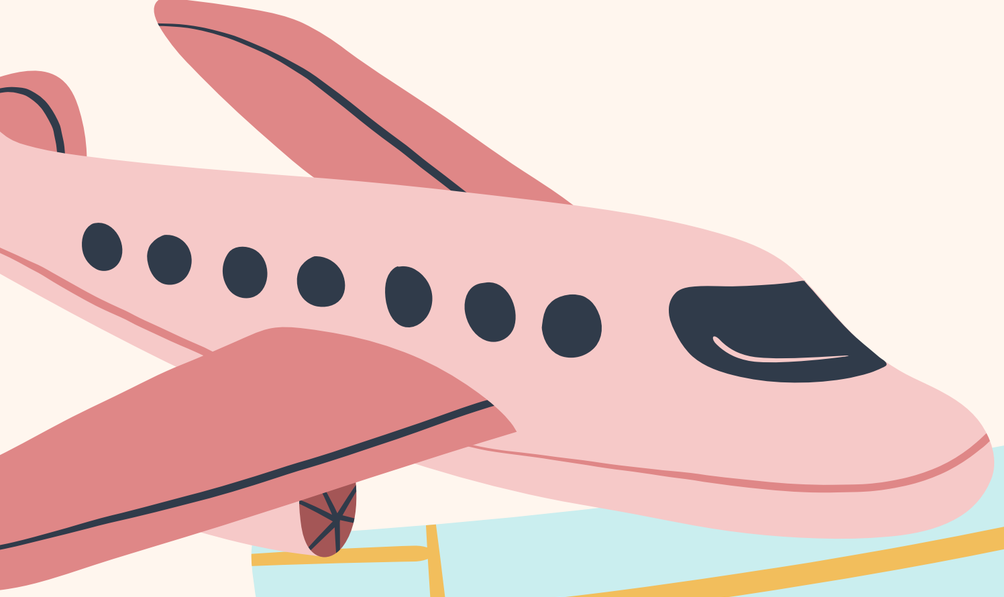
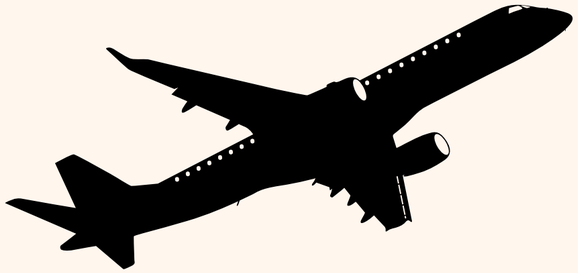
AIRLINES DATA ANALYSIS

By SQL DataBase



TOPIC OUTLINE

- BUSINESS PROBLEM
- OBJECTIVES
- BASIC ANALYSIS
- OCCUPANCY RATE ANALYSIS
- CONCLUSION



BUSINESS PROBLEM

Our company operates a diverse fleet of aircraft, ranging from small business jets to medium-sized planes, delivering high-quality air transportation services focused on ensuring a safe, comfortable, and convenient journey for our passengers. However, we are currently facing challenges impacting profitability, including stricter environmental regulations, higher flight taxes, increased interest rates, rising fuel prices, and escalating labor costs due to a tight labor market. To address these issues and alleviate financial pressure, we aim to analyze our database to identify strategies for improving occupancy rates, ultimately enhancing the average profit per seat.

OBJECTIVES

1.Boost Occupancy Rate: Enhancing the occupancy rate is crucial for increasing the average profit per seat and counteracting the financial pressures posed by current challenges.

2. Refine Pricing Strategy : Developing a dynamic pricing strategy that adapts to shifting market trends and customer preferences is essential to attract new customers and maintain loyalty.

3. Elevate Customer Experience : Prioritizing a seamless and enjoyable customer journey, from booking to arrival, will help the airline stand out in a competitive market and foster stronger customer loyalty.

The ultimate goal is to identify actionable strategies to increase occupancy rates on underperforming flights, thereby driving overall profitability for the airline.

