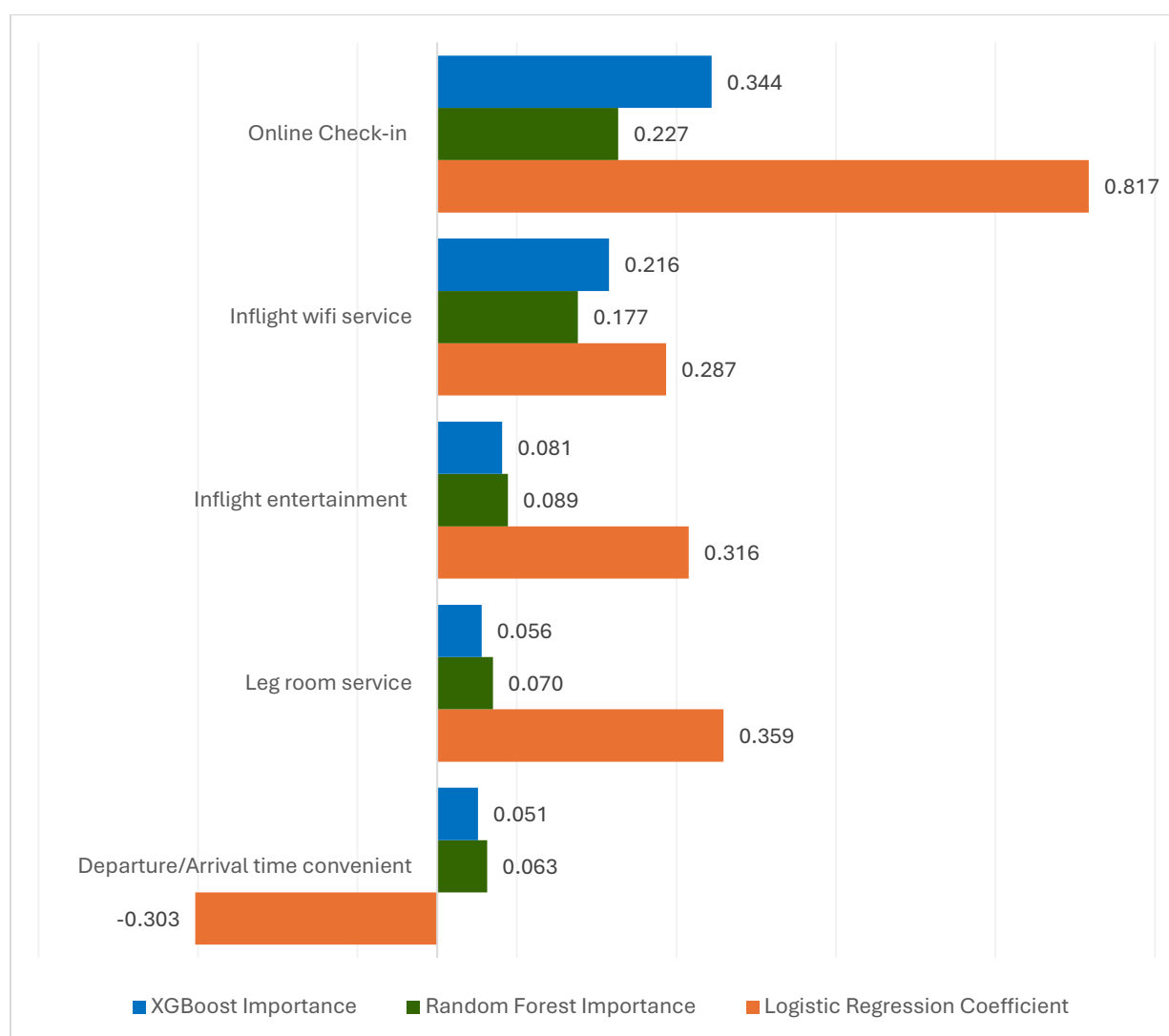
Importance & Weightage of Each Variables

Across all models, four features consistently emerge as the strongest predictors of satisfaction

- **The most influential drive of satisfaction is Online Check-in**, with Logistic Regression coefficients of 0.82 (working) and 0.85 (holdout), Random Forest importance of 0.227 (working) and 0.23 (holdout), and XGBoost importance of 0.34.
- **Next consistently ranked near top is Inflight Wi-Fi Service**, with Logistic Regression coefficients of 0.32 (working) and 0.28 (holdout), Random Forest importance of 0.18 (working) and 0.160 (holdout), and XGBoost importance of 0.216.
- **Consistently strong across all models is Leg Room Service**, with Logistic Regression coefficients of 0.36 (working) and 0.39 (holdout), Random Forest importance of 0.09 (working) and 0.08 (holdout), and XGBoost importance of 0.08.
- **Positively weighted variable is Inflight Entertainment** with Logistic Regression coefficients of 0.29 (working) and 0.35 (holdout), Random Forest importance of 0.070 (working) and 0.07 (holdout), and XGBoost importance of 0.05.

