

Linie lotnicze Projekt 2023

Projekt przedstawiający polecenia wraz z wygenerowanymi tabelami z analizy bazy danych dotyczących opóźnień połączeń lotniczych w USA w lipcu 2017 r.

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zadanie 1

Jakie było średnie opóźnienie przylotu?

```
SELECT AVG(arr_delay_new) AS [avg_delay]
FROM Flight_delays;
```

Table 1: 1 records

avg_delay
15.91152

zadanie 2

Jakie było maksymalne opóźnienie przylotu?

```
SELECT MAX(arr_delay_new) AS [max_delay]
FROM Flight_delays;
```

Table 2: 1 records

max_delay
1895

zadanie 3

Który lot miał największe opóźnienie przylotu?

```
SELECT fl_date, arr_delay_new, carrier, origin_city_name, dest_city_name
FROM Flight_delays
WHERE arr_delay_new IN (SELECT MAX(arr_delay_new)
                        FROM flight_delays);
```

Table 3: 1 records

fl_date	arr_delay_new	carrier	origin_city_name	dest_city_name
2017-07-26	1895	AA	Kona, HI	Los Angeles, CA

zadanie 4

Które dni tygodnia są najgorsze do podróżowania?

```
SELECT DISTINCT CASE day_of_week
  WHEN '1' then 'Monday'
  WHEN '2' then 'Thursday'
  WHEN '3' then 'Wednesday'
  WHEN '4' then 'Thursday'
  WHEN '5' then 'Friday'
  WHEN '6' then 'Saturday'
  WHEN '7' then 'Sunday'
END AS 'weekday_name',
  AVG(arr_delay_new) [avg_delay]
FROM Flight_delays
GROUP BY day_of_week
ORDER BY AVG(arr_delay_new) DESC;
```

Table 4: 7 records

weekday_name	avg_delay
Friday	20.80747
Monday	18.04801
Wednesday	16.10514
Thursday	15.64696
Saturday	15.21876
Thursday	12.88056
Sunday	12.77606

zadanie 5

Które linie lotnicze latające z San Francisco (SFO) mają najmniejsze opóźnienia przylotu?

```
SELECT AVG(arr_delay_new) AS [avg_delay], airline_name
FROM Flight_delays f
JOIN Airlines a
ON f.airline_id=a.airline_id
WHERE f.airline_id IN (SELECT airline_id
                       FROM Flight_delays
                       WHERE origin='SFO')
GROUP BY airline_name
ORDER BY AVG(arr_delay_new) DESC
```

Table 5: Displaying records 1 - 10

avg_delay	airline_name
28.841148	JetBlue Airways: B6
18.980300	Frontier Airlines Inc.: F9
18.375314	American Airlines Inc.: AA
16.950403	United Air Lines Inc.: UA
16.808273	SkyWest Airlines Inc.: OO
13.964467	Virgin America: VX
13.823983	Southwest Airlines Co.: WN
12.258788	Delta Air Lines Inc.: DL
7.453927	Alaska Airlines Inc.: AS
4.202719	Hawaiian Airlines Inc.: HA

zadanie 6

Jaka część linii lotniczych ma regularne opóźnienia, tj. jej lot ma średnio co najmniej 10 min. opóźnienia?

```
SELECT cast((SELECT count(DISTINCT airline_id)
FROM (SELECT airline_id, AVG(arr_delay_new) AS a
      FROM flight_delays
      GROUP BY airline_id
      HAVING avg(arr_delay_new)>9) as t) AS FLOAT)/
cast(COUNT(distinct airline_id) AS FLOAT) late_proportion
FROM Flight_delays
```

Table 6: 1 records

late_proportion
0.8333333

zadanie 7

Jak opóźnienia wylotów wpływają na opóźnienia przylotów?

```
SELECT ((COUNT(arr_delay_new) * SUM(arr_delay_new*dep_delay_new)) - (SUM(arr_delay_new)*  
SUM(dep_delay_new)))/(sqrt((((COUNT(arr_delay_new) * SUM(arr_delay_new*arr_delay_new)) -  
SUM(arr_delay_new) * SUM(arr_delay_new))*((COUNT(arr_delay_new) *  
SUM(dep_delay_new*dep_delay_new)) - (SUM(dep_delay_new) * SUM(dep_delay_new))))))  
FROM Flight_delays
```

Table 7: 1 records

0.9716605

zadanie 8

Która linia lotnicza miała największy wzrost (różnica) średniego opóźnienia przylotów w ostatnim tygodniu miesiąca, tj. między 1-23 a 24-31 lipca?

```
SELECT TOP 1 AVG(arr_delay_new) - (SELECT AVG(arr_delay_new)  
FROM Flight_delays F2  
JOIN Airlines a2  
ON a2.airline_id=F2.airline_id  
WHERE (day_of_month BETWEEN 1 AND 23) AND month='7'  
AND a1.airline_name=a2.airline_name  
GROUP BY a2.airline_name) AS [delay_increase],  
a1.airline_name  
FROM Flight_delays F1  
JOIN Airlines a1  
ON a1.airline_id=F1.airline_id  
WHERE (day_of_month BETWEEN 24 and 31) and month='7'  
GROUP BY a1.airline_name  
ORDER BY AVG(arr_delay_new) - (SELECT avg(arr_delay_new)  
FROM Flight_delays F2  
JOIN Airlines a2  
ON a2.airline_id=F2.airline_id  
WHERE (day_of_month BETWEEN 1 AND 23) AND  
month='7' AND a1.airline_name=a2.airline_name  
GROUP BY a2.airline_name) DESC
```

Table 8: 1 records

delay_increase	airline_name
0.584763	Southwest Airlines Co.: WN

zadanie 9

Które linie lotnicze latają zarówno na trasie SFO → PDX (Portland), jak i SFO → EUG (Eugene)?

```
SELECT DISTINCT a.airline_name
FROM Airlines a
JOIN Flight_delays f1 ON f1.airline_id = a.airline_id
JOIN Flight_delays f2 ON f2.airline_id = a.airline_id
WHERE f1.origin_city_name = 'San Francisco, CA'
      AND f1.dest_city_name = 'Portland, OR'
      AND f2.origin_city_name = 'San Francisco, CA'
      AND f2.dest_city_name = 'Eugene, OR';
```

Table 9: 2 records

airline_name
SkyWest Airlines Inc.: OO
United Air Lines Inc.: UA

zadanie 10

Jak najszybciej dostać się z Chicago do Stanfordu, zakładając wylot po 14:00 czasu lokalnego?

```
SELECT AVG(arr_delay_new) AS [avg_delay], origin, dest
FROM Flight_delays
WHERE (origin='MDW' OR origin='ORD') AND (dest='SFO' OR dest='SJC' OR dest='OAK')
AND crs_dep_time>1400
GROUP BY origin, dest
ORDER BY AVG(arr_delay_new) DESC
```

Table 10: 5 records

avg_delay	origin	dest
22.19253	ORD	SFO
19.85714	MDW	SFO
17.20000	MDW	SJC
14.81111	ORD	SJC
12.12903	MDW	OAK