

1.

```
CREATE OR REPLACE PROCEDURE add_flight(
    arrival_airport_id,
    departing_gate,
    arriving_gate,
    airline_id,
    status,
    created_at,
    update_at
)
VALUES (
    flight_no p_flight_no,
    scheduled_departure p_scheduled_departure,
    scheduled_arrival p_scheduled_arrival,
    departure_airport_id p_departure_airport_id,
    arrival_airport_id p_arrival_airport_id,
    departing_gate p_departing_gate,
    arriving_gate p_arriving_gate,
    airline_id p_airline_id,
    status p_status,
    created_at CURRENT_DATE,
    update_at CURRENT_DATE
);
END;

```

in 93 ms

File [lab4@localhost]

6109:4 LF UTF-8 4 spaces ⌂ ↴

2.

```
CREATE OR REPLACE PROCEDURE update_flight_status(
    p_flight_id INT,
    p_new_status VARCHAR
)
LANGUAGE plpgsql
AS $$*
BEGIN
    UPDATE flights
    SET status = p_new_status,
        update_at = CURRENT_DATE
    WHERE flight_id = p_flight_id;
END;
$$*
```

in 1 ms

File [lab4@localhost]

6125:4 LF UTF-8 4 spaces ⌂ ↴

3.

The screenshot shows a PostgreSQL IDE interface with multiple tabs at the top: 'console [lab4@localhost]', 'airline [lab4@localhost]', 'airport [lab4@localhost]', 'booking [lab4@localhost]', and 'lab4.public'. The main code editor area contains the following PL/pgSQL code:

```
6113 CREATE OR REPLACE PROCEDURE update_flight_status(
6114     p_new_status,
6115     p_update_at = CURRENT_DATE
6116     WHERE flight_id = p_flight_id;
6117 END;
6118 $$;
6119
6120 -- 3
6121
6122 CREATE OR REPLACE FUNCTION get_flights_by_departure_airport(
6123     p_airport_id INT
6124 )
6125 RETURNS SETOF flights
6126 LANGUAGE plpgsql
6127 AS $$
6128 BEGIN
6129     RETURN QUERY
6130     SELECT *
6131     FROM flights
6132     WHERE departure_airport_id = p_airport_id;
6133 END;
6134 $$;|
```

Below the code, the output shows:

```
6141:4  LF  UTF-8  4 spaces  ↻
```

4.

The screenshot shows a PostgreSQL IDE interface with multiple tabs at the top: 'console [lab4@localhost]', 'airline [lab4@localhost]', 'airport [lab4@localhost]', 'booking [lab4@localhost]', and 'lab4.public'. The main code editor area contains the following PL/pgSQL code:

```
-- 4
6145 CREATE OR REPLACE FUNCTION get_average_arrival_delay(
6146     p_airport_id INT
6147 )
6148 RETURNS NUMERIC
6149 LANGUAGE plpgsql
6150 AS $$
6151 DECLARE
6152     avg_delay NUMERIC;
6153 BEGIN
6154     SELECT AVG(EXTRACT(EPOCH FROM (actual_arrival - scheduled_arrival)) / 60)
6155     INTO avg_delay
6156     FROM flights
6157     WHERE arrival_airport_id = p_airport_id;
6158
6159     RETURN avg_delay;
6160 END;
6161 $$;|
```

Below the code, the output shows:

```
6161:4  LF  UTF-8  4 spaces  ↻
```

5.

```
6171
6172 ✓ CREATE OR REPLACE FUNCTION get_passengers_by_flight_no(
6173     p_flight_no VARCHAR
6174 )
6175 RETURNS TABLE (
6176     passenger_id INT,
6177     first_name VARCHAR,
6178     last_name VARCHAR
6179 )
6180 LANGUAGE plpgsql
6181 AS $$*
6182 BEGIN
6183     RETURN QUERY
6184     SELECT p.passenger_id,
6185             p.first_name,
6186             p.last_name
6187     FROM passengers p
6188     JOIN booking b
6189         ON p.passenger_id = b.passenger_id
6190
6191     JOIN flights f
6192         ON bf.flight_id = f.flight_id
6193     WHERE f.flight_no = p_flight_no;
6194 END;
6195 $*
6196 0 ms
```

