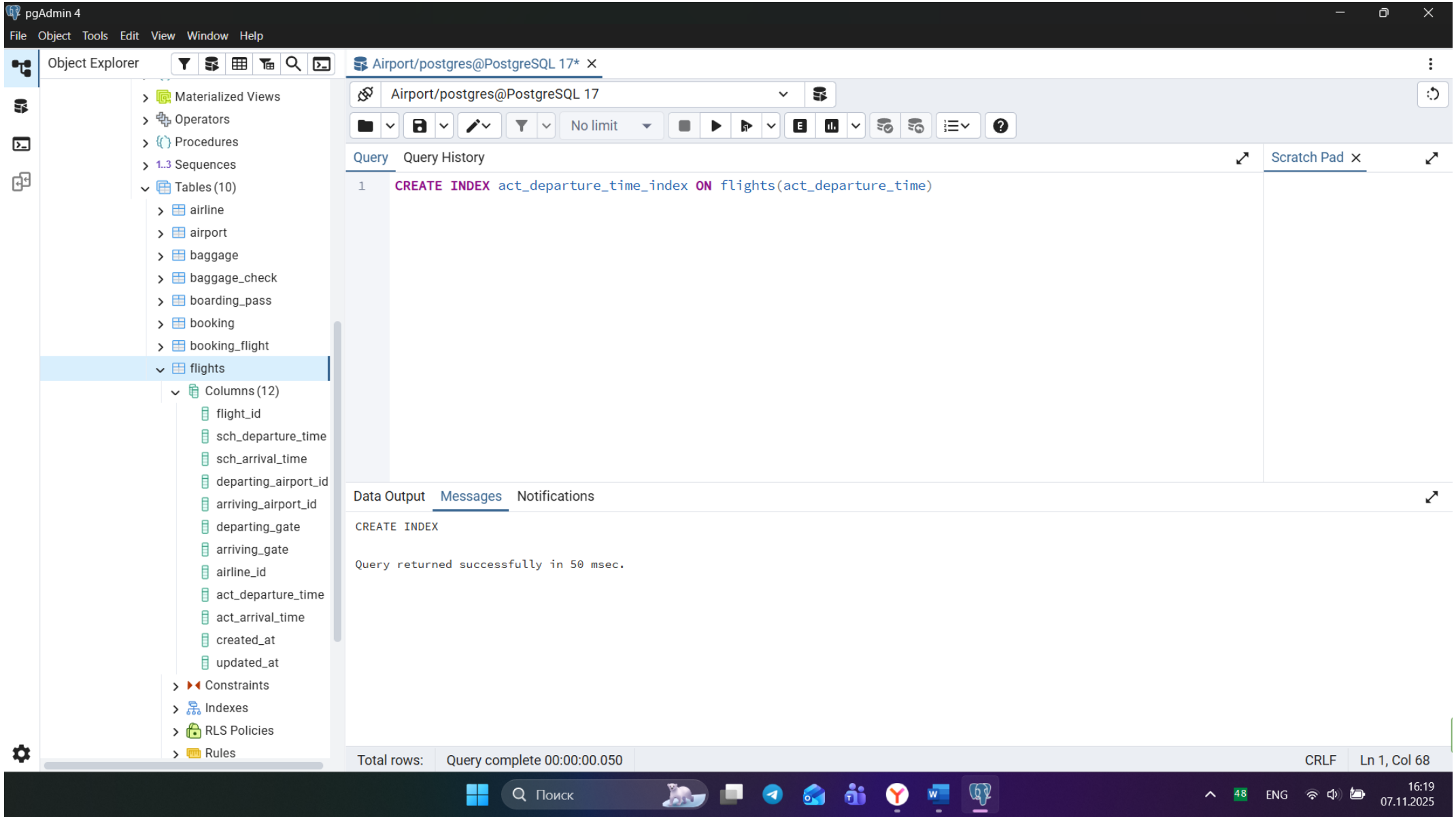
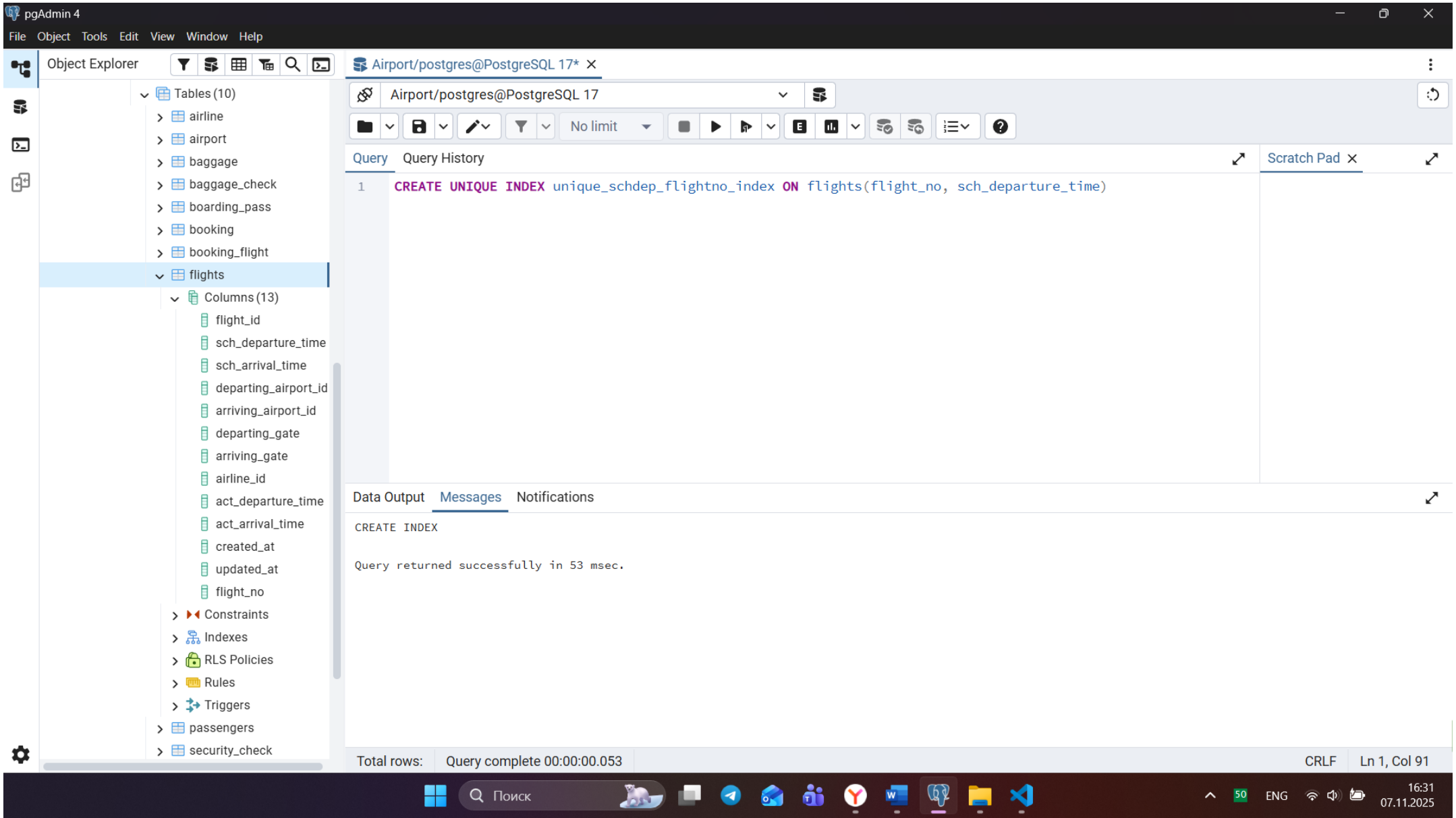
