



AIRLINES

**DATA
ANALYSIS
REPORT**

Airlines

DATA ANALYSIS REPORT

PROBLEM STATEMENT

In last month, Airline have seen the high numbers of dissatisfied passengers. Satisfaction of passengers are one of the concern of the airline. We are one of those airlines who focuses on both Business travellers and personal travellers and our majority of the customers are loyal customers.

Overview of the airline data shows that, there are some Amenities of facilities with low rating or passengers were unhappy with, which is one of factors of dissatisfaction among the passengers. Although we have seen that our flights have high average departure and arrival delay time, I believe there are some outliers in that records, because at many time we cannot do much about that, for example: technical breakdown or any software glitch, but this happen very rare and take lots of time which impact on departure delay. In overview of airline data there are many small age passengers, we believe that for authentic rating passenger's age should be 16 or more than 16.

So, tell us at which place we need to improve our self so that passenger's satisfaction will increase.

ASSUMPTIONS

1. Rating 4 and 5 will be consider as a good rating and below 4 will be consider as neutral or improvement require and 2 or below 2 will be consider as bad rating.
2. Eco Plus Class is upgrade of Eco Class services.
3. Pricing of the tickets are fair along all classes of the airline.
4. Passengers age should be 16 or more than 16 for authentic rating.
5. There are some outliers in Departure and arrival delay time records.

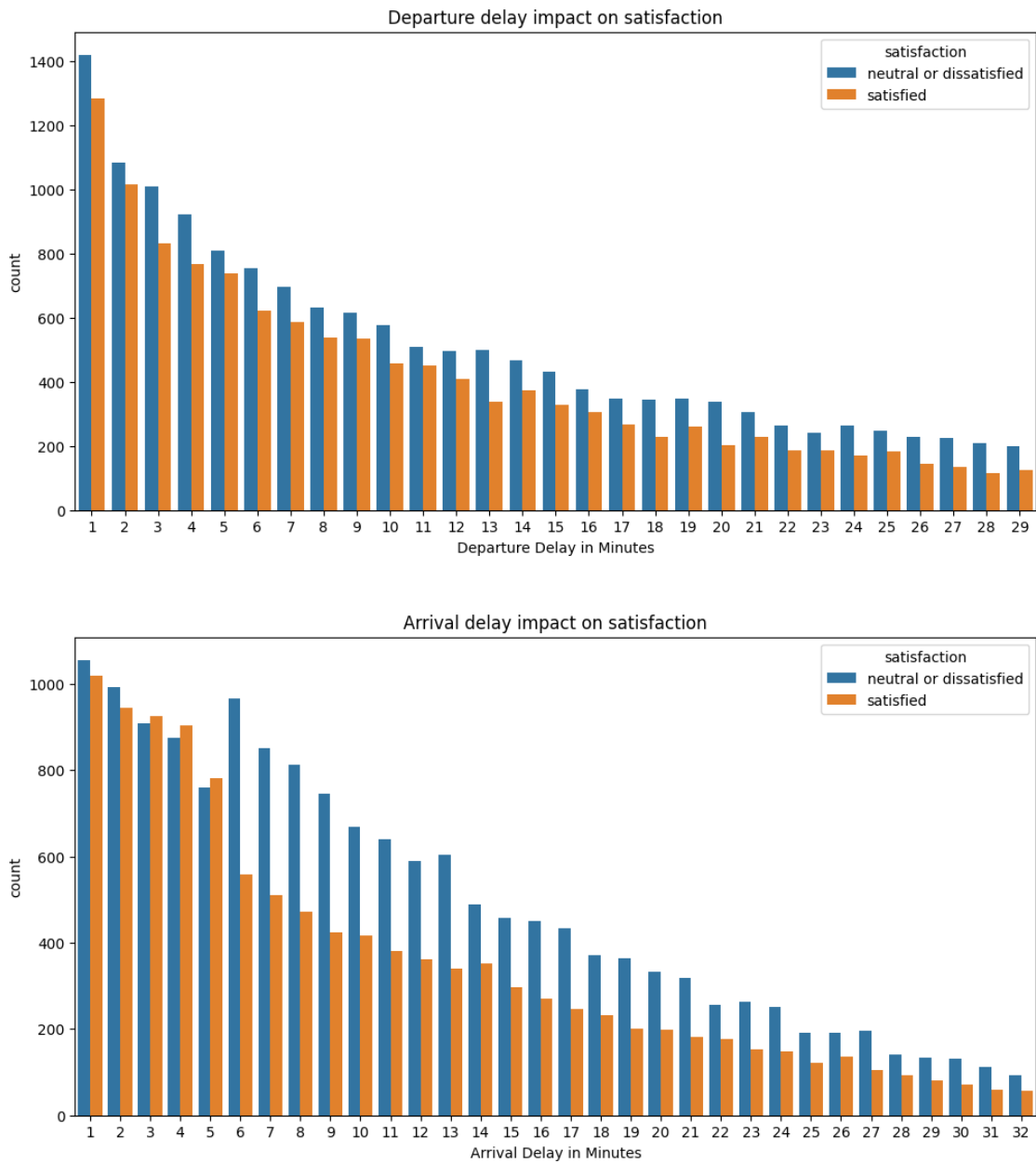
6. Staff Experience is not effecting on the Rating of the airline amenities.
7. 'O' rating will be consider as not rated or service not provided.

