

TASK 1

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Object Explorer' shows a tree structure with 'Servers (2)' expanded, containing 'PostgreSQL'. Under 'PostgreSQL', 'Databases (2)' are listed, with 'Airport' selected. The 'Airport' database is expanded, showing various objects like 'Casts', 'Catalogs', 'Event Triggers', 'Extensions', 'Foreign Data Wrappers', 'Languages', 'Publications', 'Schemas', 'Subscriptions', 'postgres', 'Login/Group Roles', 'Tablespaces', and 'PostgreSQL 17'.

The main panel shows the 'Query' editor for the 'Airport/postgres@PostgreSQL' connection. The query text is:

```
1 SELECT * FROM flights;  
2 CREATE INDEX act_depature_time_index ON flights(act_departure_time);  
3
```

The 'Messages' tab at the bottom shows the execution result:

```
CREATE INDEX  
  
Query returned successfully in 76 msec.
```

The status bar at the bottom indicates 'Total rows: Query complete 00:00:00.076' and 'Ln 2, Col 18'.

TASK 2

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Object Explorer' pane shows a tree structure of database objects. The 'Servers' section is expanded, showing 'PostgreSQL' and 'Databases (2)'. Under 'Databases (2)', the 'Airport' database is selected. The 'Airport' database is further expanded, showing various objects like 'Casts', 'Catalogs', 'Event Triggers', 'Extensions', 'Foreign Data Wrappers', 'Languages', 'Publications', 'Schemas', 'Subscriptions', 'postgres', 'Login/Group Roles', 'Tablespaces', and 'PostgreSQL 17'.

The main pane shows the 'Query' editor for the 'Airport/postgres@PostgreSQL' connection. The query is as follows:

```
4 SELECT column_name
5 FROM information_schema.columns
6 WHERE table_name = 'flights';
7
8 CREATE UNIQUE INDEX unique_schdep_flightno_index ON flights(flight_no, sch_departure_time);
```

The 'Data Output' tab is active, showing the result of the query execution:

```
CREATE INDEX
Query returned successfully in 55 msec.
```

The status bar at the bottom indicates 'Total rows: Query complete 00:00:00.055' and 'CRLF Ln 7, Col 1'.

The Windows taskbar at the bottom shows the system clock as 20:53 on 10.11.2025, with a temperature of 6°C and weather 'Mostly cloudy'.

TASK 3

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Object Explorer' pane shows a tree structure with 'Servers (2)' expanded, containing 'PostgreSQL' and 'PostgreSQL 17'. Under 'PostgreSQL 17', 'Databases (2)' are listed, including 'Airport' and 'postgres'. The 'Airport' database is selected. The main pane shows the 'Query' editor with the following SQL statement:

```
CREATE INDEX flights_departure_arrival_index ON flights(departing_airport_id, arriving_airport_id);
```

The 'Messages' tab is active, displaying the execution result:

```
CREATE INDEX  
  
Query returned successfully in 54 msec.
```

The status bar at the bottom indicates 'Total rows: Query complete 00:00:00.054' and 'Ln 10, Col 39'. The Windows taskbar at the bottom shows the system clock as 20:56 on 10.11.2025, along with various application icons and network status.

TASK 4-1

pgAdmin 4

File Object Tools Edit View Window Help

Object Explorer

- Servers (2)
 - PostgreSQL
 - Databases (2)
 - Airport
 - Casts
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
 - Languages
 - Publications
 - Schemas
 - Subscriptions
 - postgres
 - Login/Group Roles
 - Tablespaces
 - PostgreSQL 17

Airport/postgres@PostgreSQL

Query

```
11  
12 SELECT * FROM flights  
13 WHERE act_departure_time BETWEEN '2020-01-11' AND '2025-02-01';
```

Data Output Messages Notifications

Showing rows: 1 to 1 Page No: 1 of 1

	flight_id [PK] integer	sch_departure_time timestamp without time zone	sch_arrival_time timestamp without time zone	departing_airport_id integer	arriving_airport_id integer	departing_gate text	arriving_gate character varying (50)	airline_id integer
1	301	2024-10-01 08:00:00	2024-10-01 14:00:00	1	301	A1	B2	

Total rows: 1 Query complete 00:00:00.124 CRLF Ln 13, Col 27

6°C Mostly cloudy

Поиск

ENG 21:03 10.11.2025

TASK 4-2

pgAdmin 4

File Object Tools Edit View Window Help

Object Explorer

- Servers (2)
 - PostgreSQL
 - Databases (2)
 - Airport
 - Casts
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
 - Languages
 - Publications
 - Schemas
 - Subscriptions
 - postgres
 - Login/Group Roles
 - Tablespaces

Airport/postgres@PostgreSQL

Query

```
14
15 SELECT * FROM flights
16 WHERE act_departure_time BETWEEN '2020-01-01' AND '2025-02-01';
```