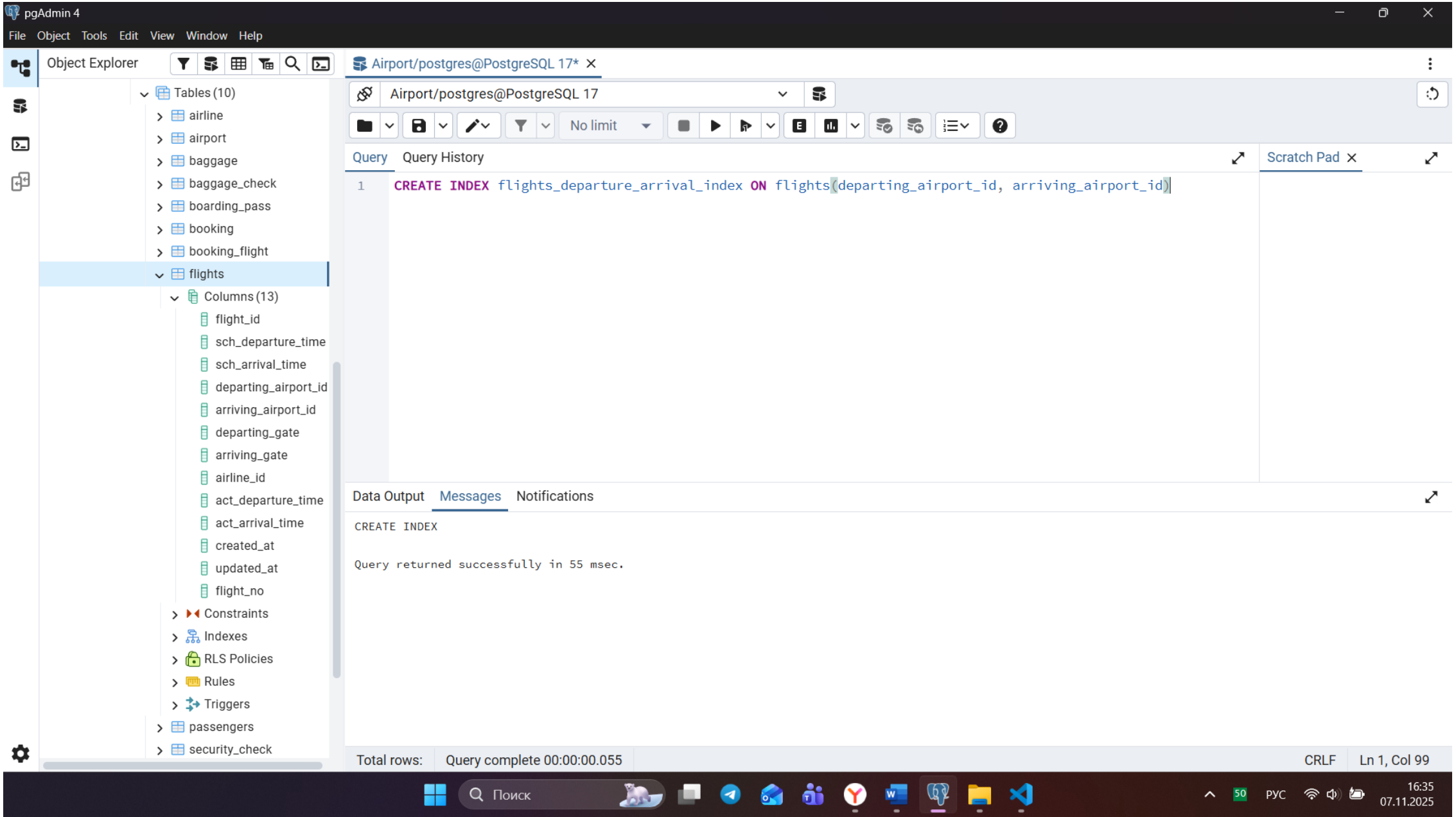
TASK 1


