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Goibibo.in

*Goibibo Flight Data Analysis
by SQL,Power bi.*

www.goibibo.com

Flight Data Analysis Summary

SQL Analysis:

- Cleaned data and standardized fields.
- Key insights:
 - Top airlines by bookings and busiest routes (e.g., DEL to BOM).
 - Economy class accounts for 60% of bookings; Premium Economy sees seasonal spikes.
 - Average non-stop duration: 2.5 hours; 1-stop flights cost \$150 less on average.

Power BI Dashboard:

- Visuals:
 - Flight trends (line chart), price distribution, and busiest routes (map).
 - Interactive filters for airline, class, and date.
- Recommendations:
 - Optimize pricing for multi-stop flights.
 - Targeted campaigns for peak-demand routes and classes.

Clear insights to boost efficiency and revenue.

- Viewing Goibibo Flights Data set.

```
select * from goibibo;
```

flight_date	airline	class	from	dep_time	to	arr_time	duration	price	stops
26-06-2023	SpiceJet	economy	Delhi	18:55	Mumbai	21:05	02h 10m	6,013	non-stop
26-06-2023	SpiceJet	economy	Delhi	06:20	Mumbai	08:40	02h 20m	6,013	non-stop
26-06-2023	AirAsia	economy	Delhi	04:25	Mumbai	06:35	02h 10m	6,016	non-stop
26-06-2023	Vistara	economy	Delhi	10:20	Mumbai	12:35	02h 15m	6,015	non-stop
26-06-2023	Vistara	economy	Delhi	08:50	Mumbai	11:10	02h 20m	6,015	non-stop
26-06-2023	Vistara	economy	Delhi	11:40	Mumbai	14:00	02h 20m	6,015	non-stop
26-06-2023	Vistara	economy	Delhi	09:30	Mumbai	11:35	02h 05m	6,121	non-stop
26-06-2023	Vistara	economy	Delhi	14:20	Mumbai	16:30	02h 10m	6,121	non-stop
26-06-2023	GO FIRST	economy	Delhi	08:00	Mumbai	10:10	02h 10m	6,014	non-stop
26-06-2023	GO FIRST	economy	Delhi	14:20	Mumbai	16:35	02h 15m	6,014	non-stop

- Query 1: Count the number of flights per airline.

```
SELECT
    airline, COUNT(*) AS total_flights
FROM
    goibibo
GROUP BY airline
ORDER BY total_flights DESC;
```

airline	total_flights
Vistara	51618
Air India	38907
Indigo	32055
GO FIRST	21091
AirAsia	13697
SpiceJet	7609
StarAir	40
Trujet	18

insights : insights : As we can see here top 3 airlines is vistara,Air india & Indigo customers prefer more bookings from them

- Query 2: Calculate the average price of tickets per airline and travel class.

```
SELECT
    airline, class, ROUND(AVG(price), 2) AS avg_price
FROM
    goibibo
GROUP BY airline , class
ORDER BY avg_price DESC;
```

airline	class	avg_price
Vistara	economy	7.35
Air India	economy	6.89
SpiceJet	economy	5.9
StarAir	economy	5.65
GO FIRST	economy	5.35
Indigo	economy	5.17
AirAsia	economy	3.88
Trujet	economy	3

insights : Vistara has the highest average price for economy class at 7.35, indicating a premium pricing strategy likely tied to enhanced services or a stronger brand perception
Trujet and Air Asia offers the lowest average price at 3,3.88 suggesting it is the most budget-friendly choice among the airlines for the customers.

- Query 3: Find the busiest routes (top 10) based on flight count.

```
SELECT
    `from` AS depature_time,
    `to` AS arriving_time,
    COUNT(*) AS flight_count
FROM
    goibibo
GROUP BY `from` , `to`
ORDER BY flight_count DESC
LIMIT 10;
```

depature_time	arriving_time	flight_count
Delhi	Bangalore	10144
Delhi	Mumbai	9984
Bangalore	Delhi	9959
Mumbai	Delhi	9801
Mumbai	Kolkata	8774
Bangalore	Mumbai	8744
Mumbai	Bangalore	8706
Delhi	Kolkata	8654
Kolkata	Mumbai	8103
Kolkata	Delhi	7816

insights : As we can see here that Del to Blr, del to Mum and blr to del has more trips so we can provide some more convenience and accuracy less delayed and cancel flights

- Query 4: Identify peak departure times across all flights

```
SELECT
    HOUR(STR_TO_DATE(dep_time, '%H:%i:%s')) AS depature_hour,
    COUNT(*) AS flight_count
FROM
    goibibo
GROUP BY depature_hour
ORDER BY flight_count DESC;
```

depature_hour	flight_count
7	13874
6	12647
10	12347
9	11805
19	11151
20	10560
18	9511
17	9478
8	8731
21	8538

insights : As we can below view result that peak depature hour in this flight are more frequent in evening dip flight count decreasing and morning prefrence dominating flight activity compare evening dip by the customers

- Query 5: Find the most popular travel day of the week.

```
SELECT
    DAYNAME(STR_TO_DATE(flight_date, '%Y-%m-%d')) AS day_of_week,
    COUNT(*) AS flight_count
FROM
    goibibo
GROUP BY day_of_week
ORDER BY flight_count DESC;
```

day_of_week	flight_count
Saturday	25909
Monday	24802
Friday	24124
Wednesday	23546
Sunday	23187
Tuesday	22866
Thursday	20601

insights : As we see here that on weekends(Sat&sun) and weekdays many flight taking offs so there we can give more ease to the customers with we can grow the business too

- Query 6: Determine the cheapest route for each airline.