RESEARCH QUESTIONS

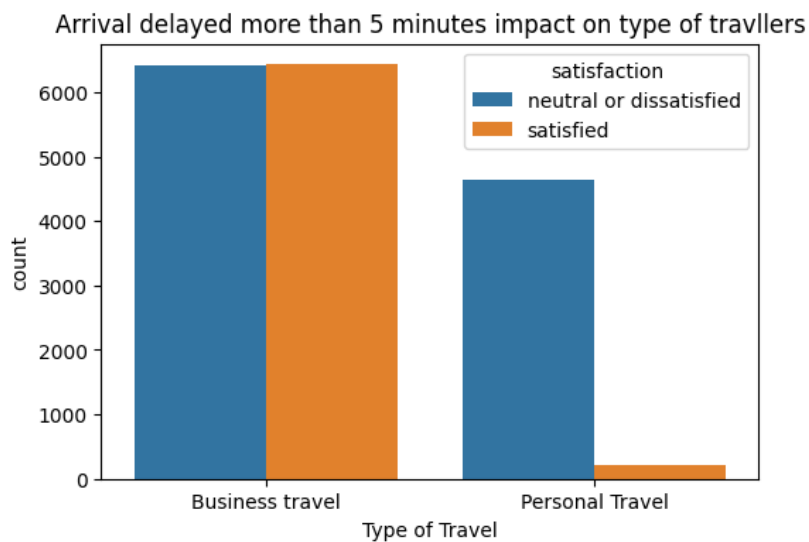
1. How much delay in departure and arrival time effect the satisfaction of the passengers?
2. Airline amenities with 'O' rating where 'O' means no service provide, and impact on satisfaction.
3. Which are the airline amenities with low rating.
4. Which type of passengers and preferred class give low rating to the airline amenities.