	Logistic Regression		Random Forest		XGBoost
Dataset	Working $\beta_0 = -7.43$	Holdout $\beta_0 = -7.74$	Working	Holdout	Working
Online Check-in	0.81726	0.845807	0.227111	0.225333	0.344216
Leg room service	0.35906	0.390829	0.088565	0.077263	0.081473
Inflight entertainment	0.287085	0.347718	0.069899	0.073277	0.051047
Inflight wifi service	0.315567	0.284117	0.176503	0.159555	0.215648

The stability of these results across both working and holdout datasets indicates that the models generalize well, strengthening confidence in the reliability of these touchpoints as the primary drivers of passenger satisfaction.

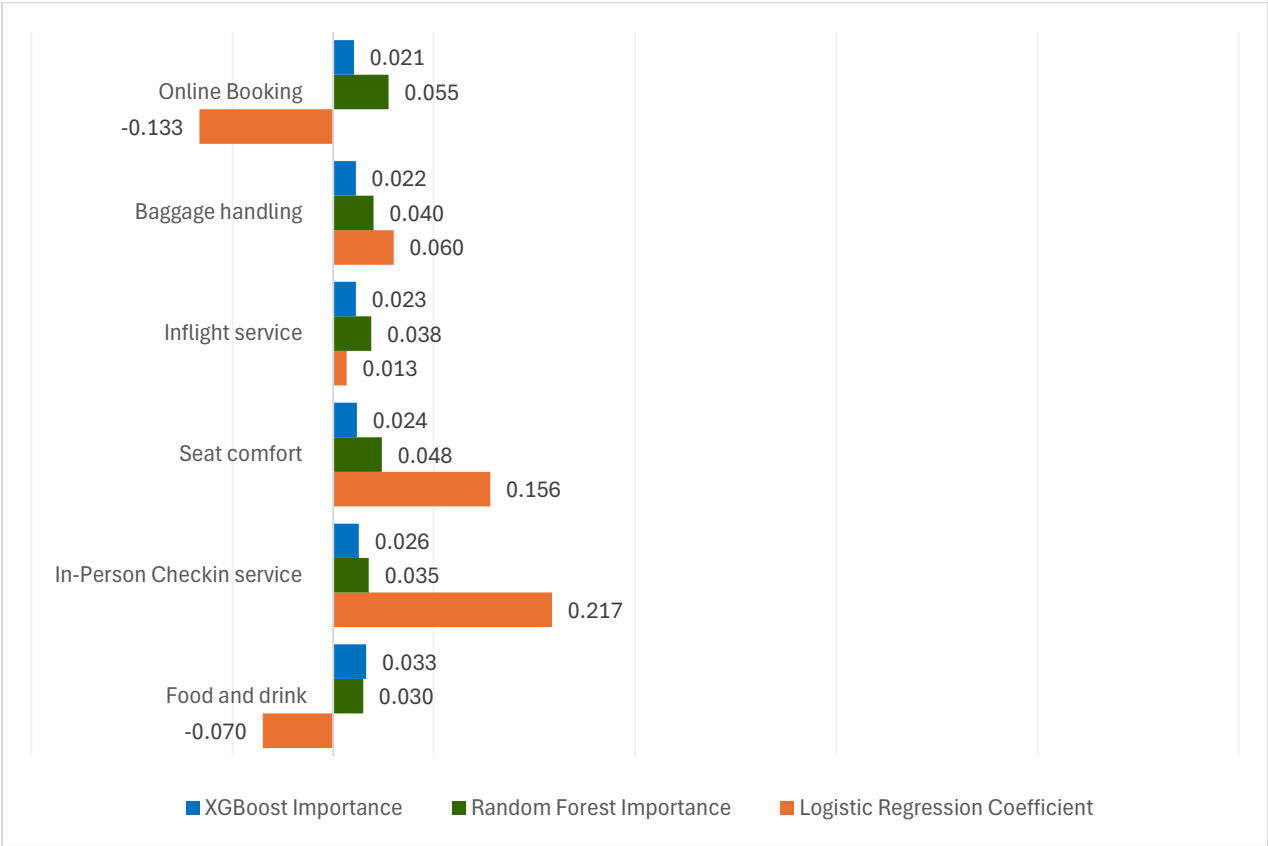


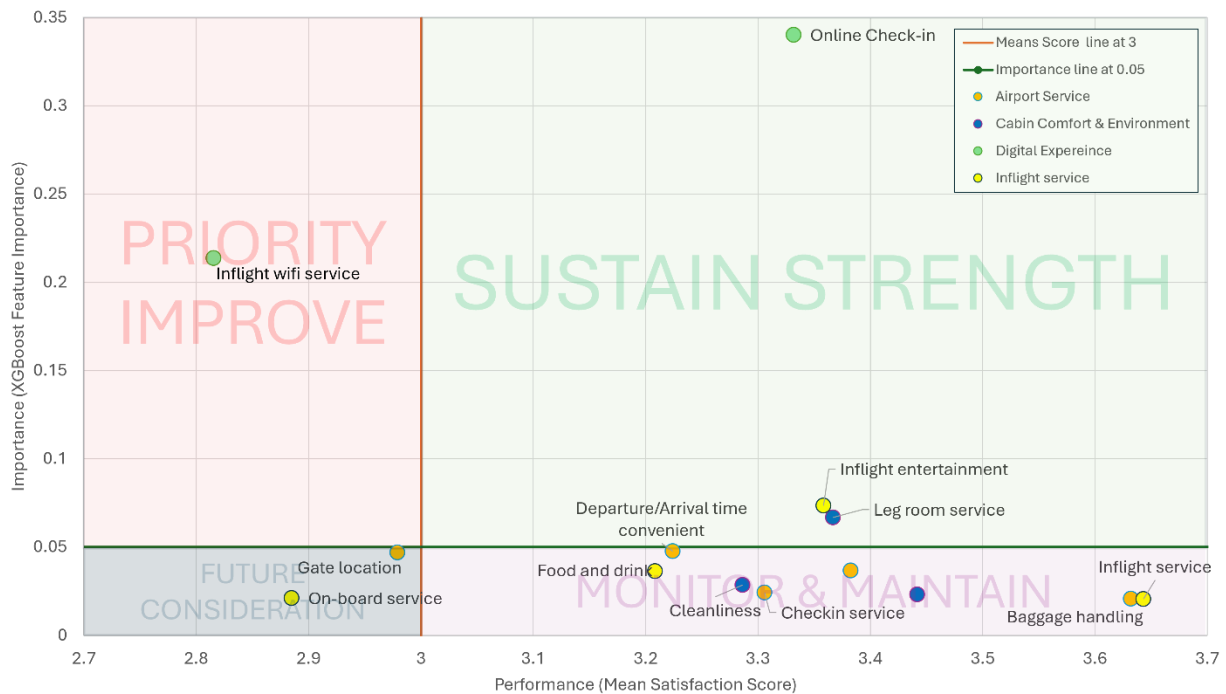
This graph showed the top variables based on their coefficients and importance across Logistic Regression, Random Forest and XGBoost models

The stability of these results across both working and holdout datasets indicates that the models generalize well, strengthening confidence in the reliability of these touchpoints as the primary drivers of passenger satisfaction.

Other touchpoints, including Seat Comfort, On-board Service, Cleanliness, and Baggage Handling, demonstrated moderate influence on satisfaction. For example, Seat Comfort (mean = 3.4, XGBoost importance = 0.023) and Leg Room (mean = 3.4, importance = 0.082) both contribute positively but remain secondary to the leading digital drivers. Similarly, On-board Service (mean = 3.4, importance = 0.035) and Baggage Handling (mean = 3.6, importance = 0.024) show solid performance scores but lower predictive weight, indicating these areas reinforce satisfaction rather than driving it.