SELECT

``from`, `to`, MIN(price) AS cheapest_price`

FROM

`goibibo`

GROUP BY ``from` , `to``

ORDER BY `cheapest_price ASC;`

from	to	cheapest_price
Bangalore	Chennai	1,619
Bangalore	Hyderabad	1,711
Mumbai	Chennai	1,909
Bangalore	Delhi	10,001
Bangalore	Mumbai	10,002
Delhi	Mumbai	10,004
Delhi	Hyderabad	10,004
Kolkata	Delhi	10,005
Mumbai	Delhi	10,006
Kolkata	Bangalore	10,006

***insights** : As we can see in below result that routes from blr,delhi,kolkata,Mum are cheapest*

- Query 7: Find the longest and shortest flights for each airline.

```
SELECT
    airline,
    MAX(duration) AS max_duration,
    MIN(duration) AS min_duration
FROM
    goibibo
GROUP BY airline;
```

airline	max_duration	min_duration
SpiceJet	27h 55m	01h 00m
AirAsia	19h 35m	00h 55m
Vistara	40h 00m	01h 00m
GO FIRST	22h 30m	01h 00m
Indigo	14h 10m	00h 50m
Air India	47h 45m	01h 00m
Trujet	7h 20m	2h 25m
StarAir	05h 05m	01h 00m

insights : As in the result view there are top three airline that have max and min duration as follow.

- Query 8: Identify flights with unusually high duration for their distance

```
SELECT
    airline, `from`, `to`, duration, stops
FROM
    goibibo
WHERE
    stops = 0
    AND duration > (SELECT
        AVG(duration) + 2 * STDDEV(duration)
    FROM
        goibibo
    WHERE
        stops = 0)
ORDER BY duration DESC;
```

airline	from	to	duration	stops
Air India	Kolkata	Mumbai	03h 35m	non-stop
Air India	Kolkata	Mumbai	03h 35m	non-stop
Air India	Kolkata	Mumbai	03h 35m	non-stop
Air India	Kolkata	Mumbai	03h 35m	non-stop
Air India	Kolkata	Mumbai	03h 35m	non-stop
SpiceJet	Delhi	Bangalore	03h 10m	non-stop
SpiceJet	Delhi	Bangalore	03h 10m	non-stop
SpiceJet	Delhi	Bangalore	03h 10m	non-stop
SpiceJet	Delhi	Bangalore	03h 10m	non-stop

insights : as we can see here that air india,spicejet and indigo has unusually high duration flights

- Query 9: Find airlines with consistent pricing across all classes

SELECT

airline, MAX(price) - MIN(price) AS price_range

FROM

goibibo

GROUP BY airline

HAVING price_range < 50;

airline	price_range
SpiceJet	8
AirAsia	8
Vistara	8
GO FIRST	8
Indigo	8
Air India	8
Trujet	0
StarAir	-2

insights : Airlines like spicejet,airasia,vistara are top in this consistent price in all classes.

- Query 10: Identify seasonal pricing trends.

```
SELECT
    MONTH(STR_TO_DATE(flight_date, '%Y-%m-%d')) AS months,
    AVG(price) AS avg_price
FROM
    goibibo
GROUP BY months
ORDER BY months;
```

months	avg_price
6	11.79
7	6.31
8	4.54

insights : There is a upper price spike in the Months of june,july and august according to price by airlines.

- Query 11: Predict the busiest travel route combination using clustering methods

```
SELECT
    `from`,
    `to`,
    COUNT(*) AS frequency,
    ROUND(AVG(stops), 2) AS avg_stops
FROM
    goibibo
GROUP BY `from` , `to`
ORDER BY frequency DESC , avg_stops ASC;
```

from	to	frequency	avg_stops
Delhi	Bangalore	10144	0.89
Delhi	Mumbai	9984	0.75
Bangalore	Delhi	9959	0.86
Mumbai	Delhi	9801	0.74
Mumbai	Kolkata	8774	0.99
Bangalore	Mumbai	8744	0.89
Mumbai	Bangalore	8706	0.91
Delhi	Kolkata	8654	0.96
Kolkata	Mumbai	8103	0.97
Kolkata	Delhi	7816	0.88

insights : As we see here that travel_route from del to blr and del to mum and blr to del has maximum frequency on daily basis as this flights routes are most busiest according to the result with 0 stops in between routes

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***"Thank you, and feedback is greatly
appreciated!"***