


Uniwersytet im. Adama Mickiewicza w Poznaniu  
Wydział Matematyki i Informatyki  
Kierunek: Analiza i przetwarzanie danych

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## Projekt SQL - linie lotnicze

Projekt przygotowany w ramach przedmiotu:

*Wprowadzenie do baz danych*

21.05.2022

Poznań

Odpowiedzi na zadania:

**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

**2. Jakie było maksymalne opóźnienie przylotu?**

```
SELECT MAX(arr_delay_new) AS "max_delay"
FROM "Flight_delays"
```

Table 2: 1 records

max_delay
1895

**3. Który lot miał największe opóźnienie przylotu?**

```
SELECT carrier, origin_city_name, dest_city_name, fl_date, arr_delay_new
FROM "Flight_delays"
WHERE arr_delay_new IS NOT NULL
ORDER BY arr_delay_new DESC
LIMIT 1;
```

Table 3: 1 records

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

**4. Które dni tygodnia są najgorsze do podróżowania?**

```
SELECT
  CASE day_of_week
    WHEN '1' THEN 'Monday'
    WHEN '2' THEN 'Tuesday'
    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) AS "avg_delay"
FROM "Flight_delays"
GROUP BY weekday_name
ORDER BY avg_delay DESC;
```

Table 4: 7 records

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

### 5. Które linie lotnicze latające z San Francisco (SFO) mają najmniejsze opóźnienia lotu?

```
SELECT a.airline_name, AVG(arr_delay_new) AS "avg_delay"
FROM "Airlines" A INNER JOIN "Flight_delays" F ON a.airline_id = f.airline_id
GROUP BY a.airline_name, f.origin
HAVING origin = 'SFO'
ORDER BY avg_delay DESC;
```

Table 5: Displaying records 1 - 10

airline_name	avg_delay
Frontier Airlines Inc.: F9	26.000000
JetBlue Airways: B6	21.257194
American Airlines Inc.: AA	18.338682
Southwest Airlines Co.: WN	17.866982
SkyWest Airlines Inc.: OO	17.533890
Virgin America: VX	15.744806
Alaska Airlines Inc.: AS	14.459119
United Air Lines Inc.: UA	13.815853
Delta Air Lines Inc.: DL	9.635359
Hawaiian Airlines Inc.: HA	4.870968

### 6. Jaka czesc linii lotniczych ma regularne opoznienia?

```
SELECT CAST(count(airline_name) AS FLOAT)/12 AS late_proportion
FROM "Airlines"
WHERE airline_id IN (SELECT airline_id
FROM "Flight_delays"
GROUP BY airline_id
HAVING avg(arr_delay) > 10
OR avg(dep_delay) > 10);
```

Table 6: 1 records

late_proportion
0.8333333

## 7. Jak opóźnienia wylotów wpływają na opóźnienia przylotów?

```
SELECT corr(dep_delay_new, arr_delay_new) AS Pearsons_r
FROM "Flight_delays";
```

Table 7: 1 records

pearsons_r
0.9763465

## 9. Które linie lotnicze latają zarówno na trasie SFO → PDF (Portland), jak i SFO → EUG (Eugene)?

```
SELECT a.airline_name
FROM "Airlines" A INNER JOIN "Flight_delays" F ON a.airline_id = f.airline_id
WHERE origin = 'SFO' AND dest = 'PDX'
INTERSECT
SELECT a.airline_name
FROM "Airlines" A INNER JOIN "Flight_delays" F ON a.airline_id = f.airline_id
WHERE origin = 'SFO' AND dest = 'EUG';
```

Table 8: 2 records

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

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

```
SELECT DISTINCT origin, dest, AVG(arr_delay_new) AS "avg_delay"
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 dest, origin
ORDER BY "avg_delay" DESC;
```

Table 9: 5 records

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