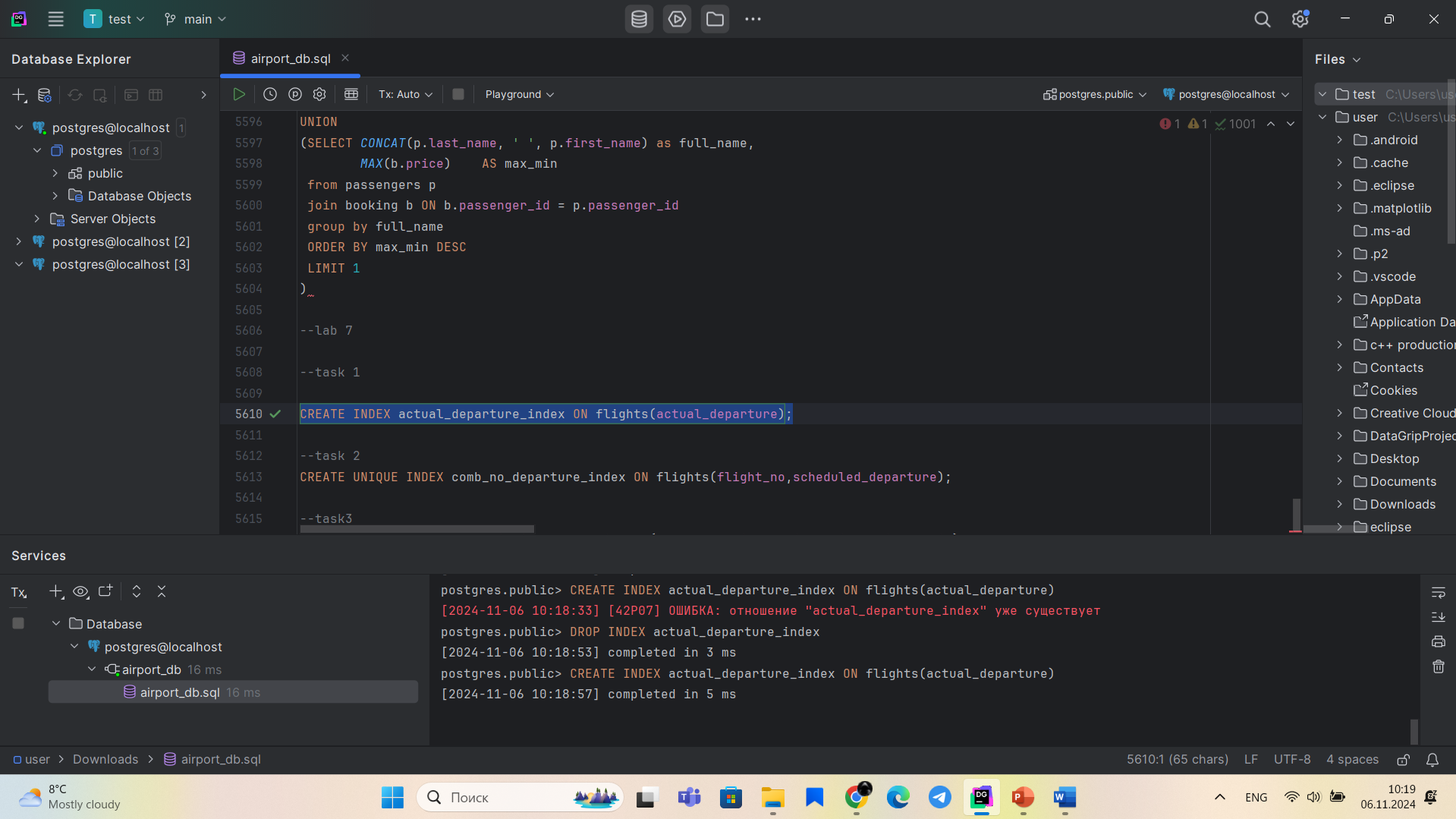
**Laboratory work 7**

**We continue to work with the database from the previous laboratory works.