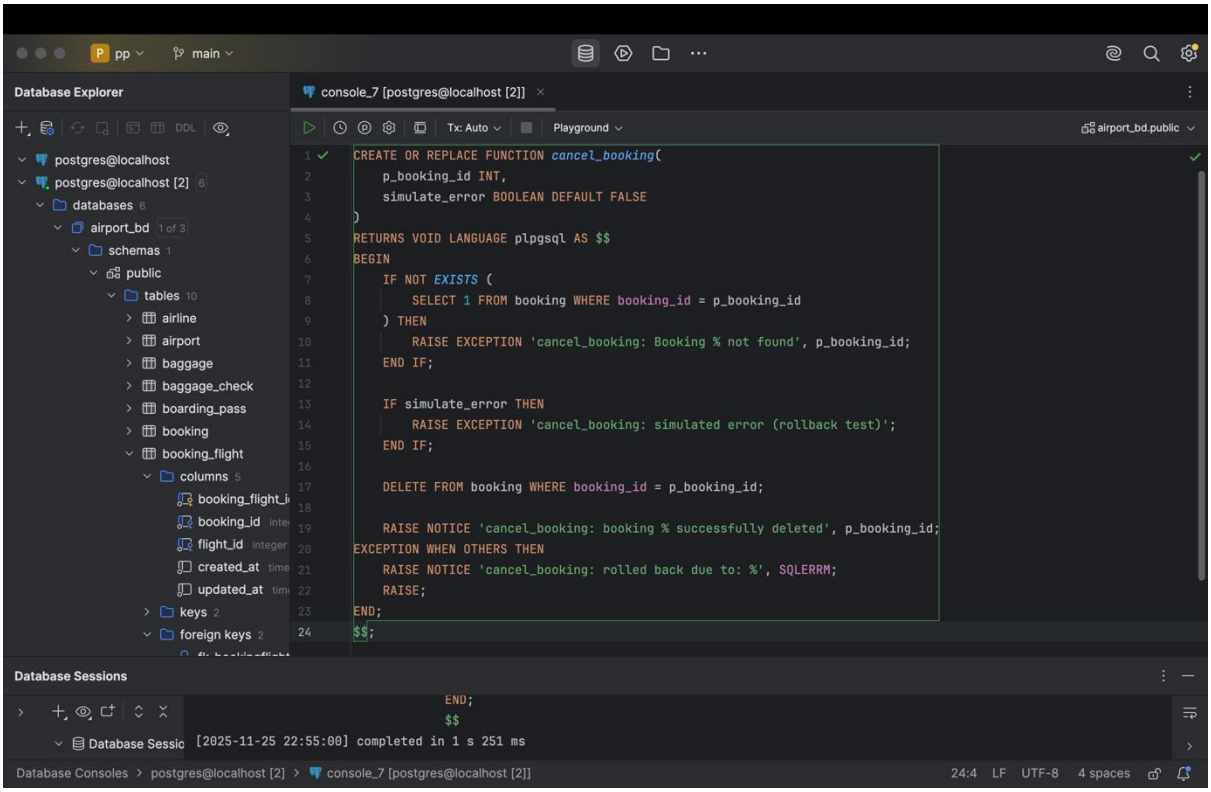
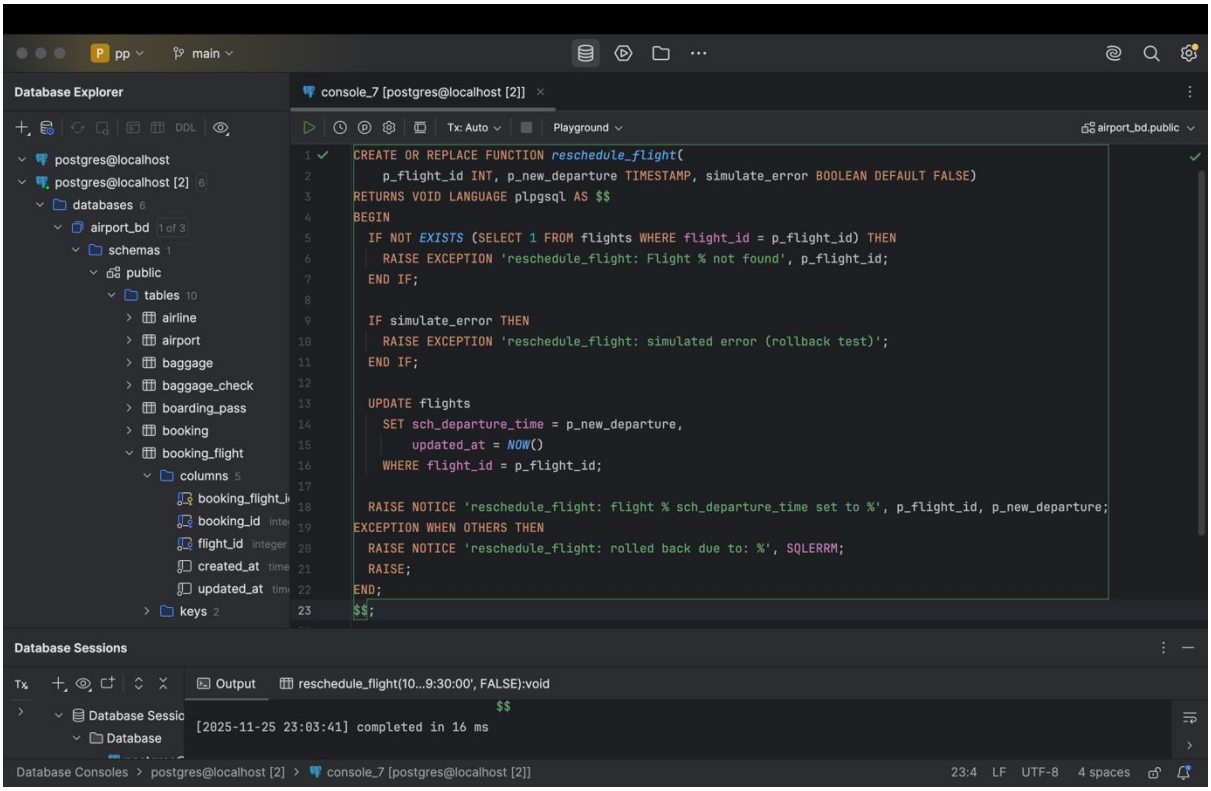
Laboratory work 9

