

# Домашнее задание 3

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## Упражнение 17

### Задание

Представления могут быть, условно говоря, вертикальными и горизонтальными. При создании вертикального представления в список его столбцов включается лишь часть столбцов базовой таблицы (таблиц). Например:

```
CREATE VIEW airports_names AS
  SELECT airport_code, airport_name, city
  FROM airports;

SELECT * FROM airports_names;
```

В горизонтальное представление включаются не все строки базовой таблицы (таблиц), а производится их отбор с помощью фраз **WHERE** или **HAVING**. Например:

```
CREATE VIEW siberian_airports AS
  SELECT * FROM airports
  WHERE city = 'Новосибирск' OR city = 'Кемерово';

SELECT * FROM siberian_airports;
```

Конечно, вполне возможен и смешанный вариант, когда ограничивается как список столбцов, так и множество строк при создании представления. Подумайте, какие представления было бы целесообразно создать для нашей базы данных «Авиаперевозки». Необходимо учесть наличие различных групп пользователей, например: пилоты, диспетчеры, пассажиры, кассиры. Создайте представления и проверьте их в работе.

### Решение

- Сделаем горизонтальное представление для пассажиров - Будущие рейсы

```
CREATE VIEW passenger_upcoming_flights AS
SELECT
  f.flight_no,
  f.scheduled_departure,
  dep.city AS departure_city,
  arr.city AS arrival_city,
  f.status,
  f.aircraft_code
```

```

FROM bookings.flights f
  JOIN bookings.airports dep ON f.departure_airport = dep.airport_code
  JOIN bookings.airports arr ON f.arrival_airport = arr.airport_code
WHERE f.scheduled_departure > bookings.now()
  AND f.status IN ('Scheduled', 'On Time');

```

```
demo=# CREATE VIEW passenger_upcoming_flights AS
```

```
SELECT
```

```

  f.flight_no,
  f.scheduled_departure,
  dep.city AS departure_city,
  arr.city AS arrival_city,
  f.status,
  f.aircraft_code

```

```
FROM bookings.flights f
```

```

  JOIN bookings.airports dep ON f.departure_airport = dep.airport_code
  JOIN bookings.airports arr ON f.arrival_airport = arr.airport_code

```

```

WHERE f.scheduled_departure > bookings.now()
  AND f.status IN ('Scheduled', 'On Time');

```

```
CREATE VIEW
```

```
demo=# SELECT * FROM bookings.passenger_upcoming_flights LIMIT 5;
```

flight_no	scheduled_departure	departure_city	arrival_city	status	aircraft_code
PG0402	2016-11-07 11:25:00+03	Москва	Санкт-Петербург	Scheduled	321
PG0405	2016-10-14 08:35:00+03	Москва	Санкт-Петербург	On Time	321
PG0404	2016-10-14 18:05:00+03	Москва	Санкт-Петербург	Scheduled	321
PG0402	2016-10-14 11:25:00+03	Москва	Санкт-Петербург	On Time	321
PG0405	2016-10-23 08:35:00+03	Москва	Санкт-Петербург	Scheduled	321

(5 rows)

- Сделаем вертикальное представление для пилотов - Характеристики самолетов

```
CREATE VIEW pilot_aircraft_info AS
```

```
SELECT
```

```

  a.aircraft_code,
  a.model,
  a.range,

```

```
  COUNT(s.seat_no) AS total_seats,
```

```
  COUNT(CASE WHEN s.fare_conditions = 'Business' THEN 1 END) AS business_seats
```

```
FROM bookings.aircrafts a
```

```
  LEFT JOIN bookings.seats s ON a.aircraft_code = s.aircraft_code
```

```
GROUP BY a.aircraft_code, a.model, a.range;
```

```
demo=# CREATE VIEW pilot_aircraft_info AS
SELECT
  a.aircraft_code,
  a.model,
  a.range,
  COUNT(s.seat_no) AS total_seats,
  COUNT(CASE WHEN s.fare_conditions = 'Business' THEN 1 END) AS business_seats
FROM bookings.aircrafts a
  LEFT JOIN bookings.seats s ON a.aircraft_code = s.aircraft_code
GROUP BY a.aircraft_code, a.model, a.range;
CREATE VIEW
demo=# SELECT * FROM bookings.pilot_aircraft_info LIMIT 5;
 aircraft_code |      model      | range | total_seats | business_seats
-----+-----+-----+-----+-----
 CN1           | Cessna 208 Caravan | 1200  |          12 |           0
 320           | Airbus A320-200   | 5700  |         140 |          20
 CR2           | Bombardier CRJ-200 | 2700  |          50 |           0
 773           | Boeing 777-300    | 11100 |         402 |          30
 763           | Boeing 767-300    | 7900  |         222 |          30
(5 rows)

demo=#
```

- Для диспетчеров, смешанное представление - текущие рейсы

```
CREATE VIEW dispatcher_current_flights AS
SELECT
  f.flight_no,
  f.status,
  f.scheduled_departure,
  f.actual_departure,
  dep.city AS departure_city,
  arr.city AS arrival_city,
  a.model AS aircraft
FROM bookings.flights f
  JOIN bookings.airports dep ON f.departure_airport = dep.airport_code
  JOIN bookings.airports arr ON f.arrival_airport = arr.airport_code
  JOIN bookings.aircrafts a ON f.aircraft_code = a.aircraft_code
WHERE f.scheduled_departure::date = bookings.now()::date
  OR f.scheduled_arrival::date = bookings.now()::date
ORDER BY f.scheduled_departure;
```

```
demo=# CREATE VIEW dispatcher_current_flights AS
SELECT
  f.flight_no,
  f.status,
  f.scheduled_departure,
  f.actual_departure,
  dep.city AS departure_city,
  arr.city AS arrival_city,
  a.model AS aircraft
FROM bookings.flights f
  JOIN bookings.airports dep ON f.departure_airport = dep.airport_code
  JOIN bookings.airports arr ON f.arrival_airport = arr.airport_code
  JOIN bookings.aircrafts a ON f.aircraft_code = a.aircraft_code
WHERE f.scheduled_departure::date = bookings.now()::date
  OR f.scheduled_arrival::date = bookings.now()::date
ORDER BY f.scheduled_departure;
CREATE VIEW
demo=# SELECT * FROM bookings.dispatcher_current_flights LIMIT 5;
```

flight_no	status	scheduled_departure	actual_departure	departure_city	arrival_city	aircraft
PG0703	Arrived	2016-10-12 16:15:00+03	2016-10-12 16:19:00+03	Москва	Южно-Сахалинск	Airbus A319-100
PG0315	Arrived	2016-10-12 16:40:00+03	2016-10-12 16:41:00+03	Москва	Анадырь	Airbus A319-100
PG0144	Arrived	2016-10-12 16:45:00+03	2016-10-12 16:49:00+03	Москва	Петропавловск-Камчатский	Boeing 767-300
PG0356	Arrived	2016-10-12 18:10:00+03	2016-10-12 18:12:00+03	Санкт-Петербург	Хабаровск	Boeing 767-300
PG0200	Arrived	2016-10-12 18:20:00+03	2016-10-12 18:22:00+03	Москва	Владивосток	Boeing 767-300

(5 rows)