

# Assignment 4

...

Consider the following database schema and solve the following queries:

Flights(f\_no, from, to, distance, departs, arrive, fare)

Aircraft(aid, aname, crushing\_range)

Employees(eid, ename, salary)

Certified(aid, eid)

Queries:

(a) Identify the flights that can be piloted by every pilot whose salary more than Rs. 1,00,000

(b) List the names and salary of the employees whose salary is more than average salary.

(c) For all aircraft with the crushing range over 1000 miles, find the names of the aircraft and average salary for pilots.

(d) Find The names of pilots who can operate planes with a range greater than 3000 miles but not certified on any 'BOYING' aircraft.

Solution:

```
mysql> create database A4mouli;
```

Query OK, 1 row affected (0.17 sec)

```
mysql> show databases;
```

```
+-----+
| Database |
+-----+
| A3mouli  |
| A4mouli  |
| anik     |
| company  |
| employee |
| information_schema |
| mouli    |
| mouli_assi2 |
| mysql    |
| neha     |
| performance_schema |
| student  |
| sys      |
+-----+
```

13 rows in set (0.00 sec)

```
mysql> use A4mouli;
```

Database changed

```
mysql> create table Aircraft (
```

-> aid varchar(8) primary key,

-> aname varchar(20),

-> crushing\_range decimal(10,2));

Query OK, 0 rows affected (0.64 sec)

```
mysql> desc Aircraft;
```

Field	Type	Null	Key	Default	Extra
aid	varchar(8)	NO	PRI	NULL	
aname	varchar(20)	YES		NULL	
crushing_range	decimal(10,2)	YES		NULL	

3 rows in set (0.01 sec)

```
mysql> create table Employees (
```

```
-> eid varchar(8) primary key,
```

```
-> ename varchar(20),
```

```
-> salary integer(9));
```

Query OK, 0 rows affected, 1 warning (0.55 sec)

```
mysql> desc Employees;
```

Field	Type	Null	Key	Default	Extra
eid	varchar(8)	NO	PRI	NULL	
ename	varchar(20)	YES		NULL	
salary	int	YES		NULL	

3 rows in set (0.00 sec)

```
mysql> create table Certified (
```

```
-> eid varchar(8) references Employees,
```

```
-> aid varchar(8) references Aircraft,
```

```
-> primary key(eid, aid));
```

Query OK, 0 rows affected (0.92 sec)

```
mysql> desc Certified;
```

Field	Type	Null	Key	Default	Extra
eid	varchar(8)	NO	PRI	NULL	
aid	varchar(8)	NO	PRI	NULL	

2 rows in set (0.01 sec)

```
mysql> create table Flights (
```

```
-> f_no varchar(10) references Certified,
```

```
-> from_ varchar(20),
```

```
-> to_ varchar(20),
```

```
-> distance decimal(10, 2),
```

```
-> departs time,
```

```
-> arrive time,
```

-> fare decimal(10, 2));

Query OK, 0 rows affected (0.50 sec)

mysql> desc Flights;

Field	Type	Null	Key	Default	Extra
f_no	varchar(10)	YES		NULL	
from_	varchar(20)	YES		NULL	
to_	varchar(20)	YES		NULL	
distance	decimal(10,2)	YES		NULL	
departs	time	YES		NULL	
arrive	time	YES		NULL	
fare	decimal(10,2)	YES		NULL	

7 rows in set (0.00 sec)

mysql> Insert into Flights values('IC301', 'Mumbai', 'Bangalore', 609.56, "14:15:01", "15:45:01", 6424.25);

Query OK, 1 row affected (0.08 sec)

mysql> Insert into Flights values('IC302', 'Bangalore', 'Kolkata', 970.89, "12:00:01", "14:20:59", 8846.50);

Query OK, 1 row affected (0.14 sec)

mysql> insert into Flights values('IC799', 'Mumbai', 'Kochi', 782.85, "16:29:59", "18:15:02", 13894.12);

Query OK, 1 row affected (0.10 sec)

mysql> insert into Flights values('MC101', 'Delhi', 'Varanasi', 521.45, "11:35:01", "13:05:03", 4210);

Query OK, 1 row affected (0.09 sec)

mysql> insert into Flights values('MV499', 'Delhi', 'Chennai', 1500.65, "21:00:59", "23:45:01", 12000);

Query OK, 1 row affected (0.09 sec)

mysql> insert into Flights values('AM1812', 'Lucknow', 'Delhi', 225, "10:10:00", "11:30:02", 4500);