**

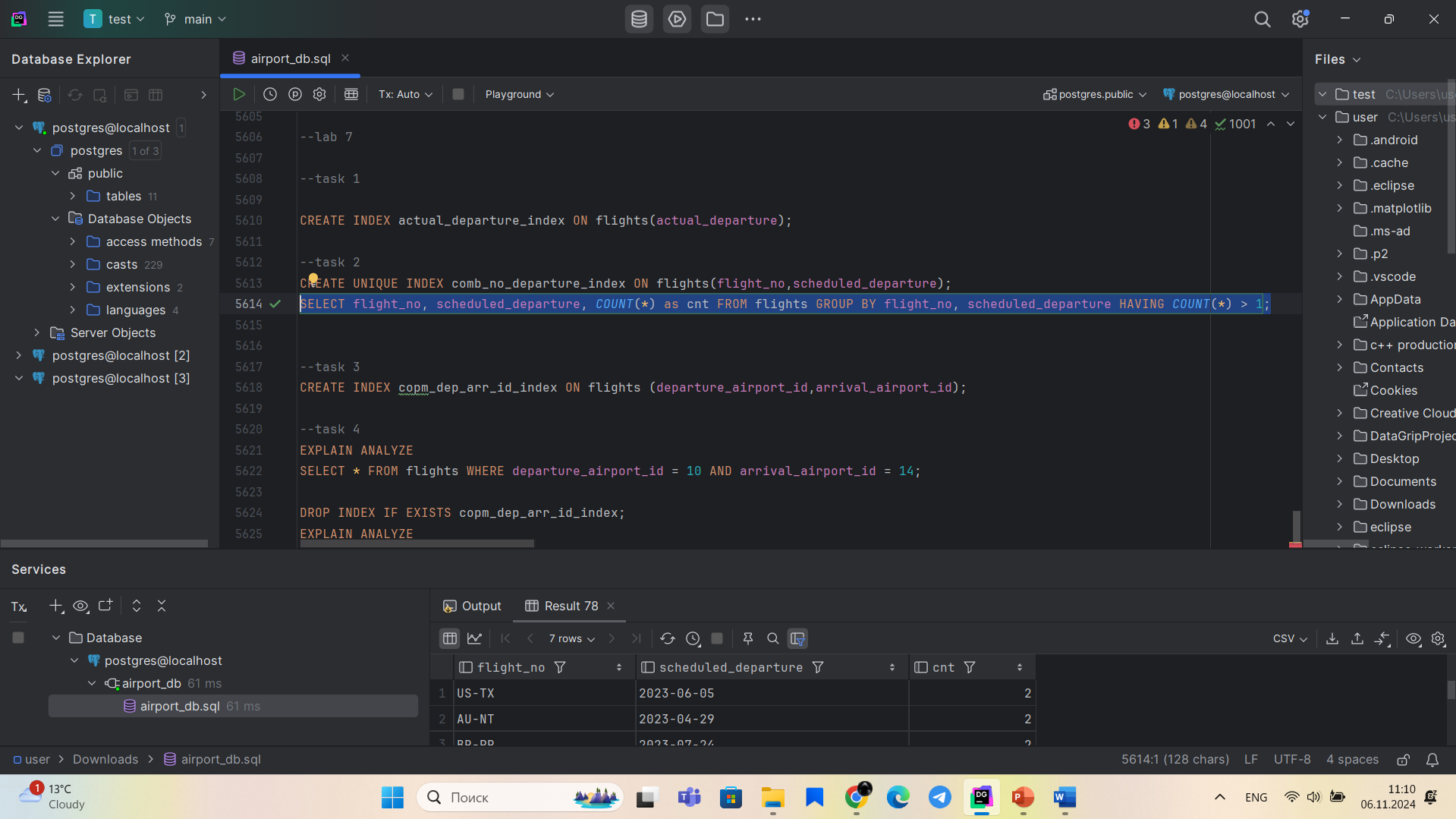
**Take a full-page screenshot that covers the code and results of each task.**