pgAdmin 4
File Object Tools Edit View Window Help
Object Explorer
Airport/postgres@PostgreSQL 17*
Airport/postgres@PostgreSQL 17
No limit
Materialized Views
Operators
Procedures
Sequences
Tables (10)
airline
airport
baggage
baggage_check
boarding_pass
booking
booking_flight
flights
Columns (12)
flight_id
sch_departure_time
sch_arrival_time
departing_airport_id
arriving_airport_id
departing_gate
arriving_gate
airline_id
act_departure_time
act_arrival_time
created_at
updated_at
Constraints
Indexes
RLS Policies
Rules
Query
Query History
Scratch Pad
1 CREATE INDEX act_departure_time_index ON flights(act_departure_time)
Data Output
Messages
Notifications
CREATE INDEX
Query returned successfully in 50 msec.
Total rows:
Query complete 00:00:00.050
CRLF
Ln 1, Col 68
Поиск
ENG
16:19
07.11.2025

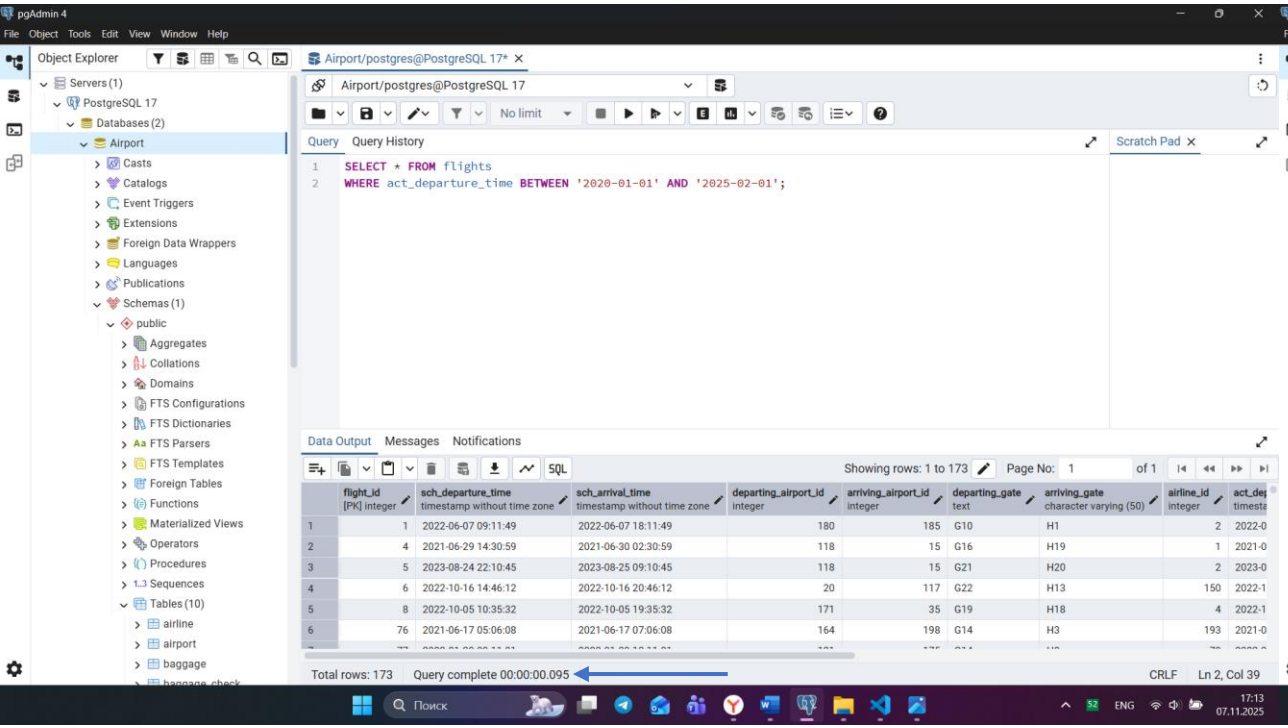
TASK 2

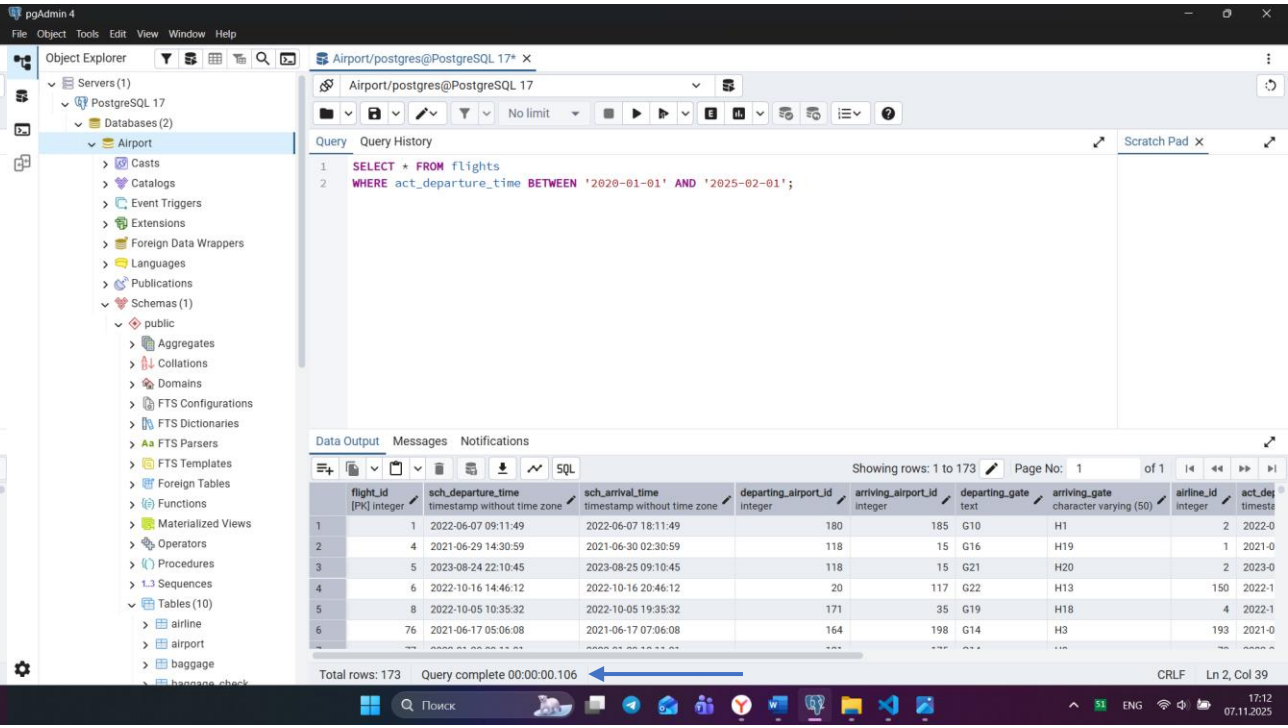

pgAdmin 4
File Object Tools Edit View Window Help
Object Explorer
Tables (10)
airline
airport
baggage
baggage_check
boarding_pass
booking
booking_flight
flights
Columns (13)
flight_id
sch_departure_time
sch_arrival_time
departing_airport_id
arriving_airport_id
departing_gate
arriving_gate
airline_id
act_departure_time
act_arrival_time
created_at
updated_at
flight_no
Constraints