Query OK, 1 row affected (0.10 sec)

mysql> select \* from Flights;

f_no	from_	to_	distance	departs	arrive	fare
IC301	Mumbai	Bangalore	609.56	14:15:01	15:45:01	6424.25
IC302	Bangalore	Kolkata	970.89	12:00:01	14:20:59	8846.50
IC799	Mumbai	Kochi	782.85	16:29:59	18:15:02	13894.12
MC101	Delhi	Varanasi	521.45	11:35:01	13:05:03	4210.00
MV499	Delhi	Chennai	1500.65	21:00:59	23:45:01	12000.00
AM1812	Lucknow	Delhi	225.00	10:10:00	11:30:02	4500.00

6 rows in set (0.00 sec)

```
mysql> insert into Employees values('EM101', 'Noorain Aziza', 150000);
```

```
Query OK, 1 row affected (0.09 sec)
```

```
mysql> insert into Employees values('EM102', 'Nabanita Saha', 140000);
```

```
Query OK, 1 row affected (0.10 sec)
```

```
mysql> insert into Employees values('EM103', 'Mouli Dutta', 160000);
```

```
Query OK, 1 row affected (0.09 sec)
```

```
mysql> insert into Employees values('EM104', 'Ammrisha Chowdhury', 170000);
```

```
Query OK, 1 row affected (0.11 sec)
```

```
mysql> insert into Employees values('EM105', 'Maya Murmu', 150000);
```

```
Query OK, 1 row affected (0.07 sec)
```

```
mysql> insert into Employees values('EM106', 'Preetha Chakraborty', 180000);
```

```
Query OK, 1 row affected (0.09 sec)
```

```
mysql> insert into Employees values('EM107', 'Abir Poddar', 50000);
```

```
Query OK, 1 row affected (0.07 sec)
```

```
mysql> insert into Employees values('EM108', 'Arnab Rong', 45000);
```

```
Query OK, 1 row affected (0.09 sec)
```

```
mysql> insert into Employees values('EM109', 'Aritra Paul', 70000);
```

```
Query OK, 1 row affected (0.12 sec)
```

```
mysql> insert into Employees values('EM110', 'Utsab Talukdar', 80000);
```

```
Query OK, 1 row affected (0.08 sec)
```

```
mysql> select * from Employees;
```

eid	ename	salary
EM101	Noorain Aziza	150000
EM102	Nabanita Saha	140000
EM103	Mouli Dutta	160000
EM104	Ammrisha Chowdhury	170000
EM105	Maya Murmu	150000
EM106	Preetha Chakraborty	180000
EM107	Abir Poddar	50000
EM108	Arnab Rong	45000
EM109	Aritra Paul	70000
EM110	Utsab Talukdar	80000

```
10 rows in set (0.00 sec)
```

```
mysql> insert into Aircraft values('IA101', 'Indian Airlines', 439.89);
```

```
Query OK, 1 row affected (0.09 sec)
```

```
mysql> insert into Aircraft values('SJ102', 'Spice Jet', 657.95);
```

```
Query OK, 1 row affected (0.10 sec)
```

```
mysql> insert into Aircraft values('DA103', 'Deccan Airlines', 1150.23);
```

```
Query OK, 1 row affected (0.10 sec)
```

```
mysql> insert into Aircraft values('JA104', 'Jet Airways', 1800.56);
```

```
Query OK, 1 row affected (0.09 sec)
```

```
mysql> insert into Aircraft values('IA105', 'Indian Airlines', 700.45);
```

```
Query OK, 1 row affected (0.10 sec)
```

```
mysql> insert into Aircraft values('SA106', 'Sahara', 2100.23);
```

```
Query OK, 1 row affected (0.11 sec)
```

```
mysql> select * from Aircraft;
```

aid	aname	crushing_range
DA103	Deccan Airlines	1150.23
IA101	Indian Airlines	439.89
IA105	Indian Airlines	700.45
JA104	Jet Airways	1800.56
SA106	Sahara	2100.23
SJ102	Spice Jet	657.95

```
6 rows in set (0.00 sec)
```

```
mysql> update Aircraft
```

```
-> set crushing_range = 3100
```

```
-> where aid = 'IA101';
```

```
Query OK, 1 row affected (0.12 sec)
```

```
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> select * from Aircraft;
```

aid	aname	crushing_range
DA103	Deccan Airlines	1150.23
IA101	Indian Airlines	3100.00
IA105	Indian Airlines	700.45
JA104	Jet Airways	1800.56
SA106	Sahara	2100.23
SJ102	Spice Jet	657.95

```
6 rows in set (0.01 sec)
```

```
mysql> update Aircraft
```

```
-> set crushing_range = 3200
```

```
-> where aid = 'IA105';
```

```
Query OK, 1 row affected (0.10 sec)
```

```
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> select * from Aircraft;
```