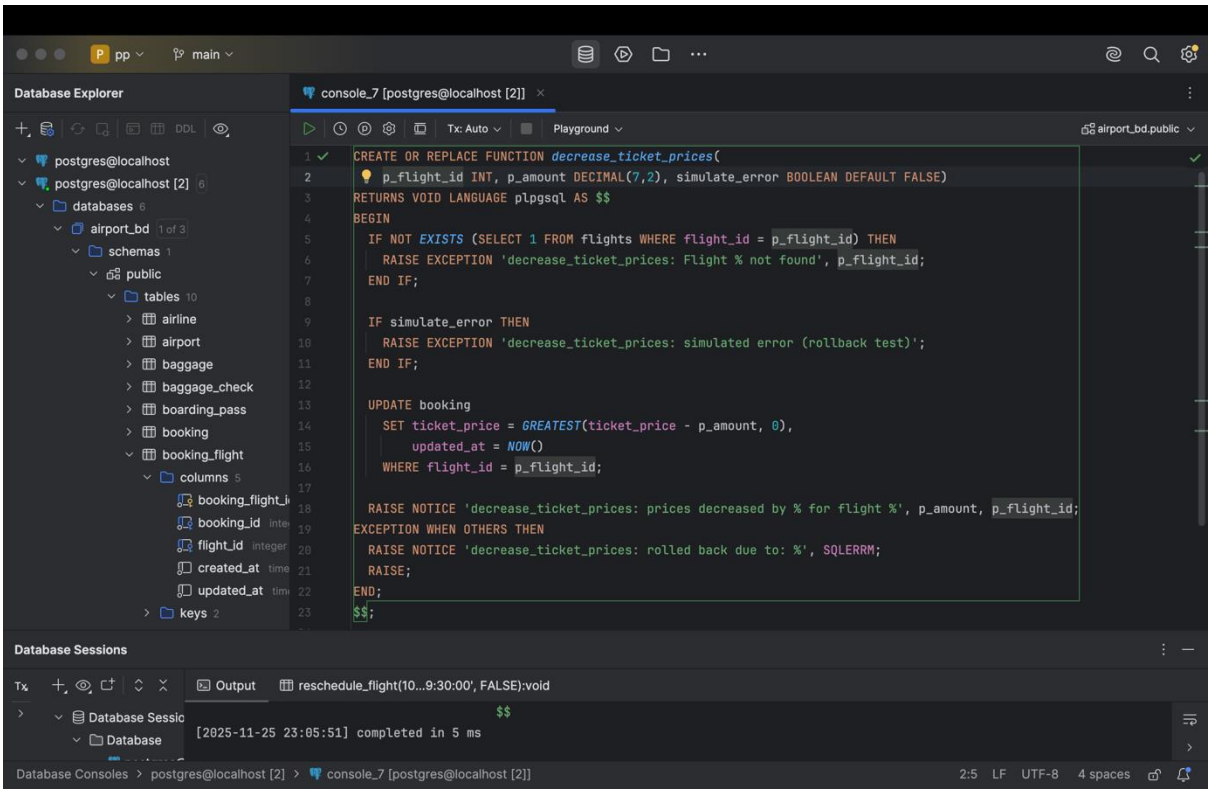
1. A passenger cancels their booking. You need to remove the booking for the flight. Ensure the ‘booking’ table no longer contains the booking. Simulate an error to test rollback (for example, invalid booking_id).



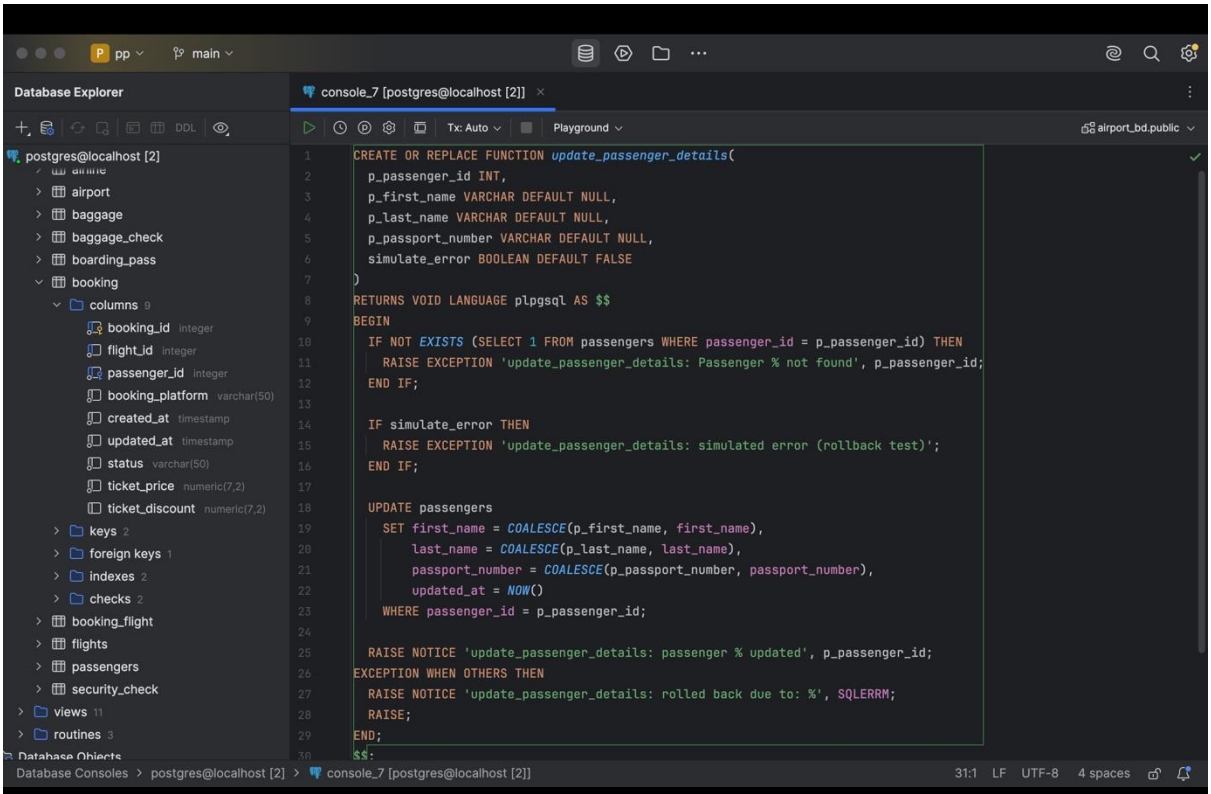
2. Rescheduling a flight. You need to reschedule a flight. Verify the ‘flights’ table reflects the new departure time. Simulate an error to test rollback (for example, invalid flight_id).