**Tasks**:

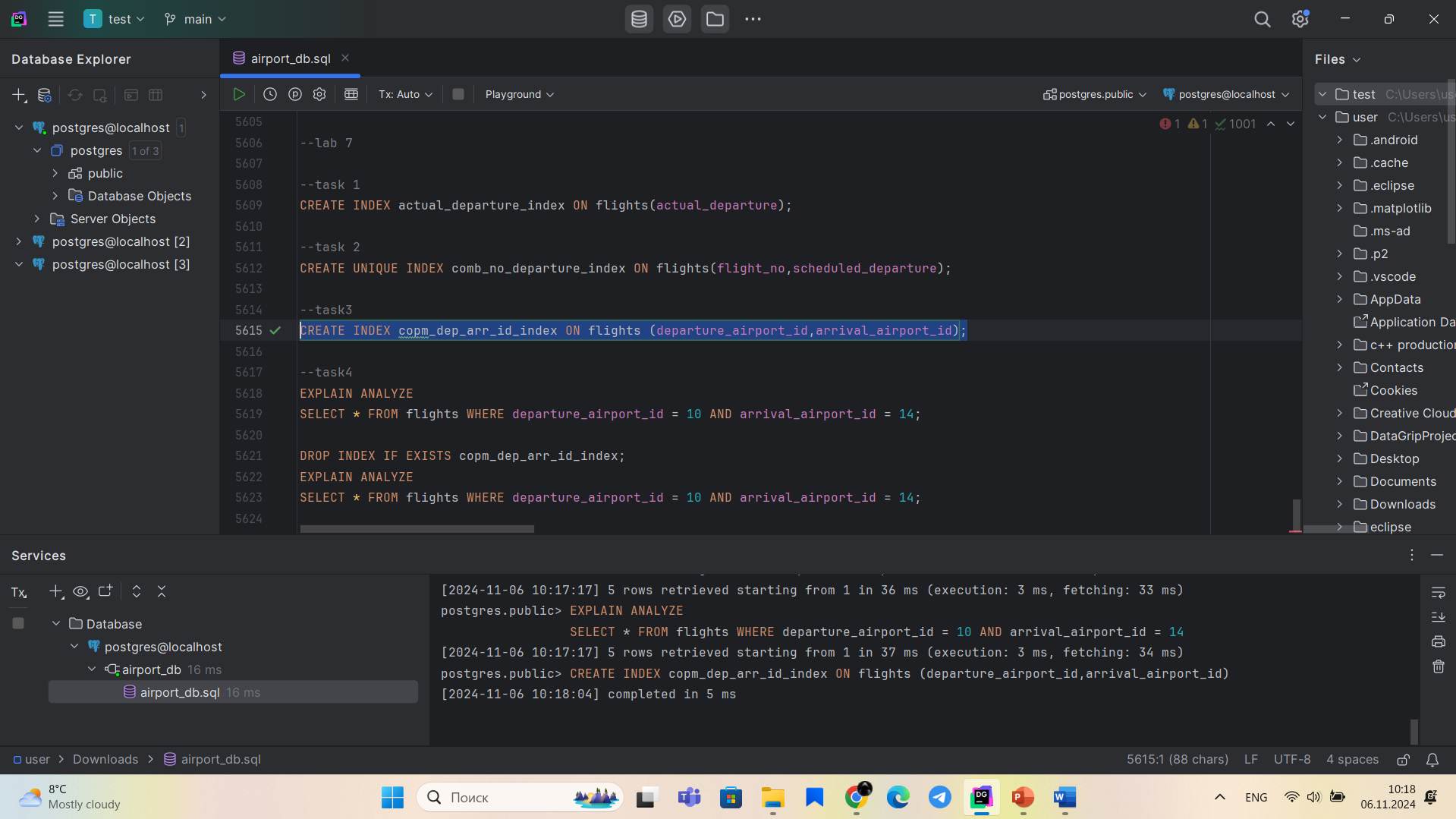
1. Create an index on the actual\_departure column in the flights table.



