

## PROGRAM 5. AIRLINE FLIGHT DATABASE

LIGHTS (flno: integer, from: string, to: string, distance: integer, departs: time, arrives: time, price: integer)

AIRCRAFT (aid: integer, aname: string, cruisingrange: integer)

CERTIFIED (eid: integer, aid: integer)

EMPLOYEE (eid: integer, ename: string, salary: integer)

Note that the Employees relation describes pilots and other kinds of employees as well; Every pilot is certified

for some aircraft, and only pilots are certified to fly.

Write each of the following queries in SQL.

- i. Find the names of aircraft such that all pilots certified to operate them have salaries more than Rs.80,000.
- ii. For each pilot who is certified for more than three aircrafts, find the eid and the maximum cruising range of the aircraft for which she or he is certified.
- iii. Find the names of pilots whose salary is less than the price of the cheapest route from Bengaluru to Frankfurt.
- iv. For all aircraft with cruising range over 1000 Kms, find the name of the aircraft and the average salary of all pilots certified for this aircraft.
- v. Find the names of pilots certified for some Boeing aircraft.
- vi. Find the aids of all aircraft that can be used on routes from Bengaluru to New Delhi.
- vii. A customer wants to travel from Madison to New York with no more than two changes of flight. List the choice of departure times from Madison if the customer wants to arrive in New York by 6 p.m.
- viii. Print the name and salary of every non-pilot whose salary is more than the average salary for pilots.

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test

Server: 127.0.0.1 » Database: flights » Table: flights

Browse

Structure

SQL

Search

Insert

Export

Import

Privileges

Operations

Tracking

Triggers

Showing rows 0 - 5 (6 total, Query took 0.0007 seconds.)

SELECT \* FROM `flights`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all

Number of rows: 25

Filter rows: Search this table

Sort by key: None

+ Options

flno

from\_

to\_

distance

departs

arrives

price

☐

Edit

Copy

Delete

101

Bangalore

Delhi

2500

2005-05-13 07:15:31

2005-05-13 17:15:31

5000

☐

Edit

Copy

Delete

102

Bangalore

Lucknow

3000

2005-05-13 07:15:31

2005-05-13 11:15:31

6000

☐

Edit

Copy

Delete

103

Lucknow

Delhi

500

2005-05-13 12:15:31

2005-05-13 17:15:31

3000

☐

Edit

Copy

Delete

104

Bangalore

Frankfurt

8500

2005-05-13 07:15:31

2005-05-13 23:15:31

75000

☐

Edit

Copy

Delete

105

Kolkata

Delhi

3400

2005-05-13 07:15:31

2005-05-13 09:15:31

7000

☐

Edit

Copy

Delete

107

Bangalore

Frankfurt

8000

2005-05-13 07:15:31

2005-05-13 22:15:31

60000

☐ Check all

With selected: Edit Copy Delete Export

phpMyAdmin

Recent Favorites

New

banking

flights

New

aircraft

certified

employee

flights

information\_schema

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performance\_schema

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project\_work

student\_faculty

supplier

test

Server: 127.0.0.1 » Database: flights » Table: employee

Browse

Structure

SQL

Search

Insert

Export

Import

Privileges

Operations

Tracking

Triggers

Showing rows 0 - 6 (7 total, Query took 0.0012 seconds.)

SELECT \* FROM `employee`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all

Number of rows: 25

Filter rows: Search this table

Sort by key: None

+ Options

eid

ename

salary

☐

Edit

Copy

Delete

701

A

50000

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Edit

Copy

Delete

702

B

100000

☐

Edit

Copy

Delete

703

C

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704

D

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705

E

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F

60000

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phpMyAdmin

Recent Favorites

New

banking

flights

New

aircraft

certified

employee

flights

information\_schema

mysql

performance\_schema

phpmyadmin

project\_work

student\_faculty

supplier

test

Server: 127.0.0.1 » Database: flights » Table: certified

Browse

Structure

SQL

Search

Insert

Export

Import

Privileges

Operations

Tracking

Triggers

Showing rows 0 - 15 (16 total, Query took 0.0012 seconds.)

SELECT \* FROM `certified`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all

Number of rows: 25

Filter rows: Search this table

Sort by key: None

+ Options

eid

aid

☐

Edit

Copy

Delete

701

101

☐

Edit

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701

102

☐

Edit

Copy

Delete

701

105

☐

Edit

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Delete

701

106

☐

Edit

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Delete

702

101

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702

104

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702

107

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703

104

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107

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704

104

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Delete

704

105

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704

107

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Edit

Copy

Delete

705

103

☐ Check all

With selected: Edit Copy Delete Export

phpMyAdmin

Server: 127.0.0.1 » Database: flights » Table: aircraft

Showing rows 0 - 6 (7 total, Query took 0.0006 seconds)

`SELECT * FROM `aircraft``

☐ Profiling [\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Explain SQL \]](#) [\[ Create PHP code \]](#) [\[ Refresh \]](#)

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

				aid	aname	cruisingrange
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	101	747	3000
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	102	Boeing	900
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	103	647	800
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	104	Dreamliner	10000
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	105	Boeing	3500
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	106	707	1500
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	107	Dream	120000

☐ Check all | With selected: [Edit](#) [Copy](#) [Delete](#) [Export](#)