DATA ANALYSIS AND FINDINGS

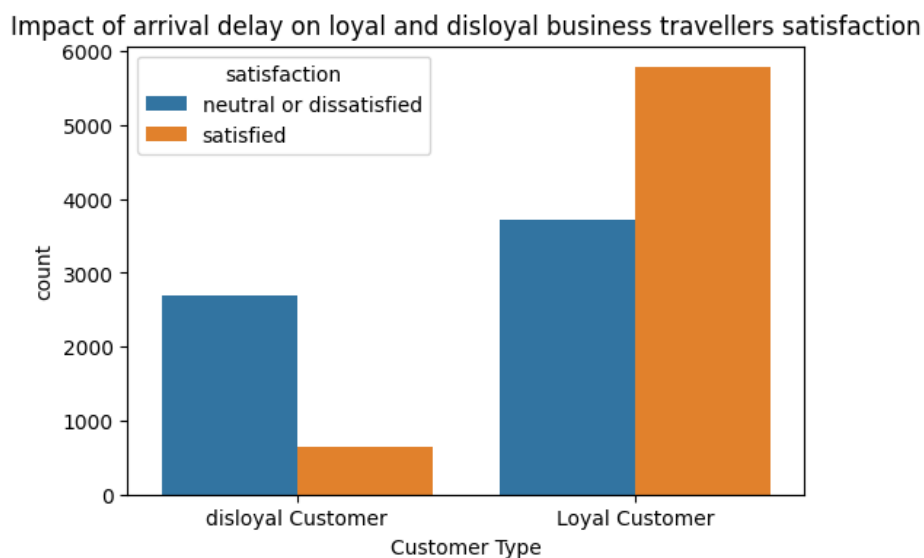
#Departure and Arrival delay Impact



Here, 2nd Graph show that delay in arrival specially after 5 minutes may lead to dissatisfaction of the passengers. On the other hand there is not significant change in departure delay.



As we can see in this graph around 90% of Personal travellers are dissatisfied and on the other side Business travellers ratio is around 50-50.



Here, specially among the business travellers who are disloyal have high dissatisfaction compare to loyal customer.

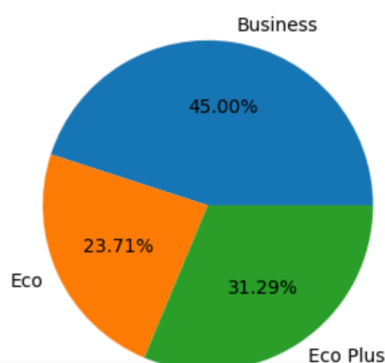
Finding: By the above data analysis we find that, delay in departure have not much impact on satisfaction of the passengers, but passengers who face delay in arrival are mostly dissatisfied Specially after 5 minutes of delay. It look like delay in arrival definitely impact on the satisfaction of the travellers, rest other factor will be consider.

#Amenities with 0 rating (service may not available or not provided)

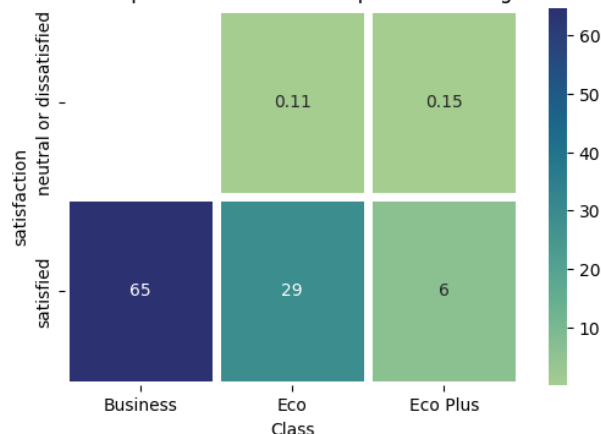
Passengers report NO wifi
Total 2633

Ratio of Class passengers who report no wifi
Class
Business 4.15
Eco 2.19
Eco Plus 2.89
Name: count, dtype: float64

Share of ratio of class passengers who report no wifi



% of satisfaction of preferred class who reported no Inflight wifi service

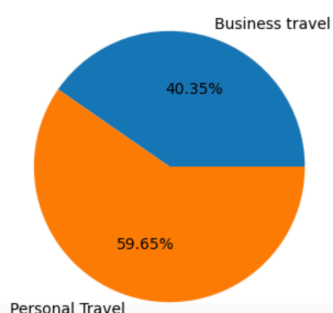


Business class with highest share of ratio of passengers who report no wifi out of total passengers. And whether the passengers are from business or eco or eco plus class, there satisfaction may not effected by the inflight wifi service unavailability.