At the opposite end, the lowest-importance touchpoints were Online Booking, Food & Beverage, and Departure/Arrival Time Convenience. Logistic Regression assigned negative coefficients to these variables (e.g., Online Booking = -0.1661, Departure/Arrival Time Convenience = -0.2728), reflecting their negative influence. Random Forest placed them close together in weightage (at ~0.06), while the XGBoost model clarified the distinction, assigning 0.0526 importance to Departure/Arrival Time Convenience versus only 0.0224 for Online Booking. This confirms that although Departure/Arrival Time Convenience carries slightly more weight, both remain weak compared to top drivers (i.e. Online Check-in and Inflight Wi-Fi). *The full dataset and model outputs supporting these comparisons are provided in the Appendix 1.*





This graph illustrates the position of each variable based on its relative importance and performance (mean satisfaction score).

In summary, the conjunction across all three models and datasets highlights Online Check-in, Inflight Wi-Fi, Inflight Entertainment, and Leg Room Service as the variables with the greatest weightage and predictive power, which makes them the key levers for improving customer satisfaction across the airline journey. Among these, Inflight Wi-Fi Service stands out as requiring urgent attention, given its high importance but lowest mean satisfaction score. For this analysis, the focus is placed on service-related variables as the primary levers of improvement, with individual demographic and flight related factors reserved for future, segment-specific studies.

Predictive Model

Three models were applied to determine the importance of each variable in predicting whether a customer reports being “Satisfied” throughout the entire journey.

Model (Touch Points Only)	Accuracy		ROC-AUC		Decision
	Working Dataset	Holdout Dataset	Working Dataset	Holdout Dataset	
Logistic Regression	81.4%	81.4%	0.899	0.876	Used as the baseline model to assess direction and weightage of each feature.
Random Forest	98.6%	97.8%	0.986	0.997	Identified the relative importance of each variable in predicting satisfaction.
XGBoost	94.6%	94.9%	0.990	0.991	Validated the importance rankings and weightages derived from the other two models. With the highest accuracy, the XGBoost model is selected to predict a more accurate outcome of a ‘satisfied’ customer journey from end to end.

Across both the working dataset and the holdout dataset, the models delivered consistent performance. Logistic Regression was used as a baseline for interpretability and directional weightage, and Random Forest identified the relative importance of each feature with strong stability. However, XGBoost model delivered the strongest and most consistent predictive performance, achieving an accuracy of 94.6% on the working dataset and 94.9% on the holdout dataset, with near-perfect ROC-AUC scores of 0.990 and 0.991. *The full model analysis supporting these comparisons is provided in the Appendix 2.*

The XGBoost model demonstrates strong predictive reliability, and using the based on statistical calculation, the model recorded a Type I Error rate of 3.7%, meaning that a portion of dissatisfied passengers were incorrectly predicted as satisfied, and a Type II Error rate of 7.6%, where satisfied passengers were incorrectly predicted as dissatisfied. These low percentages confirm that the model generalizes well, with misclassifications kept at acceptable levels across both classes.

In terms of customer satisfaction, these errors can also be expressed in terms of false positive and false negative rates. Approximately 5% of passengers predicted to be satisfied were actually dissatisfied while 6% of passengers predicted to be dissatisfied were in fact satisfied. The greater business risk lies in false positives, as dissatisfied passengers could be overlooked and not receive recovery efforts. False negatives, while less critical, represent cases where resources may be unnecessarily allocated to passengers who are already satisfied.

		Predicted		
		Neutral/ Dissatisfied	Satisfied	Error
Actual	Neutral/ Dissatisfied	True Positive 20277	False Positive 770	False Positive 5.61%
	Satisfied	False Negative 1206	True Negative 14763	False Negative 4.96%
	Error	Type 1 3.66%	Type 2 7.55%	

Beyond predictive accuracy, the model provides actionable value: it identifies the relative weight of each touchpoint in shaping satisfaction. This allows each department (Digital Experience, Airport Service, Cabin Comfort & Environment, Inflight Services) to clearly see where improvements will have the greatest impact. Ultimately, the predictive model serves not only as an evaluation tool but as a strategic guide for targeted action, helping each responsible department focus on the service areas that drive customer satisfaction most.

Recommendation

Digital Experience Team

For the Digital Experience Team, it is recommended to continue optimizing the Online Check-in platform to sustain its role as a key strength in driving customer satisfaction. At the same time, enhancements to the Online Booking process—such as simplifying navigation and improving transparency—will reduce friction at this early stage of the journey, where performance remains weak despite moderate importance.

