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Query

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5419

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5421

5422

-- 1

CREATE INDEX act_dep_index ON flights(actual_departure);

Data Output

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CREATE INDEX

Query returned successfully in 58 msec.

Total rows:

Query complete 00:00:00.058

CRLF

Ln 5422, Col 1

Query returned successfully in 58 msec.

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Query

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5424

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5428

5429

5430

-- 2

DELETE FROM flights

WHERE flight_id NOT IN (

SELECT MIN(flight_id)

FROM flights

GROUP BY flight_no, scheduled_departure

);

CREATE UNIQUE INDEX sched_dep_index ON flights(flight_no, scheduled_departure);

Data Output

Messages

Notifications

CREATE INDEX

Query returned successfully in 37 msec.

✓ Query returned successfully in 37 msec. ✕

Total rows:Query complete 00:00:00.037

CRLF Ln 5424, Col 1

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Query

Query History

Scratch Pad

5432

-- 3

5433

CREATE INDEX airports_index ON flights(departure_airport_id, arrival_airport_id);

Data Output

Messages

Notifications

CREATE INDEX

Query returned successfully in 38 msec.

Total rows:

Query complete 00:00:00.038

CRLF

Ln 5434, Col 1

Query returned successfully in 38 msec.

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Query

Query History

Scratch Pad

5416

5417

5418

----- Lab 7

--4 (without indexes)

SELECT * FROM flights WHERE arrival_airport_id = departure_airport_id;

Data Output

Messages

Notifications

Showing rows: 1 to 60

Page No: 1 of 1

	flight_id [PK] integer	flight_no character varying (50)	scheduled_departure date	scheduled_arrival date	departure_airport_id integer	arrival_airport_id integer	departing_gate character varying (50)	arriving_gate character varying (50)	airline_id integer
1	11	TH-57	2023-03-28	2023-10-28	5	5	1280	3288	46
2	17	ES-AN	2023-09-10	2024-01-07	13	13	297	59	6
3	22	GB-ENG	2023-11-03	2023-10-11	2	2	400	85	44
4	32	KP-10	2024-03-12	2023-06-06	2	2	4547	2999	25
5	39	PG-MPL	2023-11-23	2023-06-05	12	12	2950	505	42
6	68	SE-BD	2023-09-26	2023-07-18	13	13	65	1831	9
7	71	US-AK	2024-01-07	2023-04-03	2	2	17	4095	34
8	95	CN-23	2023-03-21	2023-08-10	10	10	[null]	37	46
9	132	IN-MP	2024-01-10	2023-03-18	3	3	1711	25	20
10	137	CA-BC	2023-12-27	2023-12-11	9	9	92	443	9
11	163	US-CA	2023-07-12	2023-10-20	5	5	62	23	12
12	175	PA-8	2023-03-19	2023-08-21	19	19	150	38	1
13	203	IT-62	2023-12-05	2023-07-06	14	14	1278	552	47
14	208	NZ-CAN	2023-10-04	2023-11-26	10	10	1575	104	32
15	248	CH-NE	2023-08-22	2023-09-20	20	20	1427	11	14
16	251	MX-BCN	2024-03-07	2023-09-22	7	7	489	20	5
17	255	US-TX	2023-05-07	2023-05-03	4	4	2871	2312	29
18	270	US-UT	2023-04-08	2024-02-26	4	4	5868	674	28
19	293	FR-V	2024-03-16	2023-12-21	19	19	923	5640	14
20	300	AU-NT	2024-01-29	2023-10-01	17	17	546	4400	6

✓ Successfully run. Total query runtime: 54 msec. 60 rows affected. ✕

Total rows: 60Query complete 00:00:00.054CRLF Ln 5419, Col 1

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Query

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-- 4

5436

SELECT * FROM flights WHERE arrival_airport_id = departure_airport_id;

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Showing rows: 1 to 59

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	flight_id [PK] integer	flight_no character varying (50)	scheduled_departure date	scheduled_arrival date	departure_airport_id integer	arrival_airport_id integer	departing_gate character varying (50)	arriving_gate character varying (50)	airline_id integer
1	11	TH-57	2023-03-28	2023-10-28	5	5	1280	3288	46
2	17	ES-AN	2023-09-10	2024-01-07	13	13	297	59	6
3	22	GB-ENG	2023-11-03	2023-10-11	2	2	400	85	44
4	32	KP-10	2024-03-12	2023-06-06	2	2	4547	2999	25
5	39	PG-MPL	2023-11-23	2023-06-05	12	12	2950	505	42
6	68	SE-BD	2023-09-26	2023-07-18	13	13	65	1831	9
7	71	US-AK	2024-01-07	2023-04-03	2	2	17	4095	34
8	95	CN-23	2023-03-21	2023-08-10	10	10	[null]	37	46
9	132	IN-MP	2024-01-10	2023-03-18	3	3	1711	25	20
10	137	CA-BC	2023-12-27	2023-12-11	9	9	92	443	9
11	163	US-CA	2023-07-12	2023-10-20	5	5	62	23	12
12	175	PA-8	2023-03-19	2023-08-21	19	19	150	38	1
13	203	IT-62	2023-12-05	2023-07-06	14	14	1278	552	47
14	208	NZ-CAN	2023-10-04	2023-11-26	10	10	1575	104	32
15	248	CH-NE	2023-08-22	2023-09-20	20	20	1427	11	14
16	251	MX-BCN	2024-03-07	2023-09-22	7	7	489	20	5
17	255	US-TX	2023-05-07	2023-05-03	4	4	2871	2312	29
18	270	US-UT	2023-04-08	2024-02-26	4	4	5868	674	28
19	293	FR-V	2024-03-16	2023-12-21	19	19	923	5640	14
20	300	AU-NT	2024-01-29	2023-10-01	17	17	646	4400	6
21	349	US-OR	2023-12-18	2023-06-02	18				