1. Create a unique index to ensure flight\_no and scheduled\_departure combinations are unique.

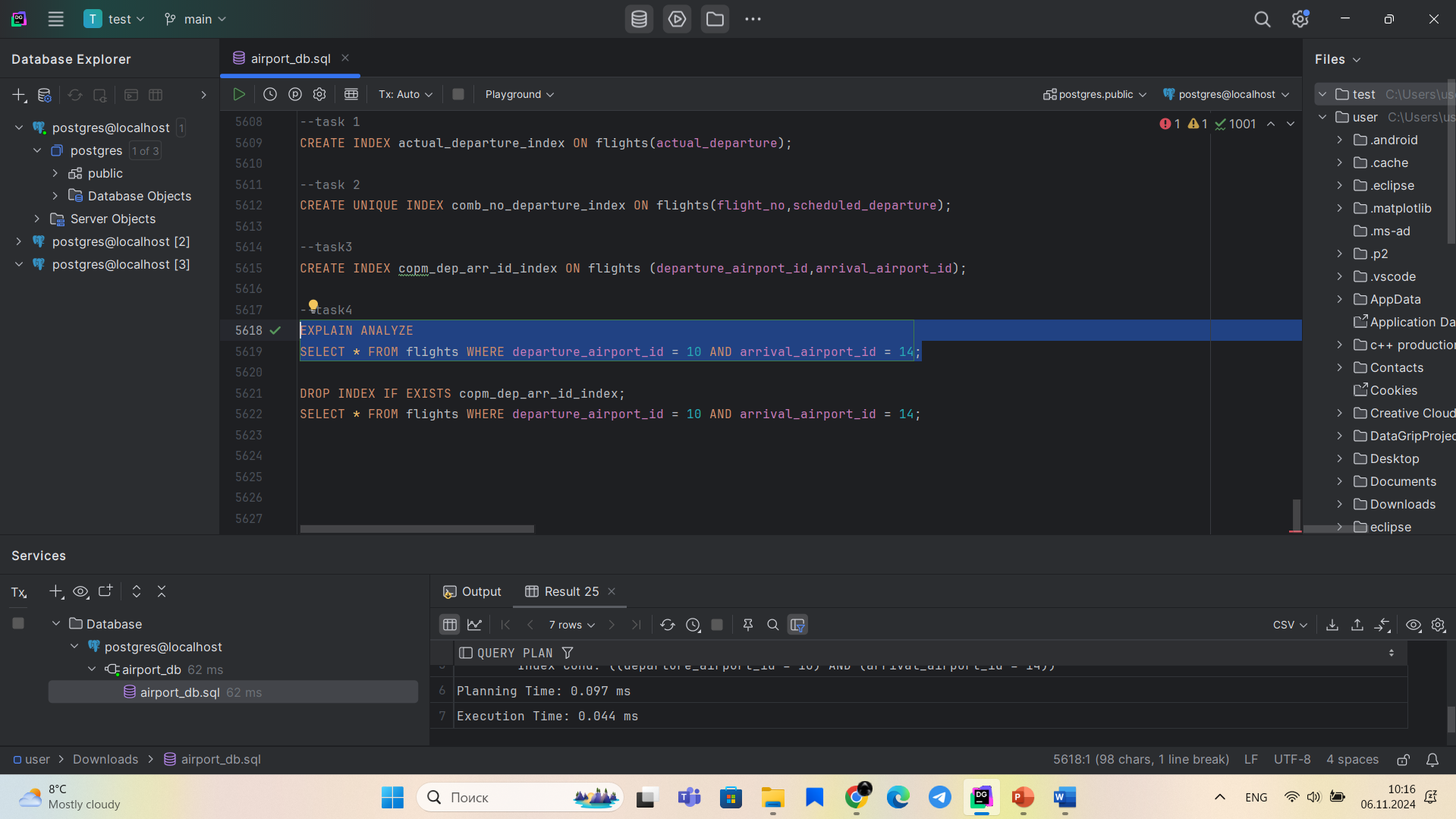