BASIC ANALYSIS

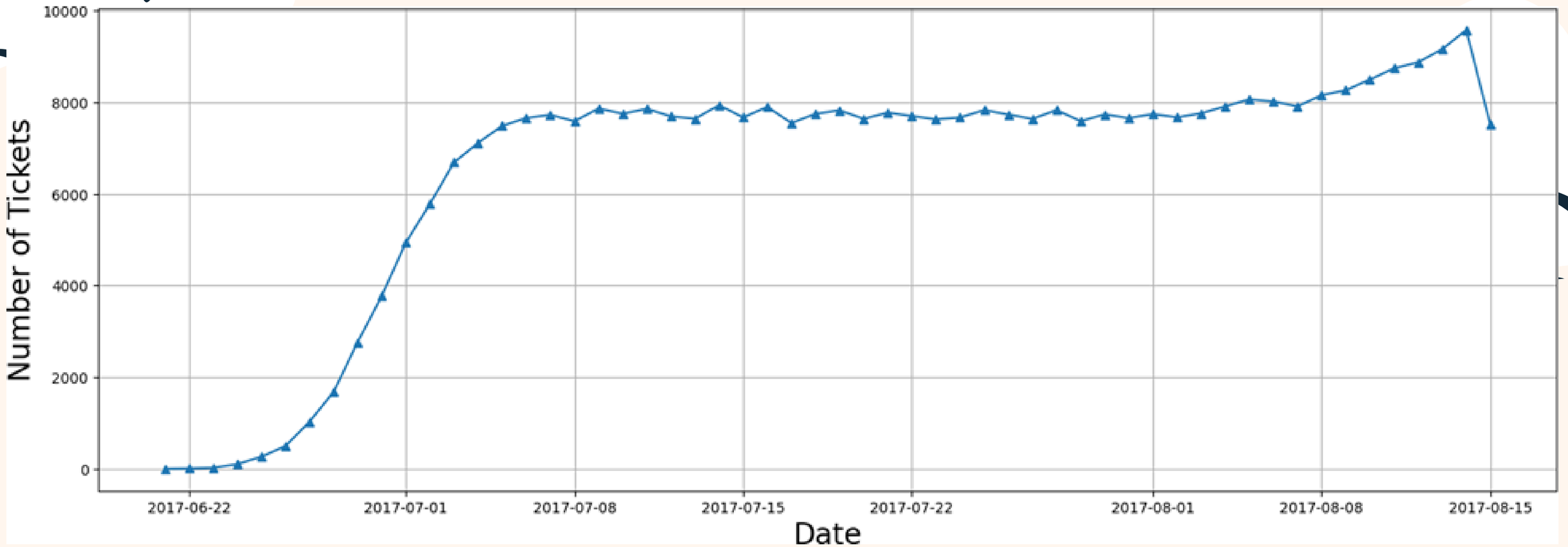
The analysis highlights aircraft with over 100 seats, trends in ticket bookings and revenue, and fare conditions across aircraft. These insights aid in boosting occupancy rates and optimizing pricing strategies.

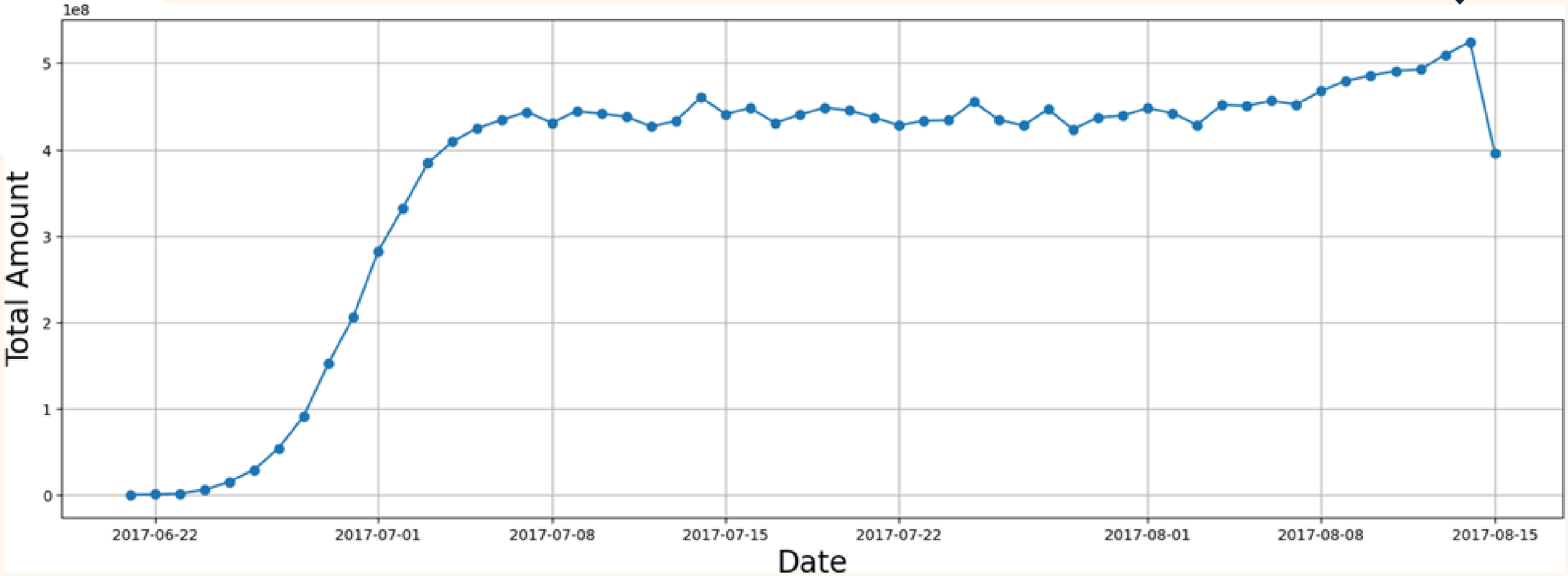
Aircraft Seating Capacity (Table 1) :- Aircraft with more than 100 seats vary in seating capacity, ranging from 116 to 402 seats.