b4@localhost] 6196:4 LF UTF-8 4 spaces ⌂

6.

```
6202
6203 CREATE OR REPLACE FUNCTION get_top_passenger()
6204 AS $$*
6205 BEGIN
6206     RETURN QUERY
6207     SELECT
6208         p.passenger_id,
6209         p.first_name,
6210         p.last_name,
6211         COUNT(bf.flight_id) AS flights_count
6212     FROM passengers p
6213     JOIN booking b
6214         ON p.passenger_id = b.passenger_id
6215     JOIN booking_flight bf
6216         ON b.booking_id = bf.booking_id
6217     GROUP BY
6218         p.passenger_id,
6219         p.first_name,
6220         p.last_name
6221     ORDER BY flights_count DESC
6222     LIMIT 1;
6223 END;
6224 $$*
```

b4@localhost] 6230:4 LF UTF-8 4 spaces ⌂

7.

```
6231
6232 -- 7
6233
6234 ✓ CREATE OR REPLACE PROCEDURE get_flights_delayed_more_than_24h(
6235     INOUT ref refcursor
6236 )
6237 LANGUAGE plpgsql
6238 AS $$*
6239 BEGIN
6240     OPEN ref FOR
6241         SELECT f.*
6242             FROM flights f
6243                 WHERE f.actual_arrival IS NOT NULL
6244                     AND f.scheduled_arrival IS NOT NULL
6245                         AND (f.actual_arrival::timestamp - f.scheduled_arrival::timestamp) > INTERVAL '24 hours';
6246 END;
6247 $$;
```

\$\$
14 ms

ab4@localhost]

8.

```
247
248 -- 8
249
250
251 ✓ CREATE OR REPLACE FUNCTION count_flights_by_airline()
252 RETURNS TABLE (
253     airline_id INT,
254     airline_name VARCHAR,
255     flights_count BIGINT
256 )
257 LANGUAGE plpgsql
258 AS $$*
259 BEGIN
260     RETURN QUERY
261     SELECT
262         a.airline_id,
263         a.airline_name,
264         COUNT(f.flight_id) AS flights_count
265     FROM airline a
266     LEFT JOIN flights f
267         ON a.airline_id = f.airline_id
268     GROUP BY a.airline_id, a.airline_name
269     ORDER BY flights_count DESC;
```

ns

4@localhost]

9.

```
6251 CREATE OR REPLACE FUNCTION count_flights_by_airline()
6270 END;
6271 $$;
6272 -- 9
6273
6274
6275 ✓ CREATE OR REPLACE PROCEDURE get_average_ticket_price(
6276     p_flight_id INT,
6277     OUT avg_price NUMERIC
6278 )
6279 LANGUAGE plpgsql
6280 AS $$
6281 BEGIN
6282     SELECT AVG(b.price)
6283     INTO avg_price
6284     FROM booking b
6285     JOIN booking_flight bf
6286         ON b.booking_id = bf.booking_id
6287     WHERE bf.flight_id = p_flight_id;
6288
6289 END;
6290 $$;
```

10.

```
92
93 -- 10
94
95 ✓ CREATE OR REPLACE PROCEDURE get_flight_with_highest_ticket_price(
96     INOUT ref refcursor
97 )
98 LANGUAGE plpgsql
99 AS $$
100 BEGIN
101     OPEN ref FOR
102         SELECT
103             f.flight_no,
104             f.departure_airport_id,
105             f.arrival_airport_id,
106             b.price AS highest_price
107         FROM flights f
108         JOIN booking_flight bf
109             ON f.flight_id = bf.flight_id
110         JOIN booking b
111             ON bf.booking_id = b.booking_id
112         ORDER BY b.price DESC
113         LIMIT 1;
```