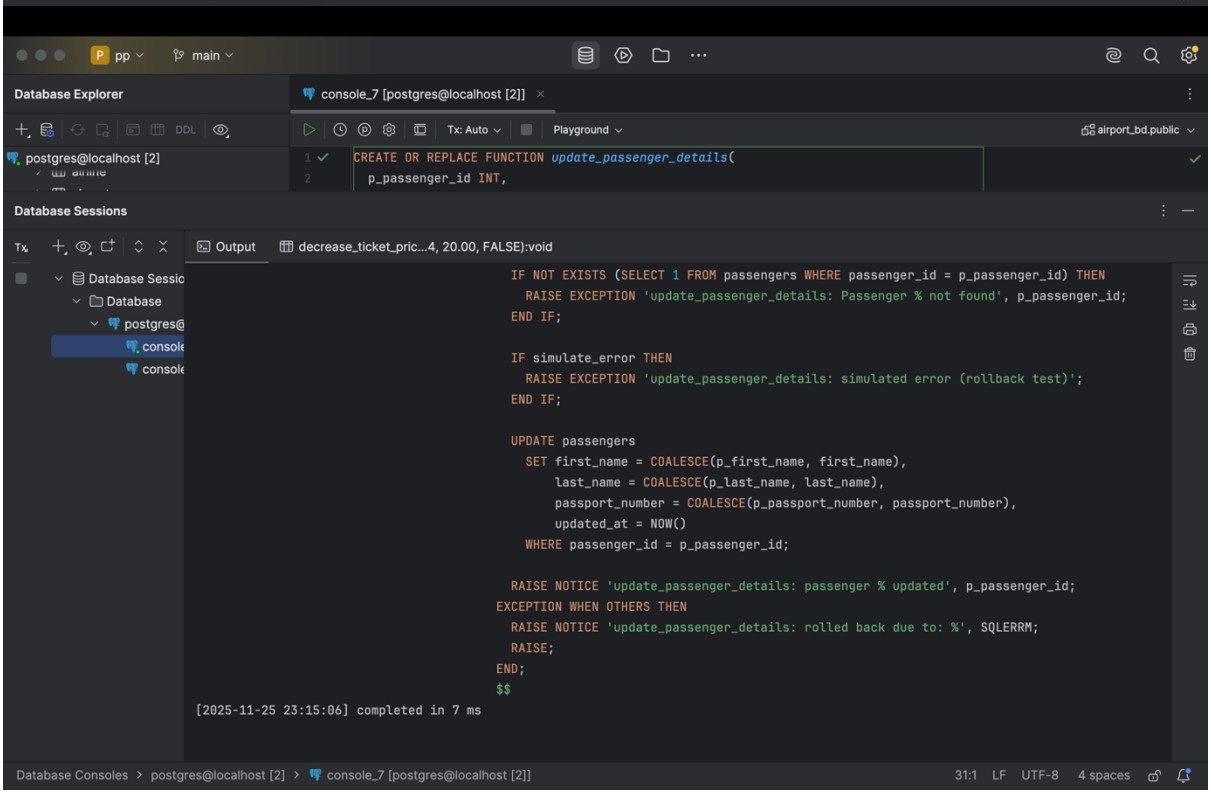


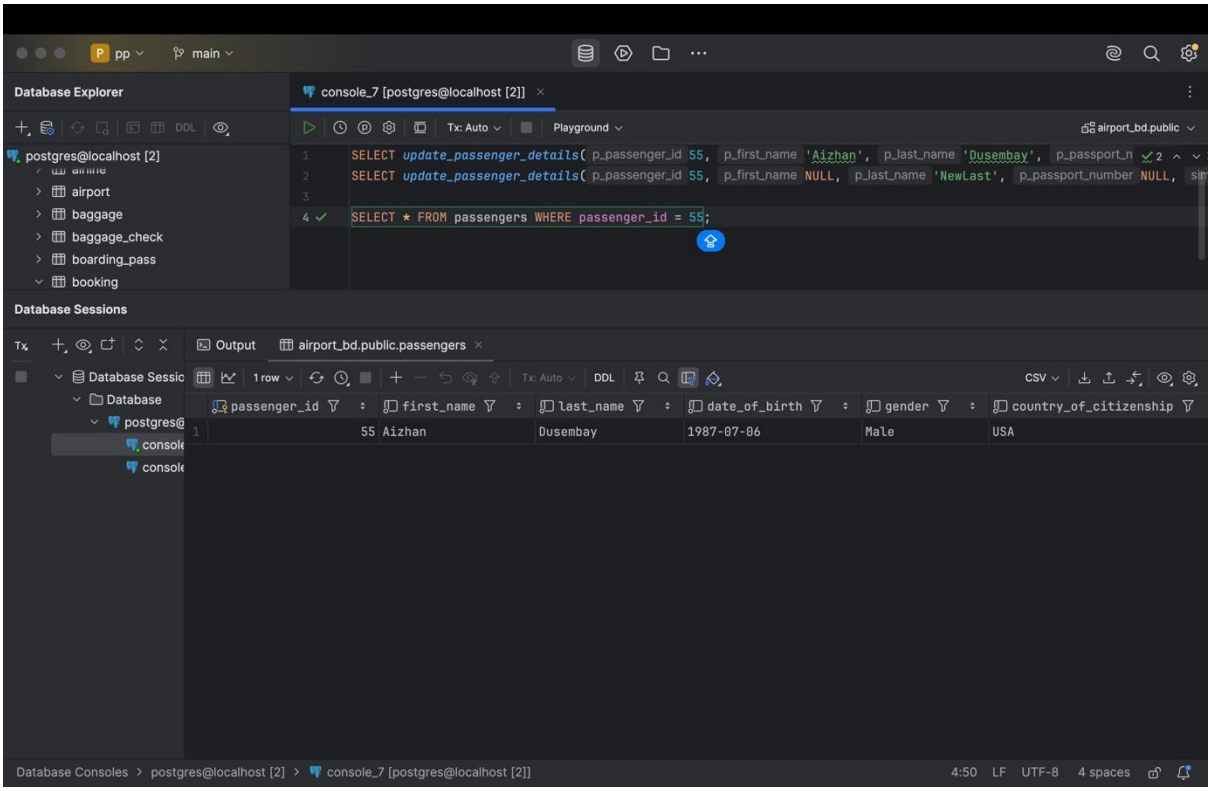
3. Updating ticket prices. You need to decrease the ticket price for a specific flight for all existing bookings. If an error occurs, no changes should be applied.