aid	aname	crushing_range
DA103	Deccan Airlines	1150.23
IA101	Indian Airlines	3100.00
IA105	Indian Airlines	3200.00
JA104	Jet Airways	1800.56
SA106	Sahara	2100.23
SJ102	Spice Jet	657.95

```
6 rows in set (0.00 sec)
```

```
mysql> insert into Aircraft values ("BO101", "BOYING101", 3005);
```

```
Query OK, 1 row affected (0.07 sec)
```

```
mysql> INSERT INTO Aircraft values('BO102', 'BOYING102', 270);
```

```
Query OK, 1 row affected (0.13 sec)
```

```
mysql> select * from Aircraft;
```

aid	aname	crushing_range
BO101	BOYING101	3005.00
BO102	BOYING102	270.00
DA103	Deccan Airlines	1150.23
IA101	Indian Airlines	3100.00
IA105	Indian Airlines	3200.00
JA104	Jet Airways	1800.56
SA106	Sahara	2100.23
SJ102	Spice Jet	657.95

```
8 rows in set (0.00 sec)
```

```
mysql> insert into Certified values('EM101', 'DA103');
```

```
Query OK, 1 row affected (0.09 sec)
```

```
mysql> insert into Certified values('EM107', 'IA101');
```

```
Query OK, 1 row affected (0.09 sec)
```

```
mysql> insert into Certified values('EM106', 'IA105');
```

```
Query OK, 1 row affected (0.10 sec)
```

```
mysql> insert into Certified values('EM110', 'JA104');
```

```
Query OK, 1 row affected (0.09 sec)
```

```
mysql> insert into Certified values('EM109', 'SA106');
```

```
Query OK, 1 row affected (0.09 sec)
```

```
mysql> insert into Certified values('EM103', 'SJ102');
```

```
Query OK, 1 row affected (0.10 sec)
```

```
mysql> select * from Certified;
```

```
+-----+-----+
| eid    | aid    |
+-----+-----+
| EM101  | DA103  |
| EM103  | SJ102  |
| EM106  | IA105  |
| EM107  | IA101  |
| EM109  | SA106  |
| EM110  | JA104  |
+-----+-----+
```

```
6 rows in set (0.00 sec)
```

## Queries

**(a) Identify the flights that can be piloted by every pilot whose salary more than Rs. 1,00,000**

```
mysql> select a.aname
```

```
-> from Aircraft a, Certified c, Employees e
```

```
-> where a.aid = c.aid
```

```
-> and e.eid = c.eid
```

```
-> and e.salary > 100000;
```

```
+-----+
| aname      |
+-----+
| Deccan Airlines |
| Spice Jet      |
| Indian Airlines |
+-----+
```

```
3 rows in set (0.00 sec)
```

**(b) List the names and salary of the employees whose salary is more than average salary.**

```
mysql> select e.ename, e.salary
```

```
-> from Aircraft a, Certified c, Employees e
```

```
-> where a.aid = c.aid
```

```
-> and e.eid = c.eid
```

```
-> and exists (
```

```
-> select * from Employees e1
```

```
-> where e1.eid = e.eid
```

-> and e1.salary > (select avg(salary) from Employees));

ename	salary
Noorain Aziza	150000
Mouli Dutta	160000
Preetha Chakraborty	180000

3 rows in set (0.02 sec)

**(c) For all aircraft with the crushing range over 1000 miles, find the names of the aircraft and average salary for pilots.**

```
mysql> select a.aname, avg(salary)
-> from Aircraft a, Certified c, Employees e
-> where a.aid = c.aid
-> and e.eid = c.eid
-> and a.crushing_range > 1000
-> group by a.aname;
```

aname	avg(salary)
Deccan Airlines	150000.0000
Indian Airlines	115000.0000
Sahara	70000.0000
Jet Airways	80000.0000

4 rows in set (0.00 sec)

**(d) Find The names of pilots who can operate planes with a range greater than 3000 miles but not certified on any 'BOYING' aircraft.**

```
mysql> select e.ename
-> from Employees e, Aircraft a, Certified c
-> where e.eid = c.eid
-> and a.aid = c.aid
-> and exists (
-> select * from Aircraft a1
-> where a1.aid = a.aid
-> and a1.crushing_range > 3000
-> and a1.aname not like 'BOYING%');
```

ename
Preetha Chakraborty
Abir Poddar

2 rows in set (0.00 sec)