Data Output

	flight_id [PK] integer	sch_departure_time timestamp without time zone	sch_arrival_time timestamp without time zone	departing_airport_id integer	arriving_airport_id integer	departing_gate text	arriving_gate character varying (50)	airline_id integer
1	301	2024-10-01 08:00:00	2024-10-01 14:00:00	1	301	A1	B2	

Total rows: 1 Query complete 00:00:00.150

CRLF Ln 16, Col 18

6°C Mostly cloudy

Поиск

21:07 10.11.2025

TASK 5

pgAdmin 4

File Object Tools Edit View Window Help

Object Explorer

- Servers (2)
 - PostgreSQL
 - Databases (2)
 - Airport
 - Casts
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
 - Languages
 - Publications
 - Schemas
 - Subscriptions
 - postgres
 - Login/Group Roles
 - Tablespaces
 - PostgreSQL 17

Airport/postgres@PostgreSQL*

Query

```
17
18
19 EXPLAIN ANALYZE
20 SELECT * FROM flights
21 WHERE departing_airport_id = 1 AND arriving_airport_id = 3;
```

Data Output Messages Notifications

Showing rows: 1 to 4 Page No: 1 of 1

QUERY PLAN	
text	
1	Index Scan using flights_departure_arrival_index on flights (cost=0.15..8.17 rows=1 width=86) (actual time=0.105..0.105 rows=0 loops=...
2	Index Cond: ((departing_airport_id = 1) AND (arriving_airport_id = 3))
3	Planning Time: 0.261 ms
4	Execution Time: 0.146 ms

Total rows: 4 Query complete 00:00:00.082 CRLF Ln 21, Col 60

6°C Mostly cloudy

Повиск

ENG 21:11 10.11.2025

TASK 6-1

pgAdmin 4

File Object Tools Edit View Window Help

Object Explorer

- Servers (2)
 - PostgreSQL
 - Databases (2)
 - Airport
 - Casts
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
 - Languages
 - Publications
 - Schemas
 - Subscriptions
 - postgres
 - Login/Group Roles
 - Tablespaces
- PostgreSQL 17

Airport/postgres@PostgreSQL

Query

```
22  
23 SELECT * FROM Passengers;  
24 CREATE UNIQUE INDEX passenger_passport_number_index ON passengers(passport_number);
```

Data Output Messages Notifications

ERROR: relation "passenger_passport_number_index" already exists

SQL state: 42P07

Total rows: 300 Query complete 00:00:00.091 CRLF Ln 24, Col 28

6°C Mostly cloudy

Поиск

21:14 10.11.2025

TASK 6-2

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Object Explorer' shows a tree structure with 'Servers (2)' containing 'PostgreSQL', which in turn contains 'Databases (2)' including 'Airport'. The 'Airport' database is expanded, showing various objects like 'Casts', 'Catalogs', 'Event Triggers', 'Extensions', 'Foreign Data Wrappers', 'Languages', 'Publications', 'Schemas', 'Subscriptions', 'postgres', 'Login/Group Roles', 'Tablespaces', and 'PostgreSQL 17'.

The main panel shows the 'Query' editor for the 'Airport/postgres@PostgreSQL' connection. The query text is as follows:

```
23 SELECT * FROM passengers;  
24 CREATE UNIQUE INDEX passenger_passport_number_index ON passengers(passport_number);  
25  
26 INSERT INTO passengers(passenger_id, first_name, last_name, date_of_birth, gender,  
27 country_of_citizenship, country_of_residence, passport_number, created_at, updated_at)  
28 VALUES(303, 'Sagynysh', 'Mahash', '1999-09-09', 'Female', 'Kazakhstan', 'Kazakhstan', 'P80839944',  
29 NOW(), NOW());
```

Below the query editor, the 'Data Output' tab shows the result of the query: 'INSERT 0 1'. A message below states: 'Query returned successfully in 68 msec.'

The bottom status bar indicates 'Total rows: Query complete 00:00:00.068' and 'Ln 26, Col 20'. The system tray at the very bottom shows the date and time as '21:20 10.11.2025'.

TASK 7-1

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Object Explorer' pane shows a tree structure with 'Servers (2)' expanded to 'PostgreSQL', then 'Databases (2)', and finally 'Airport'. The main workspace is divided into three sections: a top toolbar with icons for file operations and query execution, a central 'Query' editor containing the SQL command `CREATE INDEX passengers_name_birth_country_index ON passengers(first_name, last_name, date_of_birth, country_of_citizenship);`, and a bottom 'Messages' pane showing the output 'CREATE INDEX' and 'Query returned successfully in 54 msec.' The status bar at the bottom indicates 'Total rows: Query complete 00:00:00.054' and 'Ln 31, Col 28'. The Windows taskbar at the very bottom shows the system clock at 21:23 on 10.11.2025.

pgAdmin 4

File Object Tools Edit View Window Help

Object Explorer

- Servers (2)
 - PostgreSQL
 - Databases (2)
 - Airport
 - Casts
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
 - Languages
 - Publications
 - Schemas
 - Subscriptions
 - postgres
 - Login/Group Roles
 - Tablespaces

Airport/postgres@PostgreSQL

Query Query History

```
30
31 CREATE INDEX passengers_name_birth_country_index ON passengers(first_name, last_name, date_of_birth,
32 country_of_citizenship);
```

Data Output Messages Notifications

CREATE INDEX

Query returned successfully in 54 msec.