Airport Service Team

For the Airport Service Team, maintaining strong reliability in Baggage Handling should remain a priority, as it is one of the most trusted service areas. Improvements in In-person Check-in, through faster processing and expanded self-service, can help close the gap with digital channels. Gate Location, though a weaker driver, should be addressed in partnership with airport authorities to minimize passenger inconvenience. On-board Service at counters should continue to focus on consistent staff interaction, while managing Departure & Arrival Delays requires clear and timely communication to sustain passenger confidence when disruptions occur.

Cabin Comfort & Environment Team

For the Cabin Comfort & Environment Team, enhancing Seat Comfort and Leg Room should be prioritized, as these are influential drivers and perform at moderate levels. Cleanliness, while already rated positively, must be consistently maintained as a baseline expectation to safeguard trust in the overall cabin environment.

Inflight Service

For the Inflight Service Team, urgent focus should be placed on improving Inflight Wi-Fi, which is the weakest touchpoint yet carries high importance. Inflight Entertainment should be sustained through fresh content and easy usability, while Food & Beverage can be improved incrementally with more variety and better quality. Lastly, Inflight Service delivered by crew remains a core strength and should be protected through ongoing investment in training and empowerment.

Conclusion

This analysis of 14 customer journey touchpoints has provided a comprehensive view of both performance (mean satisfaction scores) and importance (weightage from XGBoost, Random Forest, and coefficient from Logistic Regression). The findings highlight that while several areas such as Inflight Service, Baggage Handling, and Online Check-in are strong performers and should be sustained, there are also clear points, most notably Inflight Wi-Fi and Online Booking, that represent high-impact opportunities for improvement.

By applying predictive models, we confirmed that Online Check-in, Inflight Wi-Fi, Inflight Entertainment, and Leg Room Service are the most influential variables in shaping overall satisfaction. These insights enable the airline to not only measure where customers stand today but also to prioritize investments by department, ensuring that digital teams, airport operations, cabin environment, and inflight service units can each take targeted, data-driven actions.

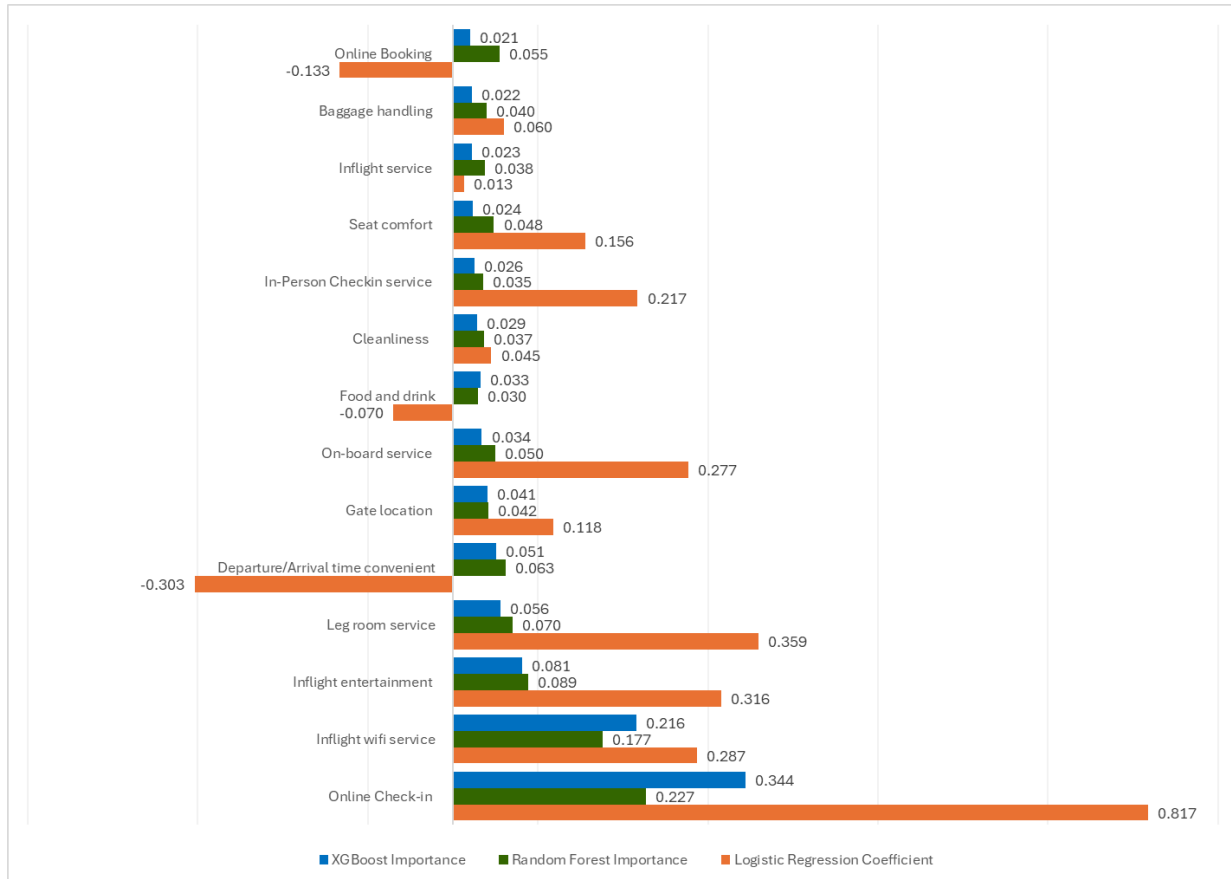
It is also important to note that individual demographic and flight-related attributes (e.g., age, gender, class, travel purposes) were not included in the predictive model, as the analysis prioritized service touchpoints that have the most direct influence on passenger satisfaction. Future studies may revisit these attributes to explore their relative weightage, particularly in understanding how different customer segments experience the same journey differently.