Indexes
RLS Policies
Rules
Triggers
passengers
security_check
Airport/postgres@PostgreSQL 17*
Airport/postgres@PostgreSQL 17
No limit
Query
Query History
1 CREATE UNIQUE INDEX unique_schdep_flightno_index ON flights(flight_no, sch_departure_time)
Scratch Pad
Data Output
Messages
Notifications
CREATE INDEX
Query returned successfully in 53 msec.
Total rows:
Query complete 00:00:00.053
CRLF
Ln 1, Col 91
Поиск
ENG
16:31
07.11.2025

TASK 3


pgAdmin 4
File Object Tools Edit View Window Help
Object Explorer
Tables (10)
airline
airport
baggage
baggage_check
boarding_pass
booking
booking_flight
flights
Columns (13)
flight_id
sch_departure_time
sch_arrival_time
departing_airport_id
arriving_airport_id
departing_gate
arriving_gate
airline_id
act_departure_time
act_arrival_time
created_at
updated_at
flight_no
Constraints
Indexes
RLS Policies
Rules
Triggers
passengers
security_check
Airport/postgres@PostgreSQL 17*
Airport/postgres@PostgreSQL 17
No limit
Query
Query History
Scratch Pad
1
CREATE INDEX flights_departure_arrival_index ON flights(departing_airport_id, arriving_airport_id)
Data Output
Messages
Notifications
CREATE INDEX
Query returned successfully in 55 msec.
Total rows:
Query complete 00:00:00.055
CRLF
Ln 1, Col 99
Поиск
РУС
16:35
07.11.2025