Passengers report NO Online booking service
Total 3588

Ratio of Type of travellers who report No Online booking
Type of Travel
Business travel 3.87
Personal Travel 5.72
Name: count, dtype: float64

Share of ratio of Type of travellers who report No Online booking



% of satisfaction of travellers who reported no Online booking service



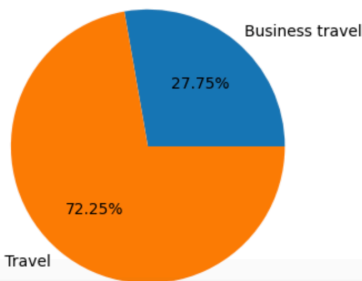
Personal travellers have highest share of ratio of passengers out of total passengers who report No online booking.

In case of Business travellers most of them are look satisfied, it may because business travellers booked their tickets by the contact of agents, hence they do not face any difficulty whether Online booking service is available or not. But In case of Personal travellers scenario is different, here most of them report dissatisfaction, It may have a chance that no online booking service impact on there satisfaction rating.

Passengers report NO Online boarding service
Total 1856

Ratio Type of travellers who report No Online boarding
Type of Travel
Business travel 1.56
Personal Travel 4.07
Name: count, dtype: float64

Share of ratio Type of travellers who report No Online boarding



% of satisfaction of travellers who reported no Online boarding service



Personal travellers have highest share of ratio of passengers who report No online boarding out of total passengers. Unavailability of online boarding service may effect the satisfaction of personal travellers, but for business travellers it look like they do not have much issue whether the online boarding service available or not.

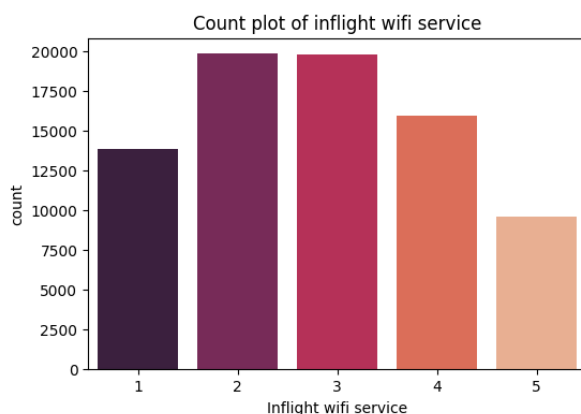
Findings: By the above analysis, Mostly Business class passengers reported no Inflight wifi service, but it may not impact on their satisfaction decision, similar case in other preferred classes.¶ In other unavailable services like online booking and online boarding, it look like Personal travellers hold the high chance to get dissatisfied but unavailability of these services.

#Airline Amenities with frequent rating equal to 3 or less than 3.

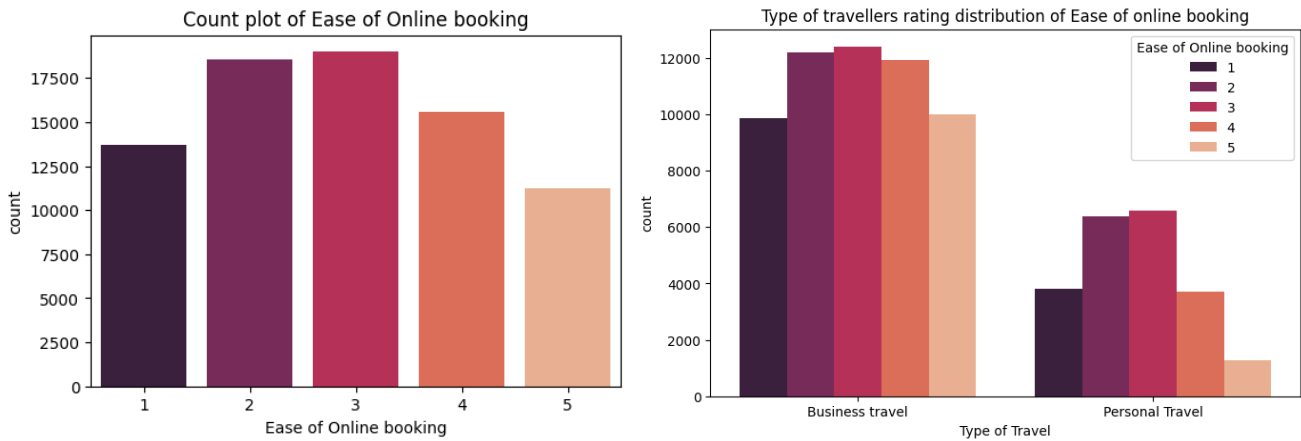
Inflight wifi service Most frequent Rating: 2