Ultimately, this approach of combining descriptive and predictive analytics demonstrates that variables with sustained strengths must be protected, focus on the weaker areas, and enhance in digital reliability and cabin comfort will deliver the greatest return on passenger satisfaction.

Appendix

Appendix 1

Complete analysis of weightage and importance for each touch point in every model:



Logistic Regression:

Feature	Coefficient	
	Working Dataset	Holdout Dataset
Online Check-in	0.8173	0.8458
Leg room service	0.3591	0.3908
Inflight wifi service	0.3156	0.2841
Inflight entertainment	0.2871	0.3477
On-board service	0.2774	0.3082
Checkin service	0.2174	0.2211
Seat comfort	0.1560	0.1780
Gate location	0.1183	0.1557
Baggage handling	0.0600	0.0284
Cleanliness	0.0454	0.0267
Inflight service	0.0135	-0.0411
Food and drink	-0.0699	-0.1104

Online Booking	-0.1330	-0.1661
Departure/Arrival time convenient	-0.3034	-0.2728
Intercept (β_0):	7.4292	7.7387

Random Forreest

Feature	Importance	
	Working Dataset	Holdout Dataset
Online Check-in	0.2271	0.2253
Inflight wifi service	0.1765	0.1596
Leg room service	0.0886	0.0773
Inflight entertainment	0.0699	0.0733
Departure/Arrival time convenient	0.0626	0.0619
Online Booking	0.0550	0.0600
On-board service	0.0499	0.0543
Seat comfort	0.0485	0.0717
Gate location	0.0419	0.0400
Baggage handling	0.0401	0.0342
Cleanliness	0.0378	0.0362
Inflight service	0.0369	0.0393
Checkin service	0.0354	0.0348
Food and drink	0.0298	0.0322

XGBoost:

Feature	Importance
Online Check-in	0.3442
Inflight wifi service	0.2156
Leg room service	0.0815
Departure/Arrival time convenient	0.0557
Inflight entertainment	0.0510
Gate location	0.0412
On-board service	0.0342
Cleanliness	0.0329
Food and drink	0.0289
Checkin service	0.0255
Baggage handling	0.0236
Seat comfort	0.0226
Online Booking	0.0224
Inflight service	0.0207

Appendix 2

Model Analysis:

Logistic Regression	Accuracy Score: 0.8127		
	Precision	Recall	F1-Score
Neutral/Dissatisfied (0)	0.83	0.84	0.84
Satisfied (1)	0.79	0.77	0.78

Random Forest	Accuracy Score: 0.9442		
	Precision	Recall	F1-Score
Neutral/Dissatisfied (0)	0.94	0.96	0.95
Satisfied (1)	0.95	0.92	0.93

XGBoost	Accuracy Score: 0.9466		
	Precision	Recall	F1-Score
Neutral/Dissatisfied (0)	0.94	0.96	0.95
Satisfied (1)	0.95	0.92	0.94