TASK 4

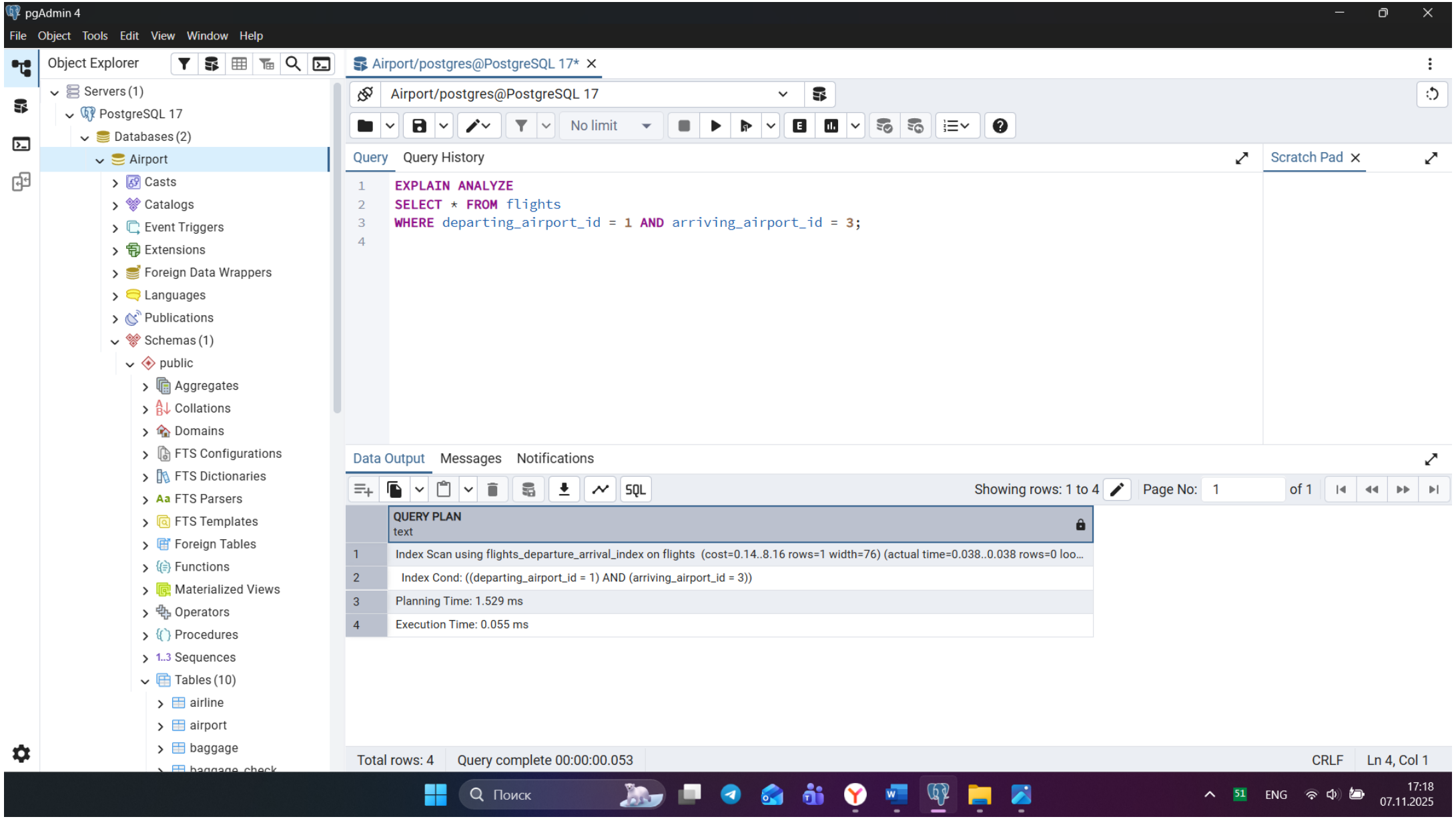




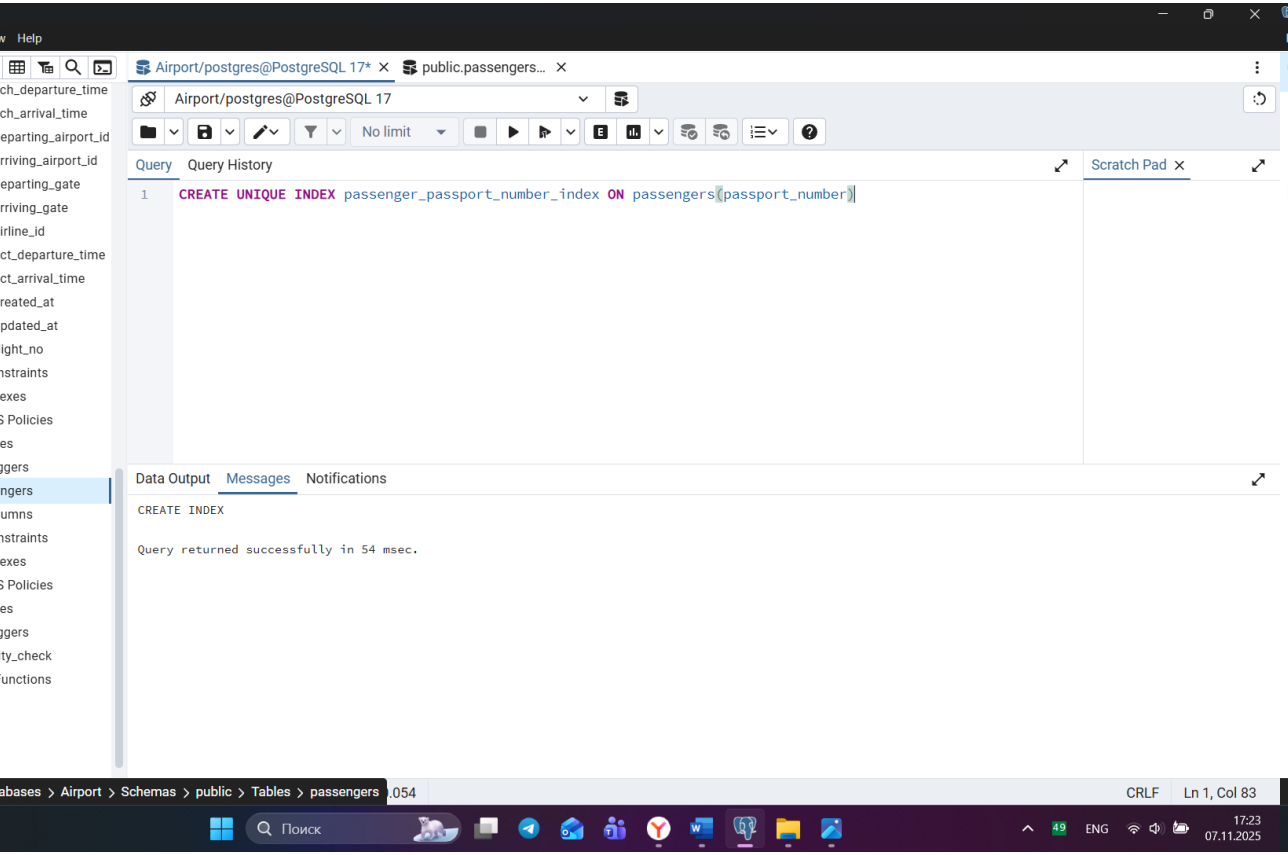
WITH INDEX

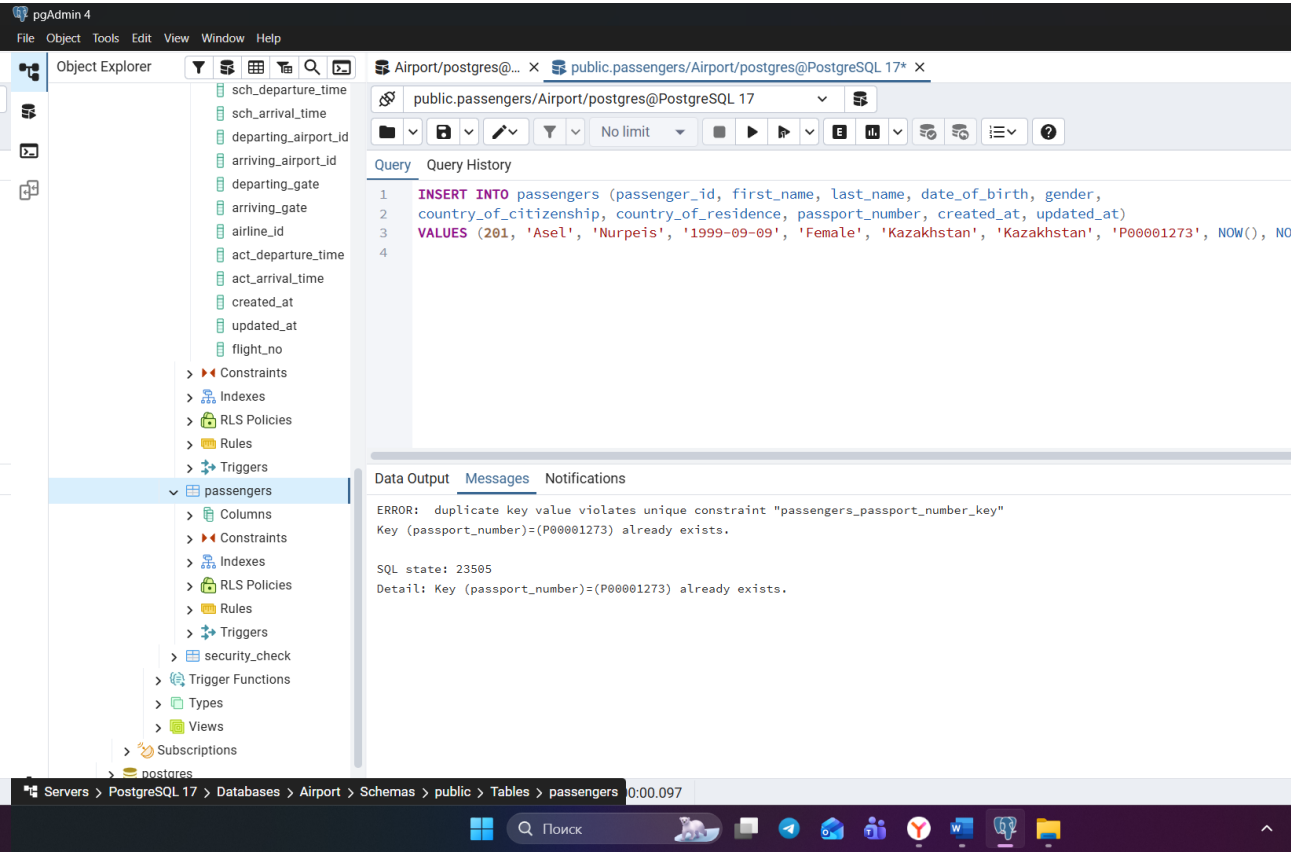
WITHOUT INDEX

TASK 5


pgAdmin 4
File Object Tools Edit View Window Help
Object Explorer
Servers (1)
PostgreSQL 17
Databases (2)
Airport
Casts
Catalogs
Event Triggers
Extensions
Foreign Data Wrappers
Languages
Publications
Schemas (1)
public
Aggregates
Collations
Domains
FTS Configurations
FTS Dictionaries
FTS Parsers
FTS Templates
Foreign Tables
Functions
Materialized Views
Operators
Procedures
Sequences
Tables (10)
airline
airport
baggage
Airport/postgres@PostgreSQL 17*
Airport/postgres@PostgreSQL 17
No limit
Query
Query History
Scratch Pad
1 EXPLAIN ANALYZE
2 SELECT * FROM flights
3 WHERE departing_airport_id = 1 AND arriving_airport_id = 3;
4
Data Output
Messages
Notifications
SQL
Showing rows: 1 to 4
Page No: 1 of 1
QUERY PLAN
text
1 Index Scan using flights_departure_arrival_index on flights (cost=0.14..8.16 rows=1 width=76) (actual time=0.038..0.038 rows=0 loo...
2 Index Cond: ((departing_airport_id = 1) AND (arriving_airport_id = 3))
3 Planning Time: 1.529 ms
4 Execution Time: 0.055 ms
Total rows: 4
Query complete 00:00:00.053
CRLF
Ln 4, Col 1
Поиск
ENG
17:18
07.11.2025