Ease of Online booking Most frequent Rating: 3

Gate location Most frequent Rating: 3



Here, For Inflight wifi service most of the passengers rate below 4. Other graph show that Whether it is business class or eco or eco plus most of the passengers give 2 and 3 rating, which is not a good rating.



Similar as Inflight wifi service rating, Ease of online booking have low rating score, mostly below 4. Although Business travellers mostly rate 2 and 3 but also there are sort of similar count of business travellers who rate 4, but in case of personal travellers mostly rate 2 and 3 followed by 1 rating which means there is definitely personal travellers face some issue with online booking.

Finding: Inflight wifi service is really concerning because all of the preferred class report low rating of 2-3 which is not consider as good rating, also there are many passengers who report no wifi as well in above data analysis, which means at many place wifi service is not available yet and if wifi service is present it is not working well. And for online booking it look like business travellers are sort of neutral but personal travellers give low rating of 2 and 3, it may because many business travellers book their tickets through agencies and personal travellers mostly book by them self.

#Average rating to Amenities by Type of travellers and preferred class

Mean of Ratings of amenities by class and type of travellers (any mean of rating smaller than 3)

Inflight wifi service

Type of Travel	Business travel	Personal Travel	Total
Class			
Business	2.911440	2.634459	2.901017
Eco	2.974476	2.595294	2.769054
Eco Plus	3.184911	2.555466	2.898495
Total	2.943322	2.593485	2.843618

Departure/Arrival time convenient

Type of Travel	Business travel	Personal Travel	Total
Class			
Business	3.015498	3.782638	3.044169
Eco	2.932314	3.760052	3.399560
Eco Plus	2.936422	3.752435	3.307323
Total	2.989635	3.760689	3.213125

Ease of Online booking

Type of Travel	Business travel	Personal Travel	Total
Class			
Business	3.054479	2.689655	3.041006
Eco	2.870666	2.642594	2.748799
Eco Plus	2.974949	2.610319	2.812102
Total	2.999432	2.642193	2.900010

Online boarding

Type of Travel Class	Business travel	Personal Travel	Total
Business	3.803739	3.442962	3.790419
Eco	2.969081	2.939599	2.953233
Eco Plus	3.160431	2.926980	3.055463
Total	3.544316	2.972330	3.385859

On-board service

Type of Travel Class	Business travel	Personal Travel	Total
Business	3.739503	3.132411	3.717043
Eco	2.928830	3.273493	3.115714
Eco Plus	2.828404	3.307935	3.044920
Total	3.469848	3.267988	3.412875