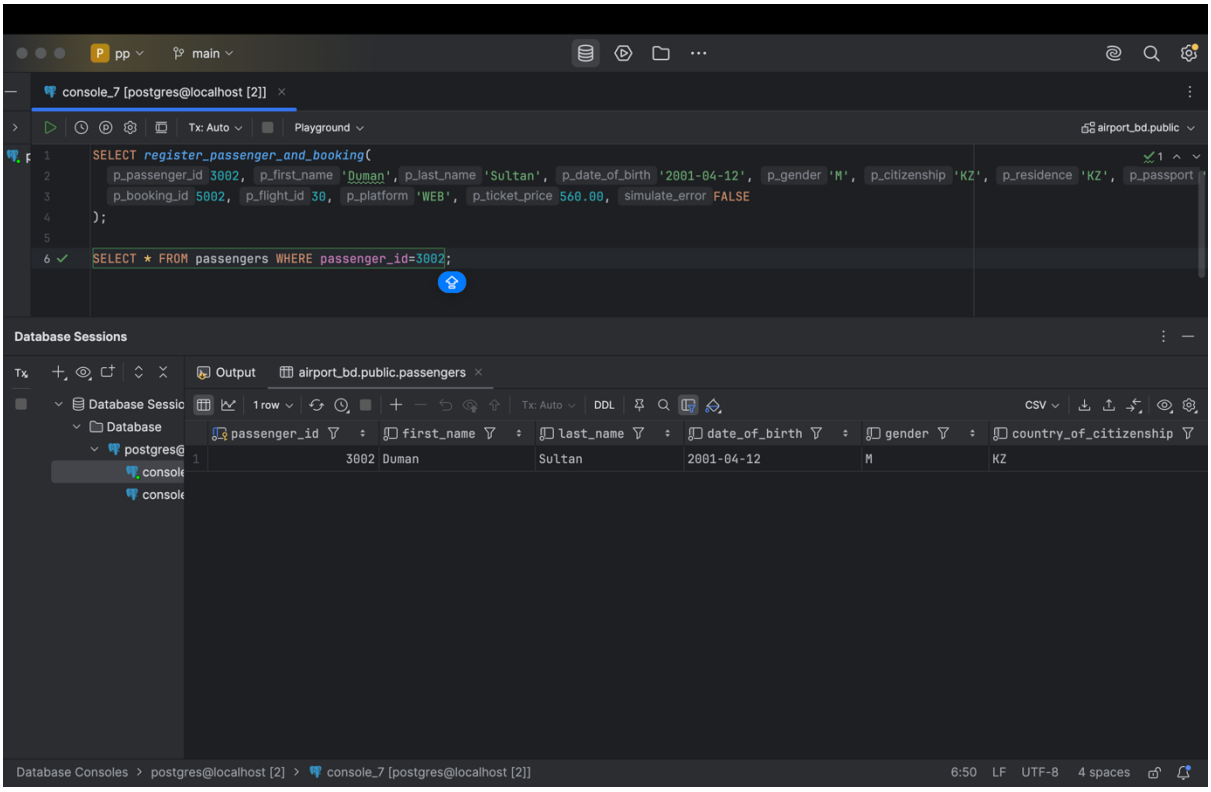
4. A passenger updates their details. Ensure the update is reflected across all associated records, including bookings.