Aircraft code	Number of Seats
319	116
320	140
321	170
733	130
763	222
773	402

Ticket Booking and Revenue Trends (Figures 1 & 2)

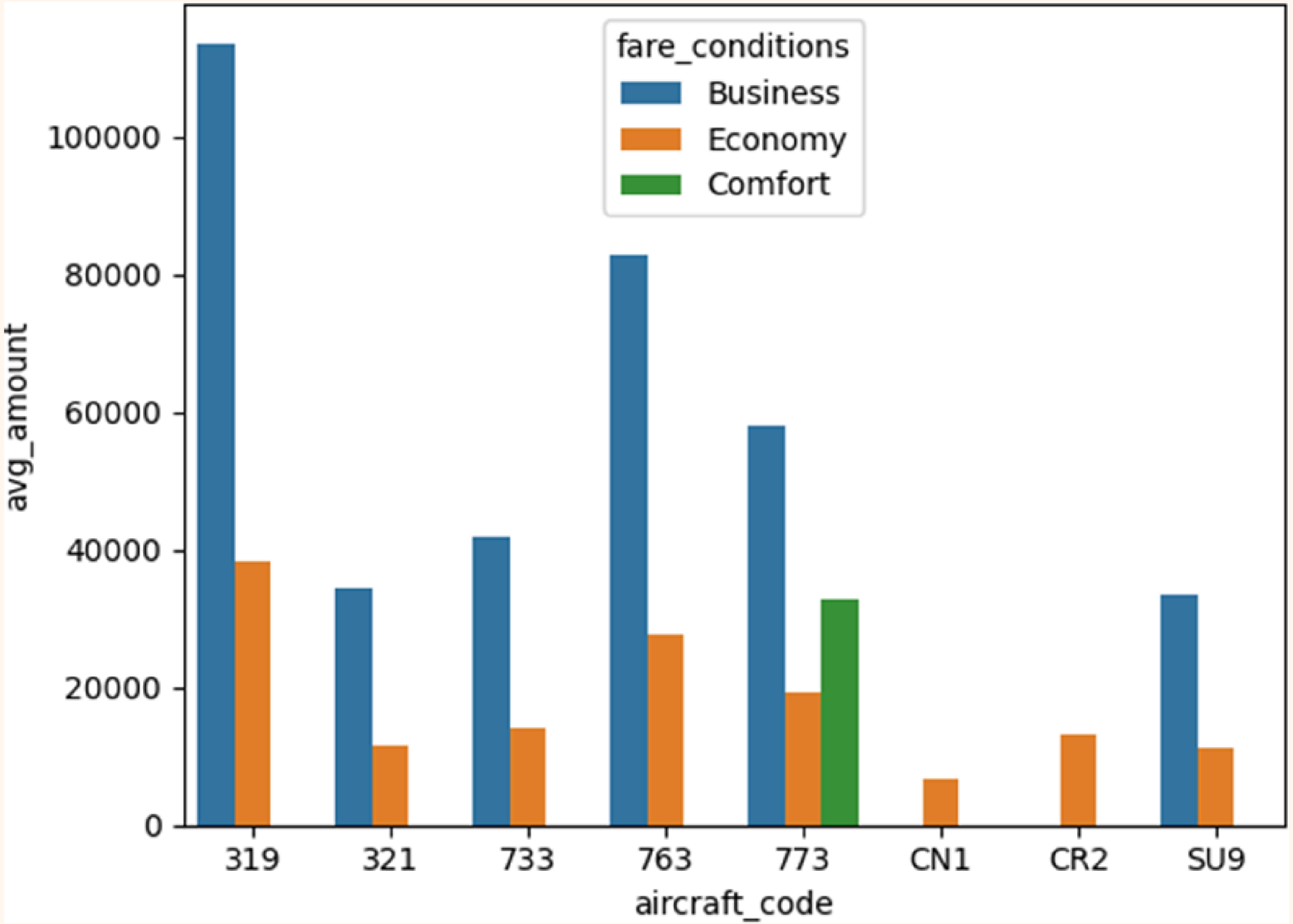
- Gradual increase in ticket bookings from June 22nd to July 7th.
- Stable bookings from July 8th onward, with a noticeable peak on a specific day.
- Revenue trend closely aligns with ticket booking patterns.