Total rows: Query complete 00:00:00.054 CRLF Ln 31, Col 28

AW01 +0.92%

Поиск

ENG 21:23 10.11.2025

TASK 7-2

pgAdmin 4

File Object Tools Edit View Window Help

Object Explorer

- Servers (2)
 - PostgreSQL
 - Databases (2)
 - Airport
 - Casts
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
 - Languages
 - Publications
 - Schemas
 - Subscriptions
 - postgres
 - Login/Group Roles
 - Tablespaces
 - PostgreSQL 17

Airport/postgres@PostgreSQL

Query

```
country_of_citizenship);  
  
EXPLAIN ANALYZE  
SELECT * FROM Passengers  
WHERE country_of_citizenship = 'Philippines'  
AND EXTRACT(YEAR FROM date_of_birth) = 1984;
```

Query History

Scratch Pad

Data Output Messages Notifications

Showing rows: 1 to 5 Page No: 1 of 1

	QUERY PLAN
1	Seq Scan on passengers (cost=0.00..10.27 rows=1 width=187) (actual time=0.103..0.104 rows=0 loops=1)
2	Filter: (((country_of_citizenship)::text = 'Philippines)::text) AND (EXTRACT(year FROM date_of_birth) = '1984':numeri...
3	Rows Removed by Filter: 301
4	Planning Time: 0.212 ms
5	Execution Time: 0.126 ms

Total rows: 5 Query complete 00:00:00.097

Successfully run. Total query runtime: 97 msec. 5 rows affected.

CRLF Ln 37, Col 44

6°C Mostly cloudy

Повиск

21:28 10.11.2025

TASK 8-1

pgAdmin 4

File Object Tools Edit View Window Help

Object Explorer

- Servers (2)
 - PostgreSQL
 - Databases (2)
 - Airport
 - Casts
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
 - Languages
 - Publications
 - Schemas
 - Subscriptions
 - postgres
 - Login/Group Roles
 - Tablespaces
 - PostgreSQL 17

Airport/postgres@PostgreSQL*

Query

```
39
40 SELECT *
41 FROM pg_indexes
42 WHERE tablename = 'passengers';
43
```

Data Output Messages Notifications

Showing rows: 1 to 4 Page No: 1 of 1

	schemaname name	tablename name	indexname name	tablespace name	indexdef text
1	public	passengers	passengers_pkey	[null]	CREATE UNIQUE INDEX passengers_pkey ON public.passengers USING btree (passenger_id)
2	public	passengers	unique_passenger_email	[null]	CREATE UNIQUE INDEX unique_passenger_email ON public.passengers USING btree (email)
3	public	passengers	passenger_passport_number_index	[null]	CREATE UNIQUE INDEX passenger_passport_number_index ON public.passengers USING btree (passenger_passport_number)
4	public	passengers	passengers_name_birth_country_index	[null]	CREATE INDEX passengers_name_birth_country_index ON public.passengers USING btree (first_name, birth_country)

Total rows: 4 Query complete 00:00:00.113 CRLF Ln 41, Col 16

6°C Mostly cloudy

Поиск

ENG 21:33 10.11.2025

TASK 8-2

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Object Explorer' pane shows a tree structure with 'Servers (2)' expanded, containing 'PostgreSQL' and 'Databases (2)'. Under 'Databases (2)', the 'Airport' database is selected, showing its various components like Casts, Catalogs, Event Triggers, Extensions, Foreign Data Wrappers, Languages, Publications, Schemas, and Subscriptions. The main pane shows the 'Query' editor with the following SQL code:

```
41 FROM pg_indexes
42 WHERE tablename = 'passengers';
43
44 DROP INDEX IF EXISTS passenger_passport_number_index;
45 DROP INDEX IF EXISTS passengers_name_birth_country_index;
```

A tooltip 'Execute query' with 'Alt' and 'F5' shortcuts is visible over the 'Execute query' button. Below the query editor, the 'Data Output' tab shows the message 'DROP INDEX' and 'Query returned successfully in 56 msec.' A green notification box at the bottom right confirms: '✓ Query returned successfully in 56 msec. ✕'. The status bar at the bottom indicates 'Total rows: Query complete 00:00:00.056' and 'CRLF Ln 45, Col 18'. The Windows taskbar at the very bottom shows the date as 10.11.2025 and time as 21:36.