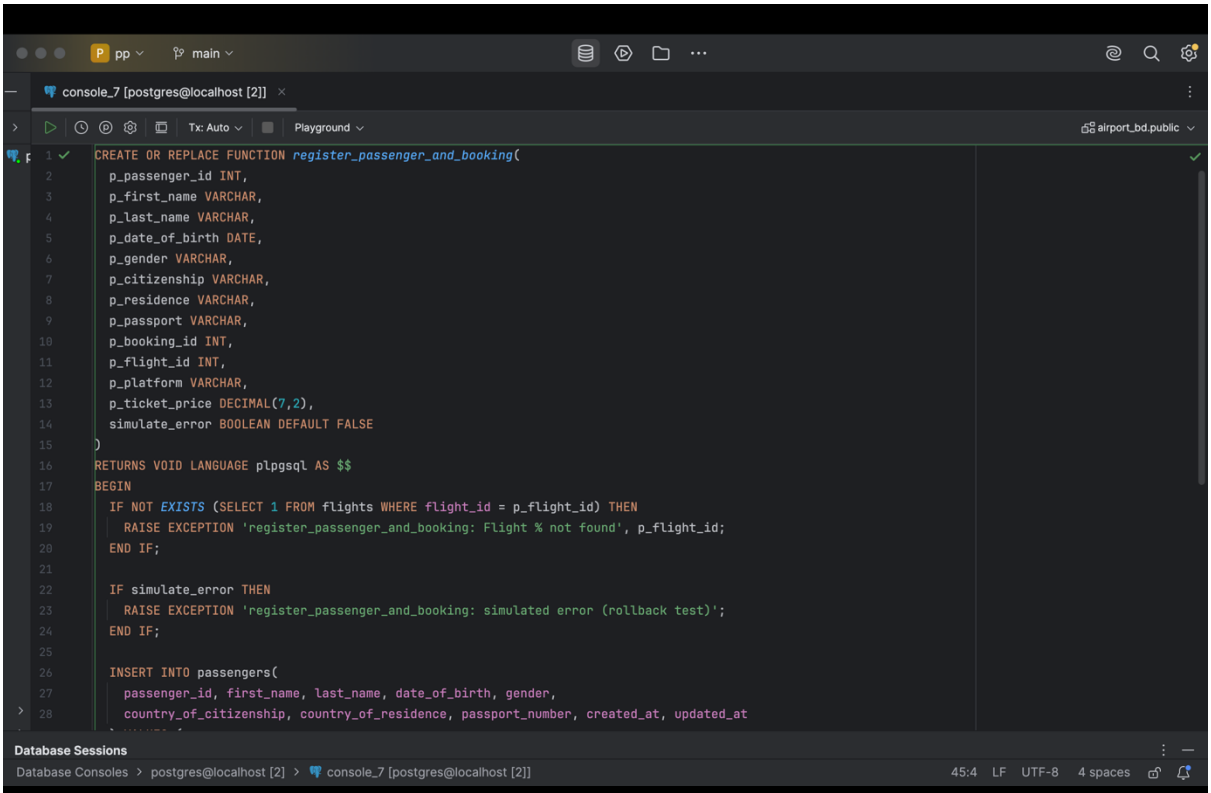


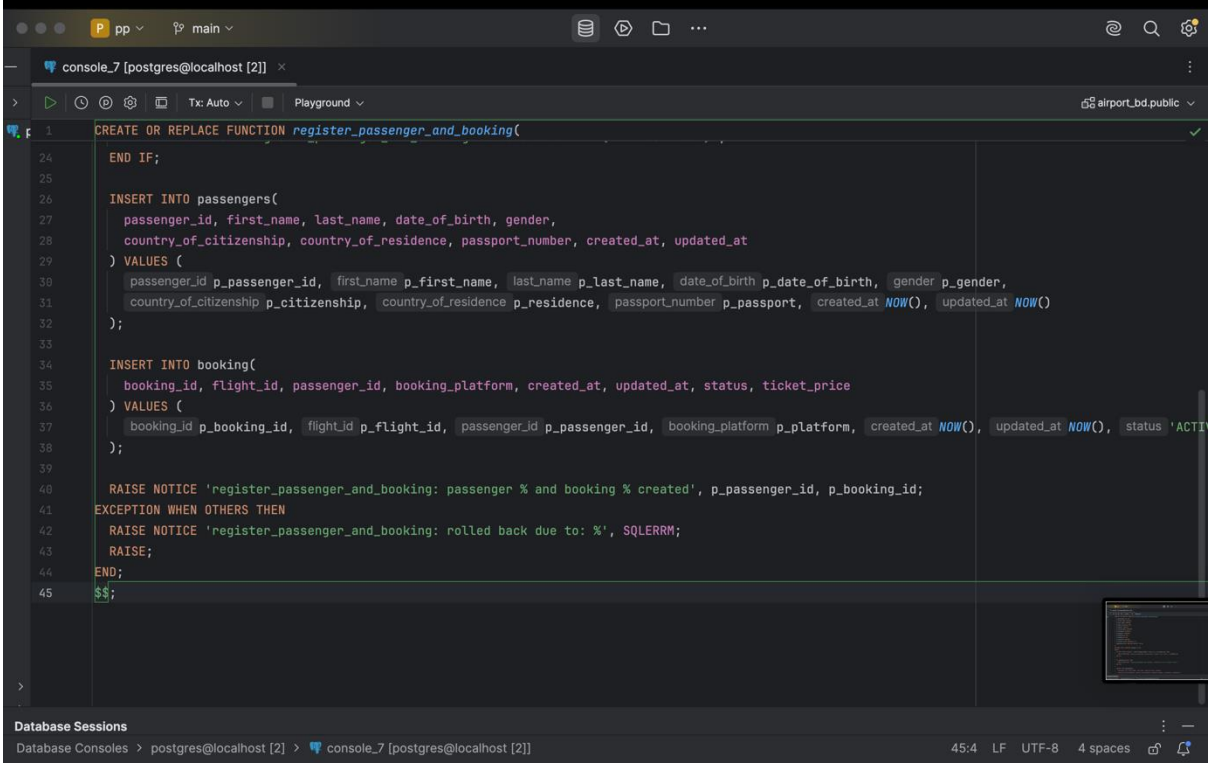




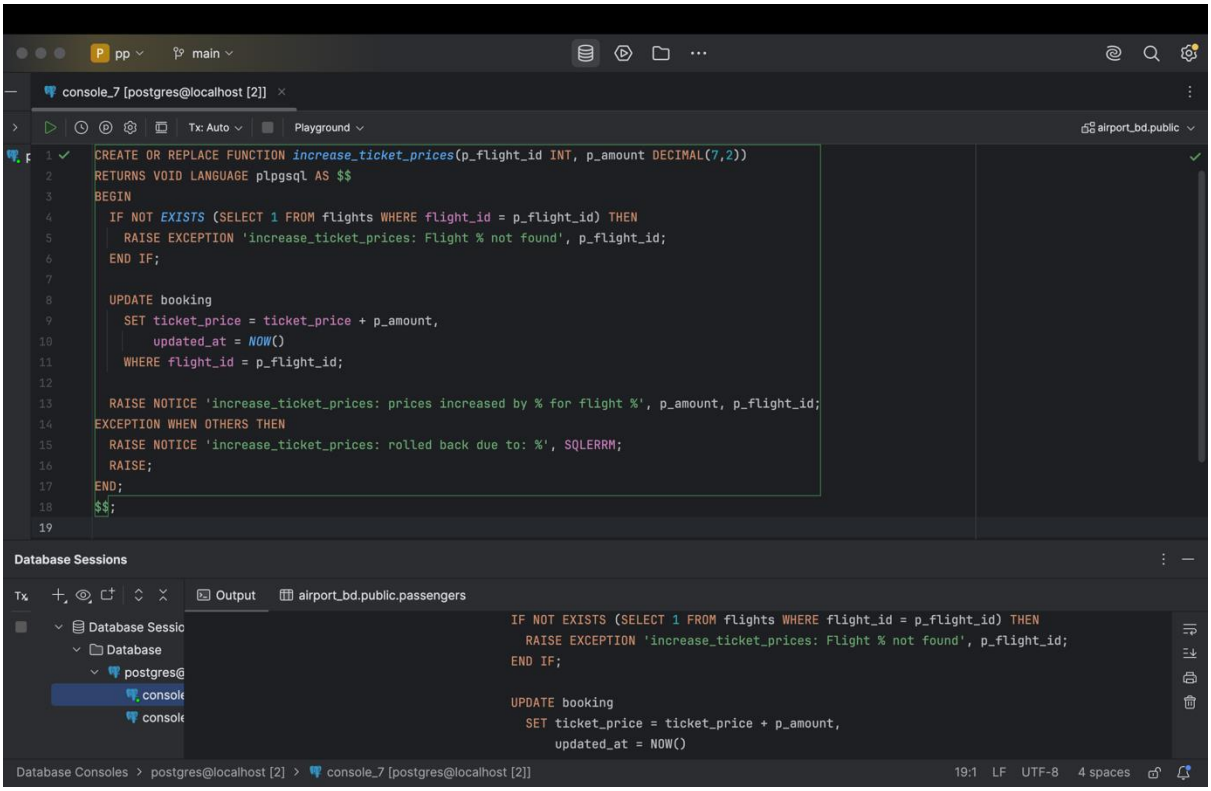
5. A new passenger is registered, and a booking is created. Ensure the new passenger is added and the booking succeeds.