Number of Tickets
10000
8000
6000
4000
2000
0
2017-06-22
2017-07-01
2017-07-08
2017-07-15
2017-07-22
2017-08-01
2017-08-08
2017-08-15
Date


1e8
5
4
3
2
1
0
Total Amount
2017-06-22
2017-07-01
2017-07-08
2017-07-15
2017-07-22
2017-08-01
2017-08-08
2017-08-15
Date

Fare Analysis (Figure 3)

1. **Three fare classes: business, economy, and comfort.**
2. **Comfort class available only on aircraft 773.**
3. **CN1 and CR2 planes offer only economy class.**
4. **Business class consistently priced higher than economy across all aircraft.**


fare_conditions
Business
Economy
Comfort
avg_amount
100000
80000
60000
40000
20000
0
319
321
733
763
773
CN1
CR2
SU9
aircraft_code

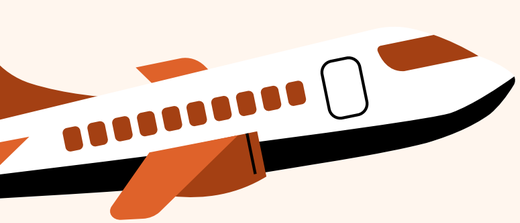
ANALYZING OCCUPANCY RATE

1. **Revenue Metrics:** Total yearly income and average revenue per ticket help identify profitable aircraft and routes, enabling operational adjustments.

- **Highest Revenue:** Aircraft SU9, offering lower business and economy class fares, saw maximum ticket sales.

- **Lowest Revenue:** Aircraft CN1, limited to economy class with minimal facilities and low pricing, generated the least revenue.

	aircraft_code	total_revenue	ticket_count	avg_revenue_per_ticket
0	319	2706163100	52853	51201
1	321	1638164100	107129	15291
2	733	1426552100	86102	16568
3	763	4371277100	124774	35033
4	773	3431205500	144376	23765
5	CN1	96373800	14672	6568
6	CR2	1982760500	150122	13207
7	SU9	5114484700	365698	13985



2. Occupancy Rate: Indicates seat utilization, calculated as booked seats divided by total seats. Higher occupancy improves profitability by reducing costs associated with vacant seats.

Factors influencing occupancy: Pricing strategy, schedules, and customer satisfaction.

	aircraft_code	booked_seats	num_seats	occupancy_rate
0	319	53.58318098720292	116	0.46192397402761143
1	321	88.80923076923077	170	0.5224072398190045
2	733	80.25546218487395	130	0.617349709114415
3	763	113.93729372937294	222	0.5132310528350132
4	773	264.9258064516129	402	0.659019419033863
5	CN1	6.004431314623338	12	0.5003692762186115
6	CR2	21.48284690220174	50	0.42965693804403476
7	SU9	56.81211267605634	97	0.5856918832583128

- **Impact of 10% Increase in Occupancy:**

1. Boosts total revenue progressively.
2. Emphasizes the need to refine pricing strategies and operational efficiency.

	aircraft_code	booked_seats	num_seats	occupancy_rate	Inc occupancy rate	Inc Total Annual Turnover
0	319	53.58318098720292	116	0.46192397402761143	0.5081163714303726	2976779410.0
1	321	88.80923076923077	170	0.5224072398190045	0.574647963800905	1801980510.0
2	733	80.25546218487395	130	0.617349709114415	0.6790846800258565	1569207310.0000002
3	763	113.93729372937294	222	0.5132310528350132	0.5645541581185146	4808404810.0
4	773	264.9258064516129	402	0.659019419033863	0.7249213609372492	3774326050.0
5	CN1	6.004431314623338	12	0.5003692762186115	0.5504062038404727	106011180.00000001
6	CR2	21.48284690220174	50	0.42965693804403476	0.4726226318484382	2181036550.0
7	SU9	56.81211267605634	97	0.5856918832583128	0.644261071584144	5625933169.999999

CONCLUSION

Analyzing revenue data like total yearly revenue, average revenue per ticket, and occupancy rates helps airlines identify ways to improve profitability. Higher occupancy rates boost revenue and reduce costs from empty seats, but pricing needs careful adjustment. Airlines should set reasonable ticket prices based on the aircraft's condition and facilities, avoiding prices that are too low or too high.

While increasing occupancy, airlines must prioritize customer satisfaction and safety. A balanced, data-driven approach to pricing and operations ensures profitability and long-term success in the competitive airline industry.