1)

Server: 127.0.0.1 » Database: flights » Table: aircraft

Showing rows 0 - 3 (4 total, Query took 0.0420 seconds)

`select distinct a.aname from aircraft a , employee e , certified c where a.aid = c.aid and e.eid = c.eid and e.salary >= 80000`

☐ Profiling [\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Explain SQL \]](#) [\[ Create PHP code \]](#) [\[ Refresh \]](#)

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

				aname
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	747
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	Dreamliner
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	Boeing
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	Dream

☐ Check all | With selected: [Edit](#) [Copy](#) [Delete](#) [Export](#)

2)

Showing rows 0 - 0 (1 total, Query took 0.1144 seconds)

`select c.eid , max(a.cruisingrange) from certified c , aircraft a where a.aid = c.aid group by c.eid having count(*) > 3`

☐ Profiling [\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Explain SQL \]](#) [\[ Create PHP code \]](#) [\[ Refresh \]](#)

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

				eid	max(a.cruisingrange)
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	701	3500

☐ Check all | With selected: [Edit](#) [Copy](#) [Delete](#) [Export](#)

☐ Show all | Number of rows: 25 | Filter rows: Search this table

3)

✓ Showing rows 0 - 1 (2 total, Query took 0.0026 seconds.)

```
select e.ename from employee e where e.salary < (select min(price) from flights where from_ = 'Bangalore' and to_ = 'Frankfurt')
```

☐ Profiling [\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Explain SQL \]](#) [\[ Create PHP code \]](#) [\[ Refresh \]](#)

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

				ename
<input type="checkbox"/>				A
<input type="checkbox"/>				E

☐ Check all | With selected:

4)

✓ Showing rows 0 - 4 (5 total, Query took 0.0396 seconds.)

```
select a.aname , avg(e.salary) from aircraft a , employee e , certified c where a.aid = c.aid and e.eid = c.eid and a.cruisingrange > 1000 group by a.aname
```

☐ Profiling [\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Explain SQL \]](#) [\[ Create PHP code \]](#) [\[ Refresh \]](#)

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

				aname	avg(e.salary)
<input type="checkbox"/>				707	50000.0000
<input type="checkbox"/>				747	75000.0000
<input type="checkbox"/>				Boeing	96666.6667
<input type="checkbox"/>				Dream	113333.3333
<input type="checkbox"/>				Dreamliner	113333.3333

☐ Check all | With selected:

5)

✓ Showing rows 0 - 2 (3 total, Query took 0.0043 seconds.)

```
select distinct e.ename from employee e , aircraft a , certified c where a.aid = c.aid and e.eid = c.eid and a.aname = 'Boeing'
```

☐ Profiling [\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Explain SQL \]](#) [\[ Create PHP code \]](#) [\[ Refresh \]](#)

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

				ename
<input type="checkbox"/>				A
<input type="checkbox"/>				C
<input type="checkbox"/>				D

☐ Check all | With selected:

6)

✓ Showing rows 0 - 1 (2 total, Query took 0.0047 seconds.)

```
select a.aid from aircraft a where a.cruisingrange >= (select min(distance) from flights where from_ = 'Bangalore' and to_ = 'Frankfurt')
```

☐ Profiling [\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Explain SQL \]](#) [\[ Create PHP code \]](#) [\[ Refresh \]](#)

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

				aid
<input type="checkbox"/>				104
<input type="checkbox"/>				107

☐ Check all | With selected:

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

7)

✓ Showing rows 0 - 1 (2 total, Query took 0.0649 seconds.)

```
select F.departs from Flights F where F.fno IN ( ( select F0.fno from Flights F0 where F0.from_ = 'Bangalore' and F0.to_ = 'Delhi' and extract(hour from F0.arrives) < 18 ) union ( select F0.fno from Flights F0, Flights F1 where F0.from_ = 'Bangalore' AND F0.to_ <> 'Delhi' and F0.to_ = F1.from_ AND F1.to_ = 'Delhi' and F1.departs > F0.arrives and extract(hour from F1.arrives) < 18) union ( select F0.fno from Flights F0, Flights F1, Flights F2 where F0.from_ = 'Bangalore' and F0.to_ = F1.from_ and F1.to_ = F2.from_ and F2.to_ = 'Delhi' and F0.to_ <> 'Delhi' and F1.to_ <> 'Delhi' and F1.departs > F0.arrives and F2.departs > F1.arrives and extract(hour from F2.arrives) < 18))
```

☐ Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

					departs
<input type="checkbox"/>	Edit	Copy	Delete		2005-05-13 07:15:31
<input type="checkbox"/>	Edit	Copy	Delete		2005-05-13 07:15:31

↑ ☐ Check all | With selected: Edit Copy Delete Export

8)

Show query box

✓ Showing rows 0 - 0 (1 total, Query took 0.0173 seconds.)

```
select e.ename , e.salary from employee e where e.salary > (select avg(distinct e1.salary) from employee e1 , certified c where e1.eid = c.eid) and e.eid not in (select distinct eid from certified)
```

☐ Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

					ename	salary
<input type="checkbox"/>	Edit	Copy	Delete		G	90000

↑ ☐ Check all | With selected: Edit Copy Delete Export