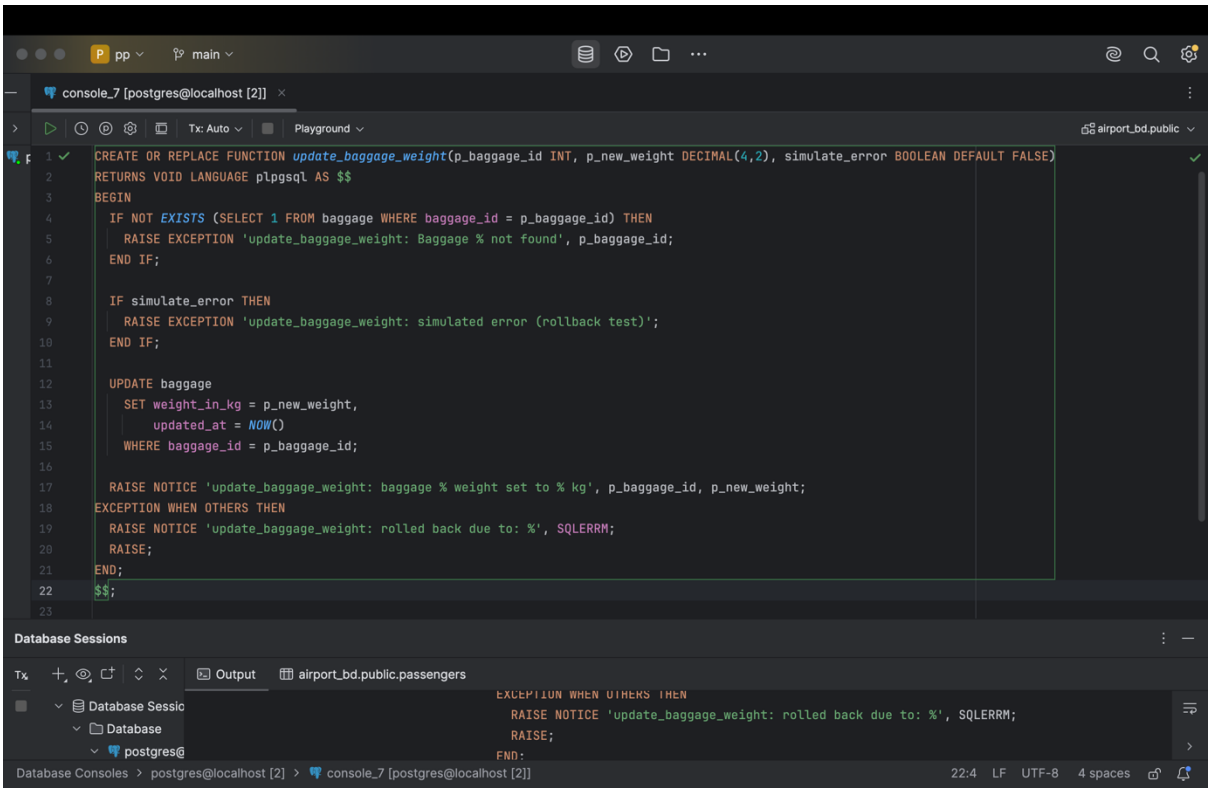


6. Increase the ticket price for all bookings on a specific flight by a fixed amount.

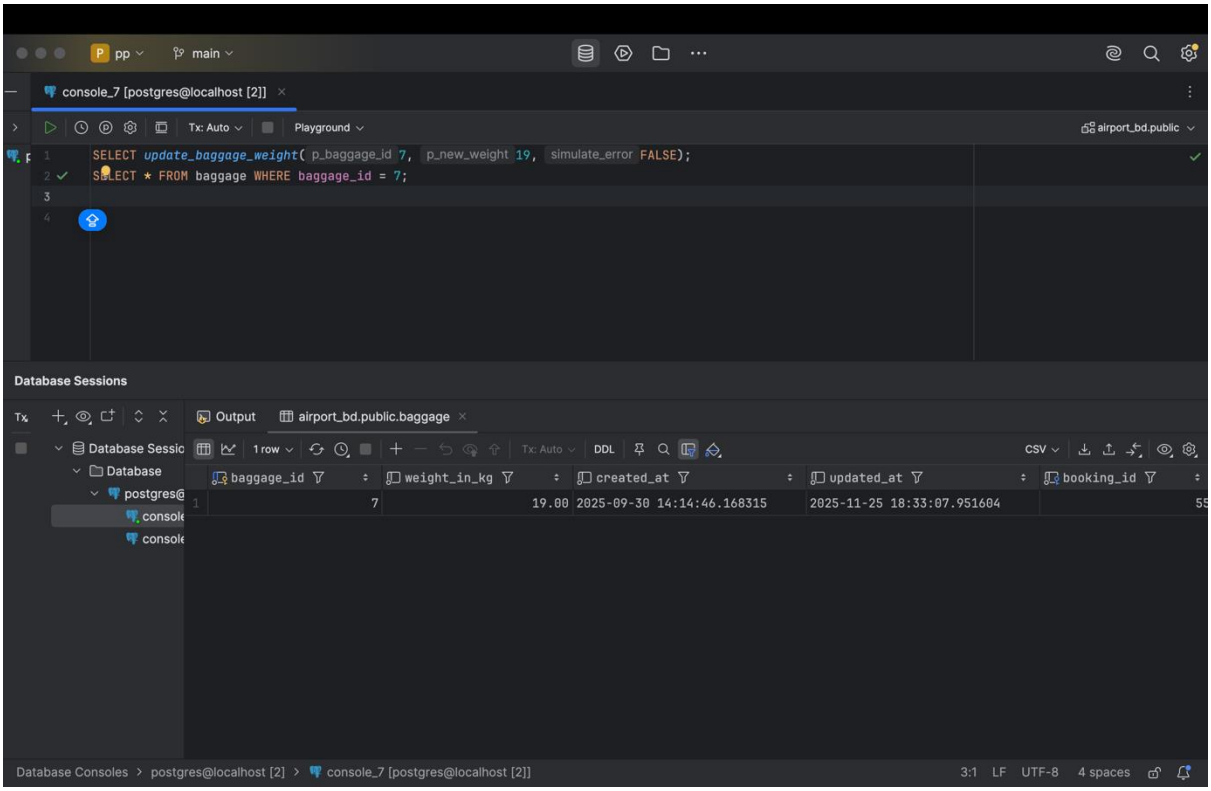


```
CREATE OR REPLACE FUNCTION increase_ticket_prices(p_flight_id INT, p_amount DECIMAL(7,2))
RETURNS VOID LANGUAGE plpgsql AS $$
BEGIN
  IF NOT EXISTS (SELECT 1 FROM flights WHERE flight_id = p_flight_id) THEN
    RAISE EXCEPTION 'increase_ticket_prices: Flight % not found', p_flight_id;
  END IF;

  UPDATE booking
    SET ticket_price = ticket_price + p_amount,
        updated_at = NOW()
    WHERE flight_id = p_flight_id;

  RAISE NOTICE 'increase_ticket_prices: prices increased by % for flight %', p_amount, p_flight_id;
EXCEPTION WHEN OTHERS THEN
  RAISE NOTICE 'increase_ticket_prices: rolled back due to: %', SQLERRM;
  RAISE;
END;
$$;
```