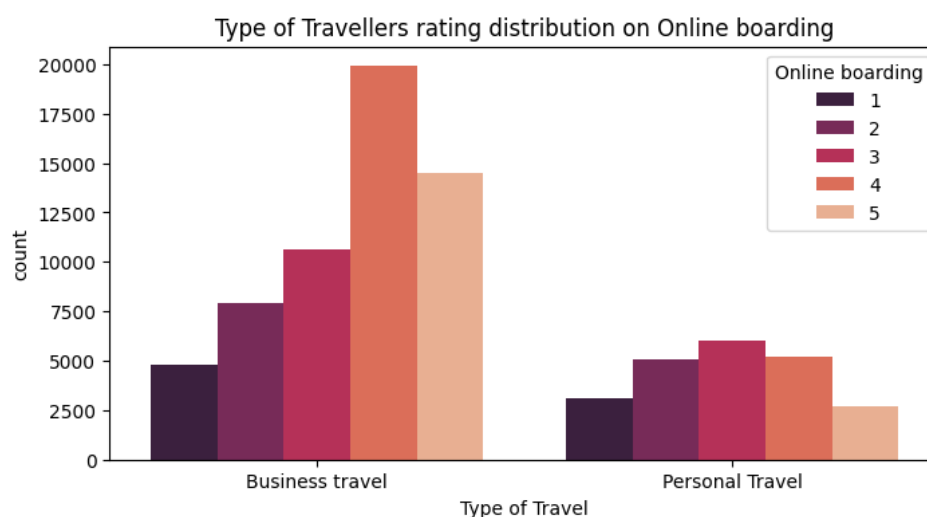
Leg room service

Type of Travel Class	Business travel	Personal Travel	Total
Business	3.701744	2.830163	3.670397
Eco	3.074536	3.107297	3.092182
Eco Plus	3.040624	3.079263	3.057937
Total	3.495212	3.086244	3.380982

Checkin service

Type of Travel Class	Business travel	Personal Travel	Total
Business	3.545602	3.348485	3.538310
Eco	2.849620	3.356993	3.124729
Eco Plus	2.739357	3.360442	3.019786
Total	3.312846	3.356811	3.325255

After take a view, there are some amenities to address like: Inflight wifi service which we already analyse, similarly we analysed online booking and other looks ok but Online boarding for personal travellers seems to be concerning. In online boarding personal travellers average rating was low.



Business travellers give good rating to online boarding, on the other hand personal travellers give mostly 3 followed by 2 and 4, which is consider as neutral rating.

Findings: Here, it look like business travellers are sort of positive with online boarding, but personal travellers report sort of neutral rating of 3 followed by 2 and 4. which is consider as ok ok condition of online boarding. In above analysis there are also some passengers who report no online boarding which show impact specially on personal travellers. It means first at many place there are no online boarding service, and if it is there then it may not work satisfactory.

CONCLUSION

At the last of this data analysis we found that there are 4 kind of issue with the airline. Delay in arrival, Inflight wifi service, Ease of online booking, Online boarding service¶

If we consider other factors constant, delay in arrival have definitely impact on satisfaction of the passengers specially when the delay is more than 5 minutes and those passengers who travel for personal reasons are mostly dissatisfied, So if flights will have more delays in arrival this will definitely become one of the reason of dissatisfaction among the passengers.¶

Now come to the other issues like Inflight wifi, Online booking and Online boarding. Some of the passengers report unavailability of these service and if these service were there then they are not working well, in case of wifi most of passengers gave rating of below 3 which is really concerning, similar case with online booking, many of the passengers reported No online booking, mostly personal travellers were there it may because many business travellers prefer to book there tickets through agencies, but personal travellers really do it with Website or other portals, and if the online booking service was there then it would not working well, thats why mostly personal travellers give low rating to online booking service. But in Online boarding, ratings were sort of neutral but average rating of personal travellers was lower side, but at some place passengers reported No online boarding service, mostly personal travellers reported this and these are some issues which could be the reason of dissatisfaction among the passengers.

SUGGESTIONS

1. Try to reduce flight delays, make it under 5 minutes specially in arrival, this will definitely left a good impression on the passengers, and showcase your punctuality.
2. Improvement required in Inflight wifi service, in terms or connectivity and speed, Also it may possible that many passengers did not know about the service or how to avail that.
3. Improvement required in software related services like Online booking and online boarding, possibly airline using outdated technology or need a upgradation, and also there is a possibility that there are some bugs in airline online booking and online boarding software.