Successfully run. Total query runtime: 53 msec. 59 rows affected.

Total rows: 59

Query complete 00:00:00.053

CRLF

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-- 5

EXPLAIN ANALYZE

SELECT * FROM flights WHERE departure_airport_id = 11 AND arrival_airport_id = 33;

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Showing rows: 1 to 6

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	QUERY PLAN
1	Index Scan using airports_index on flights (cost=0.28..8.29 rows=1 width=61) (actual time=0.070..0.070 rows=0.00 loo...
2	Index Cond: ((departure_airport_id = 11) AND (arrival_airport_id = 33))
3	Index Searches: 1
4	Buffers: shared read=2
5	Planning Time: 0.125 ms
6	Execution Time: 0.093 ms

Successfully run. Total query runtime: 58 msec. 6 rows affected.

Total rows: 6

Query complete 00:00:00.058

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-- 6

CREATE UNIQUE INDEX passport_index ON passengers(passport_number);

insert into passengers (passenger_id, first_name, last_name, date_of_birth, gender, country_of_citizenship,

country_of_residence, passport_number, created_at, update_at) values (201, 'Poligraf', 'Sharikov',

'1925-01-01', 'Male', 'Russia', 'Russia', '122133332-7', '2025-11-16', '2025-11-16');

insert into passengers (passenger_id, first_name, last_name, date_of_birth, gender, country_of_citizenship,

country_of_residence, passport_number, created_at, update_at) values (202, 'Jackobs', 'Monarch',

'2009-10-01', 'Male', 'United Kingdom', 'United Kingdom', '81847113-2', '2025-11-16', '2025-11-16');

-- In the output (loosely speaking), two new records are created and new indexes are given to them

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INSERT 0 1

Query returned successfully in 48 msec.

Total rows:

Query complete 00:00:00.048

CRLF

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Query returned successfully in 48 msec.

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QueryQuery History

5452-- 75453CREATE INDEX complex_index ON passengers(first_name, last_name, date_of_birth, country_of_citizenship);5454EXPLAIN ANALYZE5455SELECT * FROM passengers WHERE country_of_citizenship = 'Philippines' AND EXTRACT(YEAR FROM date_of_birth) = 1984;5456--No index is used since its two first elements are skipped

Scratch Pad

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Showing rows: 1 to 8Page No: 1 of 1

	QUERY PLAN
1	Seq Scan on passengers (cost=0.00..6.54 rows=1 width=64) (actual time=0.014..0.029 rows=1.00 loops=1)
2	Filter: (((country_of_citizenship)::text = 'Philippines'::text) AND (EXTRACT(year FROM date_of_birth) = '1984'::num...
3	Rows Removed by Filter: 201
4	Buffers: shared hit=3
5	Planning:
6	Buffers: shared hit=46 read=1 dirtied=4
7	Planning Time: 1.037 ms
8	Execution Time: 0.040 ms

Successfully run. Total query runtime: 41 msec. 8 rows affected.

Total rows: 8Query complete 00:00:00.041CRLFLn 5453, Col 1

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QueryQuery History

54575458545954605461

-- 8SELECT * FROM pg_indexes WHERE tablename = 'passengers';DROP INDEX passport_index;DROP INDEX complex_index;

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Showing rows: 1 to 3Page No: 1 of 1

	schemaname name	tablename name	indexname name	tablespace name	indexdef text
1	public	passengers	passengers_pk...	[null]	CREATE UNIQUE INDEX passengers_pkey ON public.passengers USING btree (passenger_id)
2	public	passengers	passport_index	[null]	CREATE UNIQUE INDEX passport_index ON public.passengers USING btree (passport_number)
3	public	passengers	complex_index	[null]	CREATE INDEX complex_index ON public.passengers USING btree (first_name, last_name, date_of_birth, country_of_citizen...

Scratch Pad

Successfully run. Total query runtime: 55 msec. 3 rows affected.

Total rows: 3Query complete 00:00:00.055CRLFLn 5460, Col 1

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-- 8

SELECT * FROM pg_indexes WHERE tablename = 'passengers';

DROP INDEX passport_index;

DROP INDEX complex_index;

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DROP INDEX

Query returned successfully in 56 msec.

Total rows:

Query complete 00:00:00.056

CRLF

Ln 5460, Col 1

✓ Query returned successfully in 56 msec. ✕