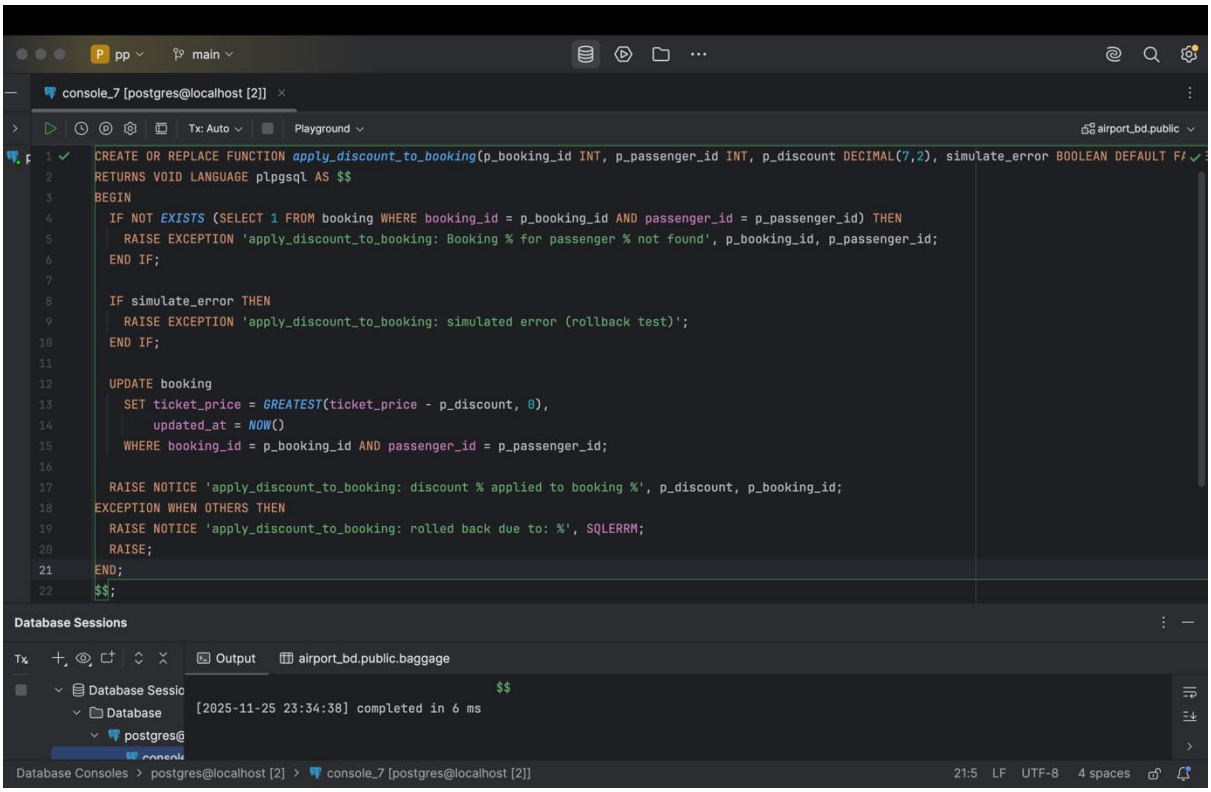
7. Update a baggage weight. A passenger updates the declared weight of their baggage. Ensure that the change is correctly reflected in the database.



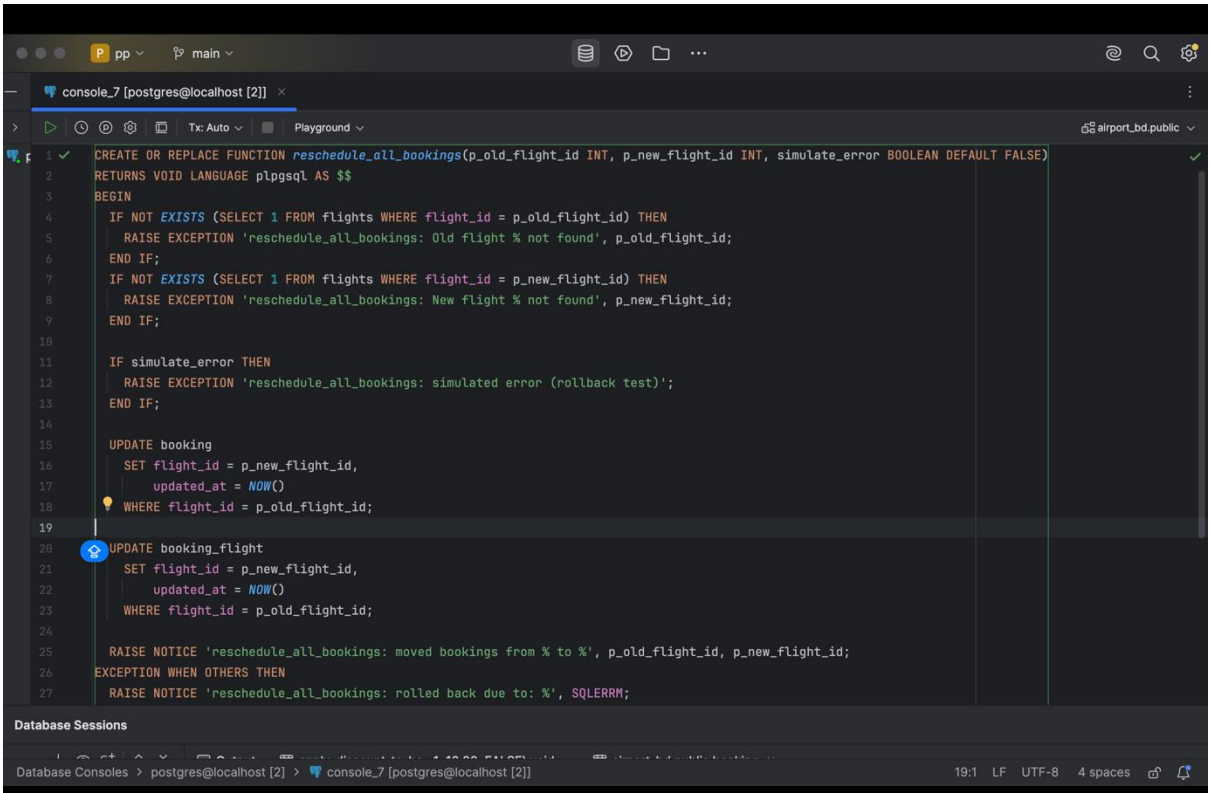
```
CREATE OR REPLACE FUNCTION update_baggage_weight(p_baggage_id INT, p_new_weight DECIMAL(4,2), simulate_error BOOLEAN DEFAULT FALSE)
RETURNS VOID LANGUAGE plpgsql AS $$
BEGIN
  IF NOT EXISTS (SELECT 1 FROM baggage WHERE baggage_id = p_baggage_id) THEN
    RAISE EXCEPTION 'update_baggage_weight: Baggage % not found', p_baggage_id;
  END IF;

  IF simulate_error THEN
    RAISE EXCEPTION 'update_baggage_weight: simulated error (rollback test)';
  END IF;

  UPDATE baggage
    SET weight_in_kg = p_new_weight,
        updated_at = NOW()
    WHERE baggage_id = p_baggage_id;

  RAISE NOTICE 'update_baggage_weight: baggage % weight set to % kg', p_baggage_id, p_new_weight;
EXCEPTION WHEN OTHERS THEN
  RAISE NOTICE 'update_baggage_weight: rolled back due to: %', SQLERRM;
  RAISE;
END;
$$;
```