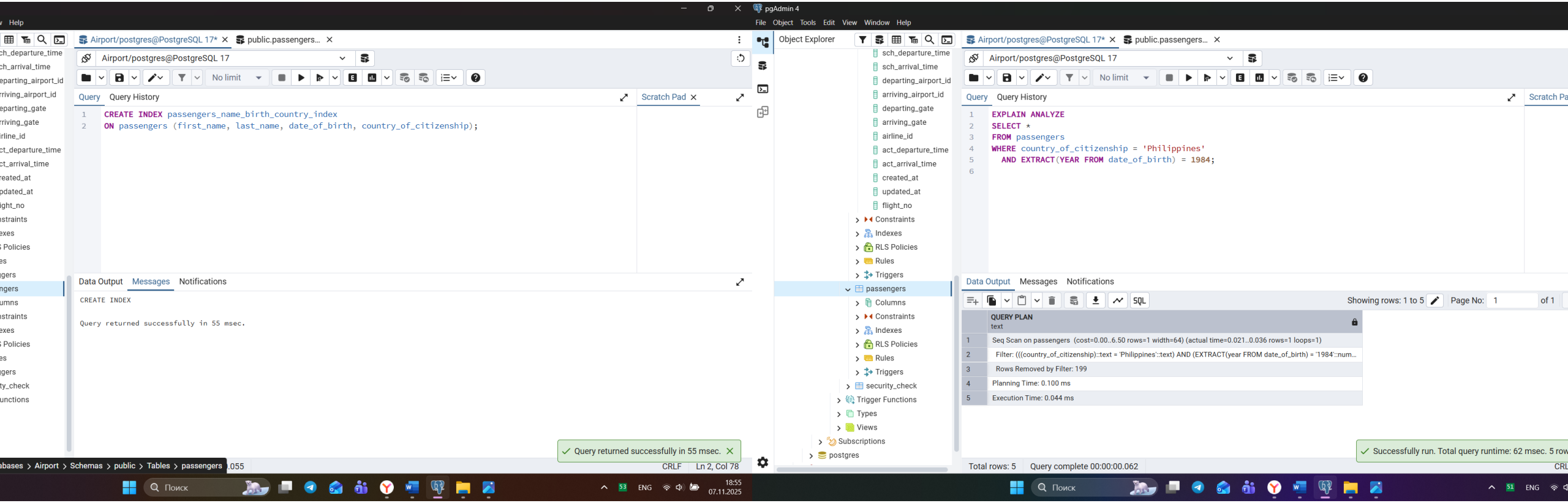
TASK 6





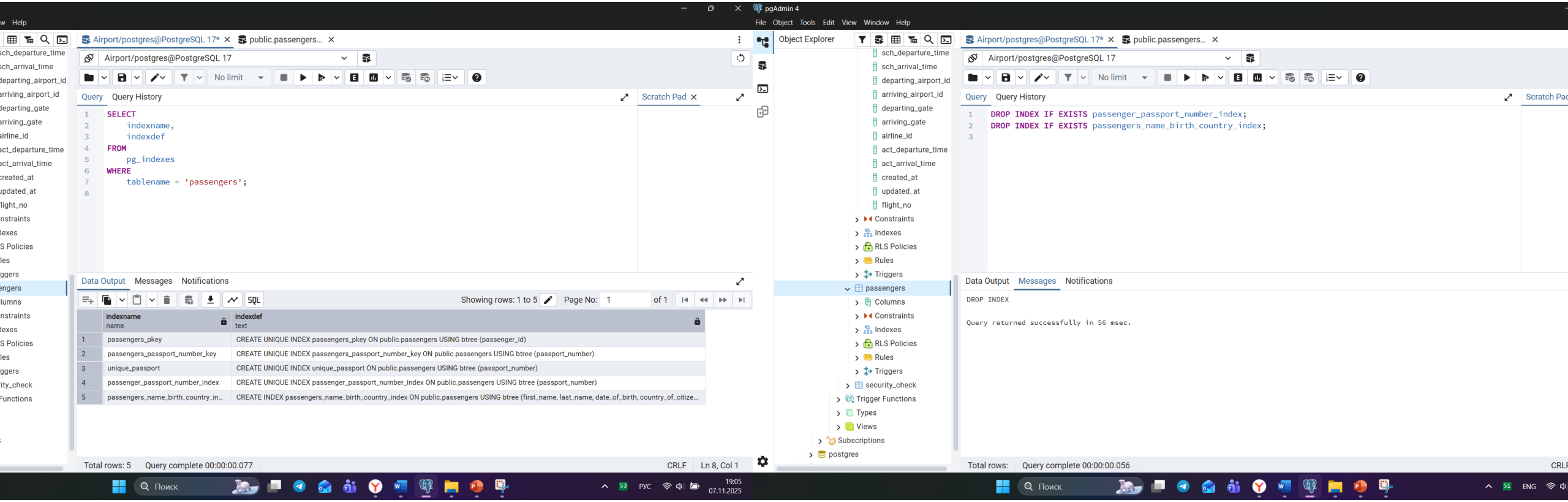
CHECKNG

TASK 7



PostgreSQL used a sequential scan, not the index. The EXTRACT(YEAR FROM date_of_birth) function stops the index from working, and the table is small, so a full scan is faster.

TASK 8


pgAdmin 4
File Object Tools Edit View Window Help
Airport/postgres@PostgreSQL 17*
public.passengers...
Airport/postgres@PostgreSQL 17
No limit
Query
Query History
Scratch Pad
SELECT
indexname,
indexdef
FROM
pg_indexes
WHERE
tablename = 'passengers';
Data Output
Messages
Notifications
Showing rows: 1 to 5
Page No: 1
of 1
indexname name
indexdef text
1 passengers_pkey CREATE UNIQUE INDEX passengers_pkey ON public.passengers USING btree (passenger_id)
2 passengers_passport_number_key CREATE UNIQUE INDEX passengers_passport_number_key ON public.passengers USING btree (passport_number)
3 unique_passport CREATE UNIQUE INDEX unique_passport ON public.passengers USING btree (passport_number)
4 passenger_passport_number_index CREATE UNIQUE INDEX passenger_passport_number_index ON public.passengers USING btree (passport_number)
5 passengers_name_birth_country_in... CREATE INDEX passengers_name_birth_country_index ON public.passengers USING btree (first_name, last_name, date_of_birth, country_of_citize...
Total rows: 5
Query complete 00:00:00.077
CRLF
Ln 8, Col 1
Object Explorer
sch_departure_time
sch_arrival_time
departing_airport_id
arriving_airport_id
departing_gate
arriving_gate
airline_id
act_departure_time
act_arrival_time
created_at
updated_at
flight_no
Constraints
Indexes
RLS Policies
Rules
Triggers
passengers
Columns
Constraints
Indexes
RLS Policies
Rules
Triggers
security_check
Trigger Functions
Types
Views
Subscriptions
postgres
DROP INDEX IF EXISTS passenger_passport_number_index;
DROP INDEX IF EXISTS passengers_name_birth_country_index;
DROP INDEX
Query returned successfully in 56 msec.
Total rows:
Query complete 00:00:00.056
CRLF
Поиск
РУС
19:05
07.11.2025
ENG