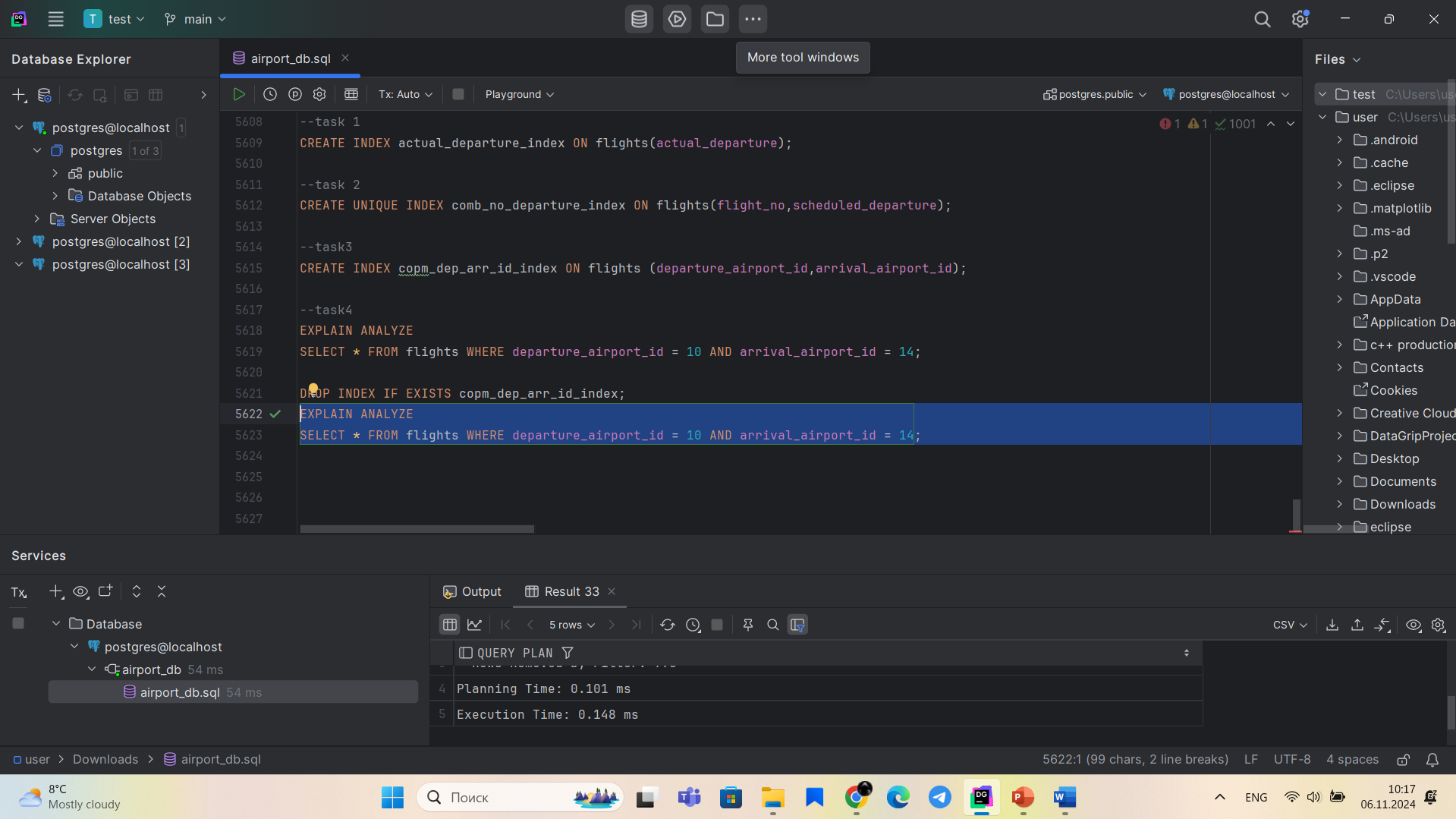
1. Create a composite index on the departure\_airport\_id and arrival\_airport\_id columns.