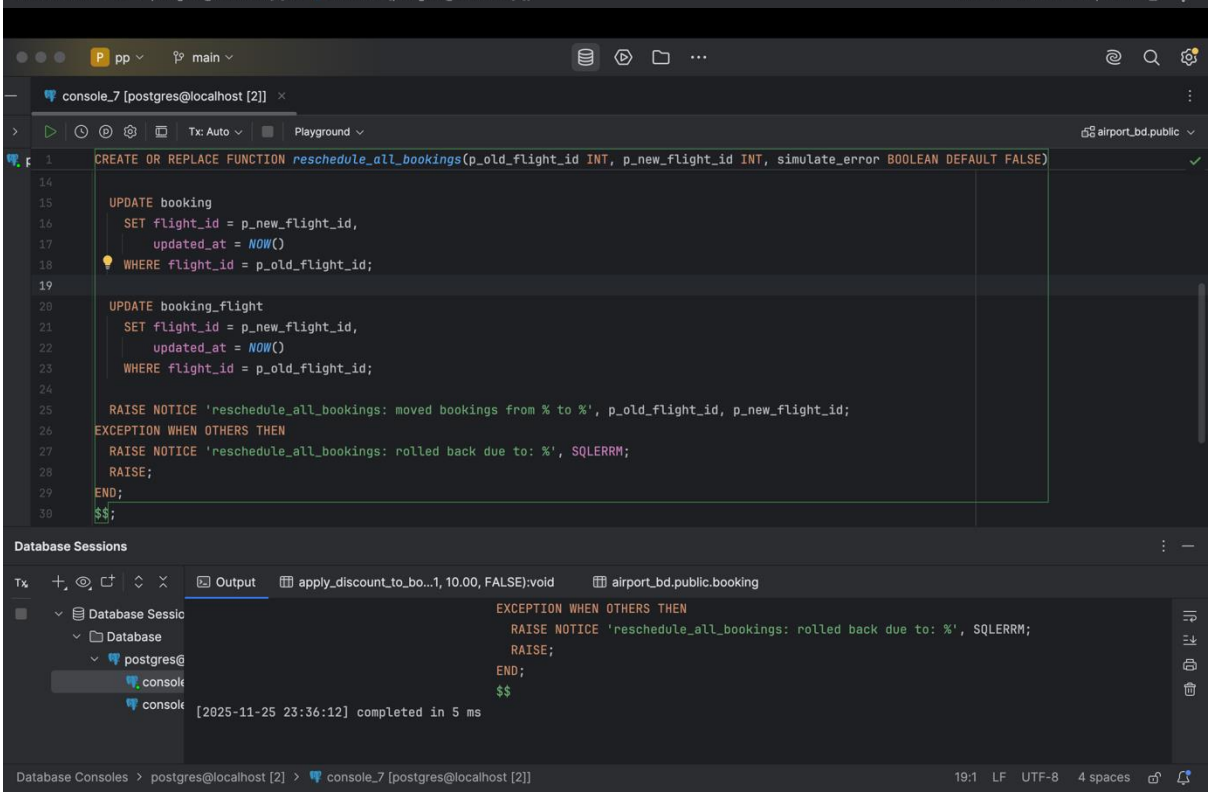


8. Apply a discount to a booking for a specific passenger. If any error occurs, roll back.



9. Reschedule all bookings for a flight to a new flight.


pp
main
console_7 [postgres@localhost [2]]
Tx: Auto
Playground
airport_bd.public
CREATE OR REPLACE FUNCTION reschedule_all_bookings(p_old_flight_id INT, p_new_flight_id INT, simulate_error BOOLEAN DEFAULT FALSE)
RETURNS VOID LANGUAGE plpgsql AS $$
BEGIN
IF NOT EXISTS (SELECT 1 FROM flights WHERE flight_id = p_old_flight_id) THEN
RAISE EXCEPTION 'reschedule_all_bookings: Old flight % not found', p_old_flight_id;
END IF;
IF NOT EXISTS (SELECT 1 FROM flights WHERE flight_id = p_new_flight_id) THEN
RAISE EXCEPTION 'reschedule_all_bookings: New flight % not found', p_new_flight_id;
END IF;
IF simulate_error THEN
RAISE EXCEPTION 'reschedule_all_bookings: simulated error (rollback test)';
END IF;
UPDATE booking
SET flight_id = p_new_flight_id,
updated_at = NOW()
WHERE flight_id = p_old_flight_id;
UPDATE booking_flight
SET flight_id = p_new_flight_id,
updated_at = NOW()
WHERE flight_id = p_old_flight_id;
RAISE NOTICE 'reschedule_all_bookings: moved bookings from % to %', p_old_flight_id, p_new_flight_id;
EXCEPTION WHEN OTHERS THEN
RAISE NOTICE 'reschedule_all_bookings: rolled back due to: %', SQLERRM;
Database Sessions
Database Consoles > postgres@localhost [2] > console_7 [postgres@localhost [2]]
19:1 LF UTF-8 4 spaces


pp
main
console_7 [postgres@localhost [2]]
Tx: Auto
Playground
airport_bd.public
CREATE OR REPLACE FUNCTION reschedule_all_bookings(p_old_flight_id INT, p_new_flight_id INT, simulate_error BOOLEAN DEFAULT FALSE)
UPDATE booking
SET flight_id = p_new_flight_id,
updated_at = NOW()
WHERE flight_id = p_old_flight_id;
UPDATE booking_flight
SET flight_id = p_new_flight_id,
updated_at = NOW()
WHERE flight_id = p_old_flight_id;
RAISE NOTICE 'reschedule_all_bookings: moved bookings from % to %', p_old_flight_id, p_new_flight_id;
EXCEPTION WHEN OTHERS THEN
RAISE NOTICE 'reschedule_all_bookings: rolled back due to: %', SQLERRM;
RAISE;
END;
$$;
Database Sessions
Output
apply_discount_to_bo...1, 10.00, FALSE):void
airport_bd.public.booking
Database Sessio
Database
postgres@
console
console
EXCEPTION WHEN OTHERS THEN
RAISE NOTICE 'reschedule_all_bookings: rolled back due to: %', SQLERRM;
RAISE;
END;
$$
[2025-11-25 23:36:12] completed in 5 ms
Database Consoles > postgres@localhost [2] > console_7 [postgres@localhost [2]]
19:1 LF UTF-8 4 spaces