1. Evaluate the difference in query performance with and without indexes. Measure performance differences.

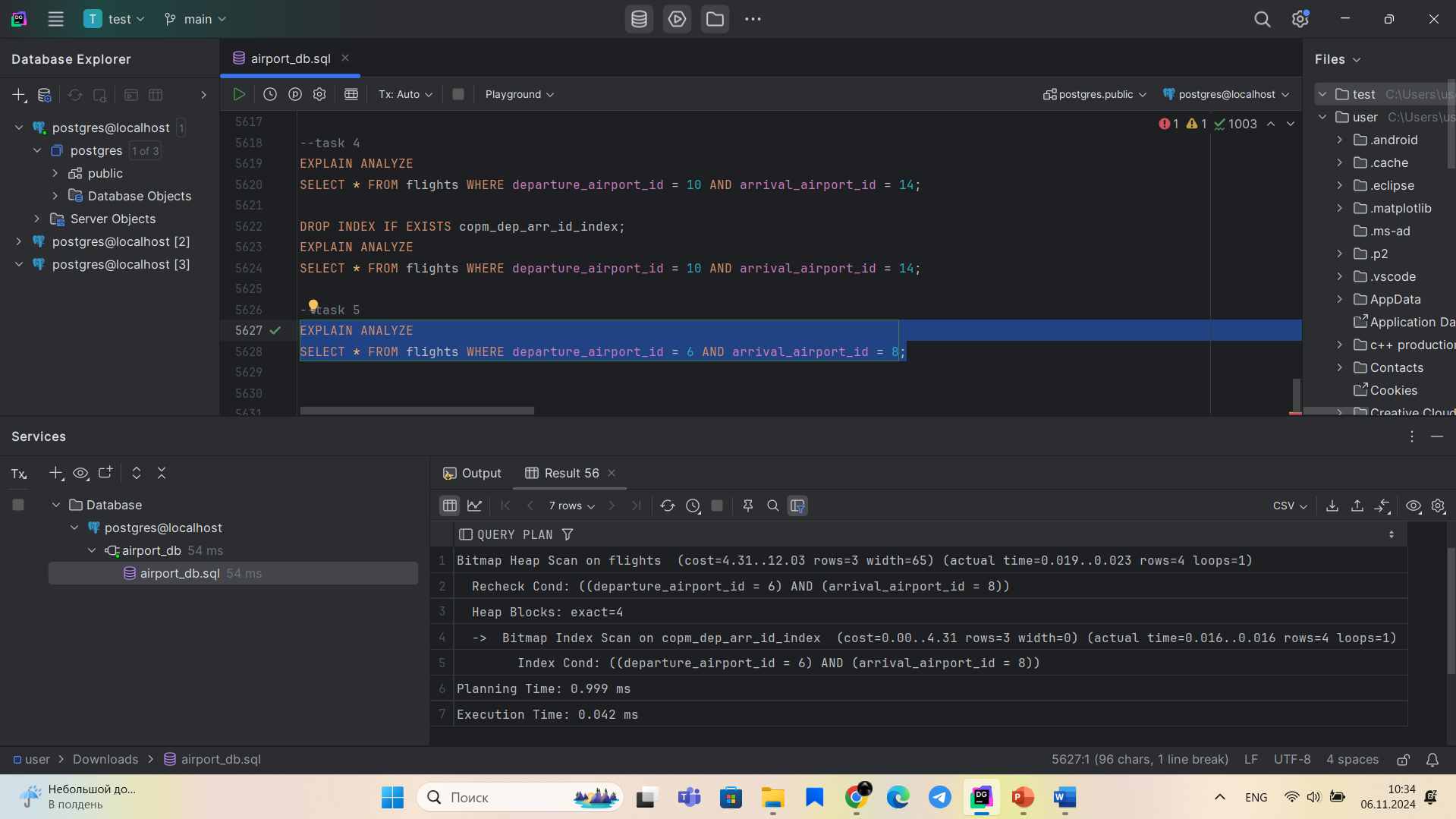
with indexes:



without indexes:

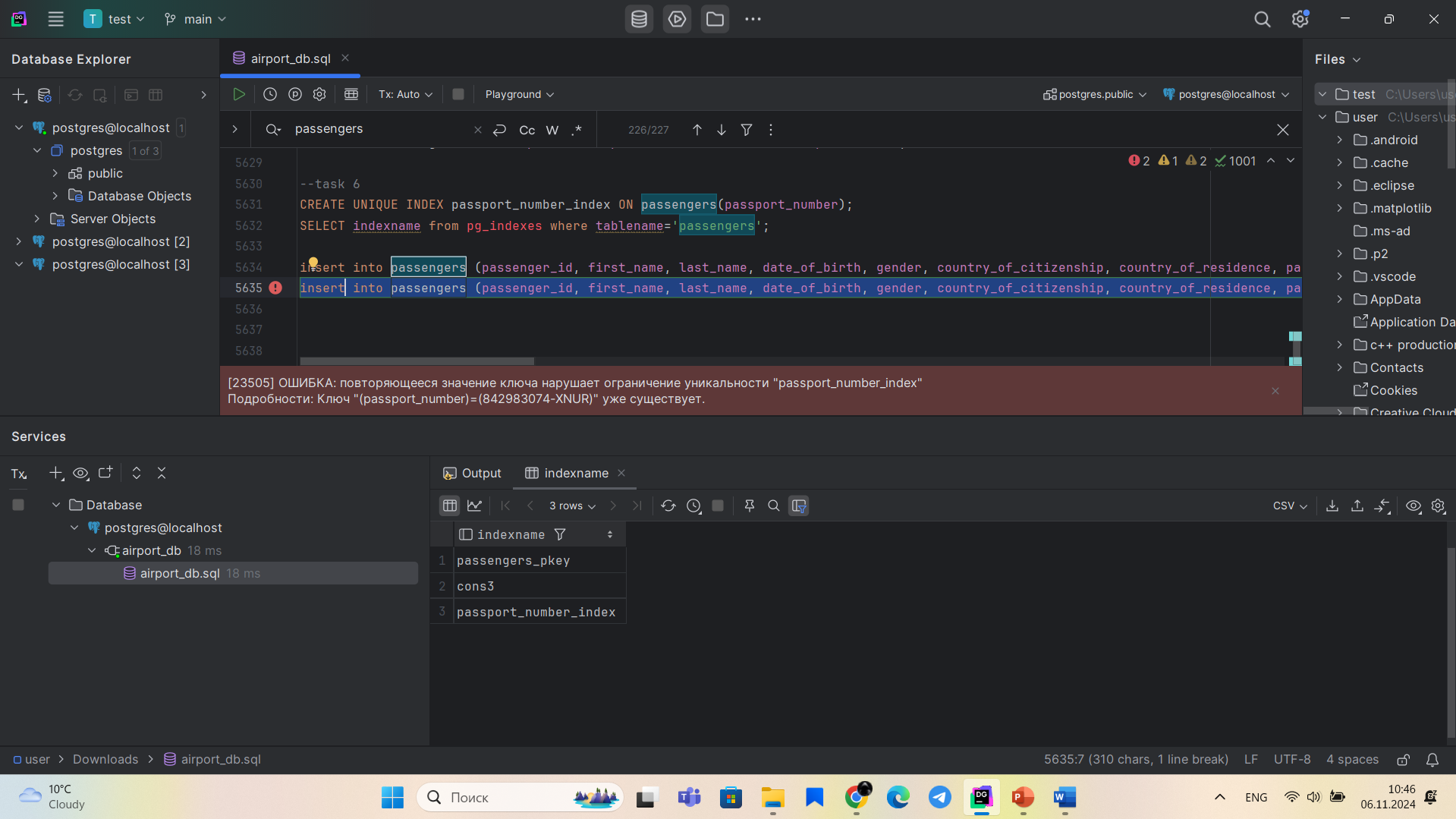
execution time with indexes is lower

1. Use EXPLAIN ANALYZE to check index usage in a query filtering by departure\_airport and arrival\_airport.



1. Create a unique index for the passport\_number of the Passengers table. Check if the index was created or not. Insert into the table two new passengers.

Explain in your own words what is going on in the output?

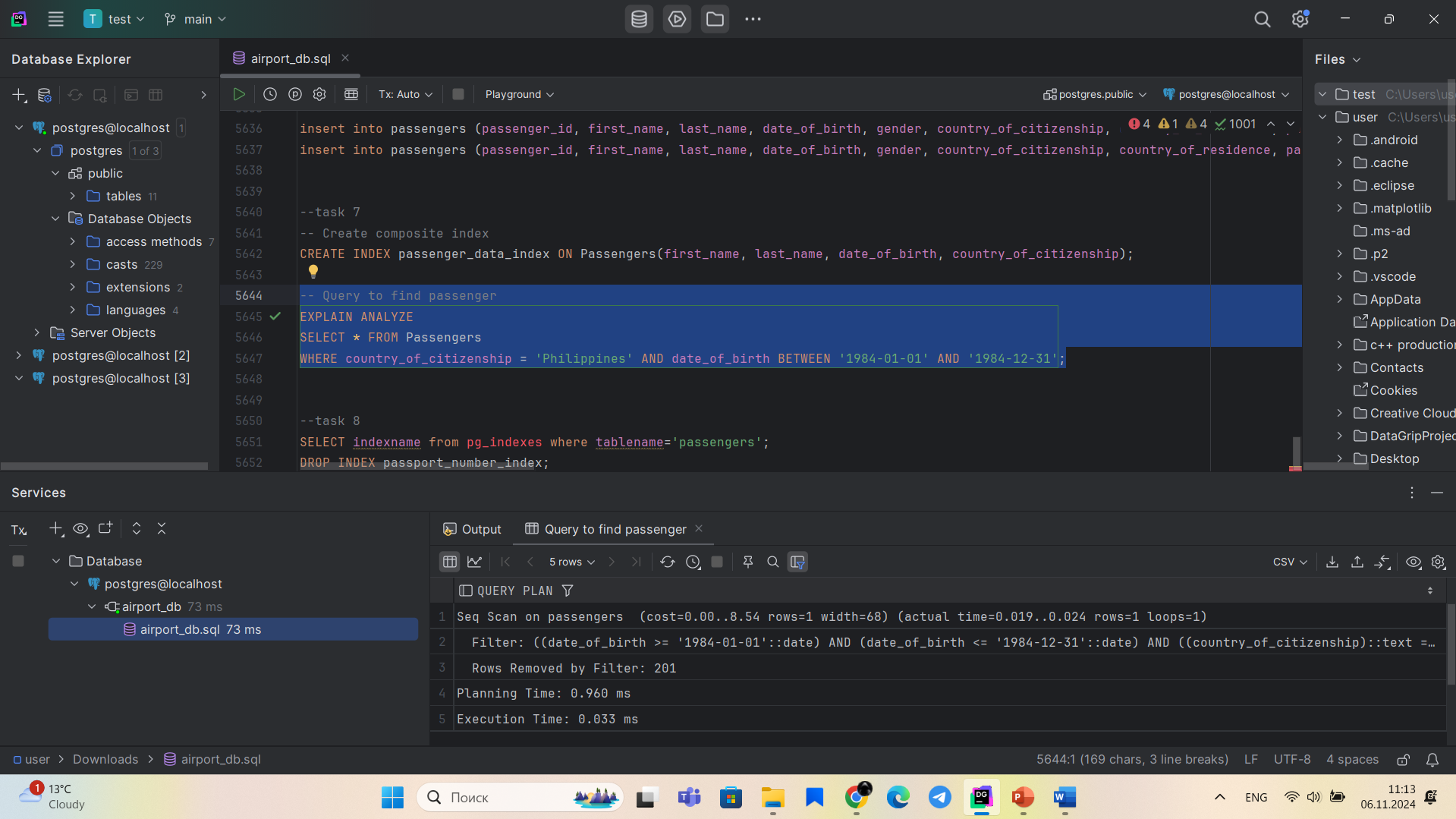


Due to the unique index in the passport column we are not able to insert rows with the same passport number,here when I was trying to insert it gives me error.

Rows with unique passport id can be inserted.

In my output we ensure that there exist index passport\_number\_index

1. Create an index for the Passengers table. Use for that first name, last name, date of birth and country of citizenship. Then, write a SQL query to find a passenger who was born in Philippines and was born in 1984 and check if the query uses indexes or not. Give the explanation of the results.



This query is not using index because in a query we are filtering by 2 parameters,while creating the index with 4.That is inefficient.(Seq. scan)

1. Write a SQL query to list indexes for table Passengers. After delete the created indexes.

