B. M. S. COLLEGE OF ENGINEERING, BENGALURU

Autonomous Institute, Affiliated to VTU

DEPARTMENT OF CSE
2021

Lab Report of Database Management System

Database Management System - 19CS4PCDBM

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Semester: 4

Lab Program 1: Insurance Database

Code:

```
create
database
insurance;
             use insurance;


             create table person(
                    driver_id varchar(10),
                 name varchar(20),
                    address varchar(30),
                    primary key(driver_id)
             );


             desc person;


             create table car(
                    reg_num varchar(10),
                    model varchar(10),
                    year int,
                    primary key(reg_num)
             );


             desc car;


             create table accident(
                    report_num int,
                    accident_date date,
                    location varchar(20),
                    primary key(report_num)
             );
```

```
create table owns(
	driver_id varchar(10),
	reg_num varchar(10),
	primary key(driver_id,reg_num),
	foreign key(driver_id) references person(driver_id),
	foreign key(reg_num) references car(reg_num)
);


desc owns;


create table participated(
	driver_id varchar(10),
	reg_num varchar(10),
	report_num int,
	damage_amount int,
	primary key(driver_id,reg_num,report_num),
	foreign key(driver_id) references person(driver_id),
	foreign key(reg_num) references car(reg_num),
	foreign key(report_num) references accident(report_num)
);


desc participated;


insert into person values('A01','Raghu','Electronic City');
insert into person values('A02','Rishab','Orange County');
insert into person values('A03','Rufus','NR Colony');
insert into person values('A04','Jamal','Lawrence Park');
insert into person values('A05','Kevin','Rosedale');


commit;


select * from person;


insert into car values('KA031111','Accord',2005);
insert into car values('KA041122','MX-5',2019);
insert into car values('KA051133','Indica',2010);
insert into car values('KA061144','Prius',2015);
insert into car values('KA071155','Camry',2020);
commit;
```

```
insert into accident values(111,'2020-01-01','NR Road');
insert into accident values(122,'2020-02-02','Dalhousie Road');
insert into accident values(133,'2020-03-03','Henry Road');
insert into accident values(144,'2020-04-04','Beehive Road');
insert into accident values(155,'2020-05-05','Orange Street');
commit;
```

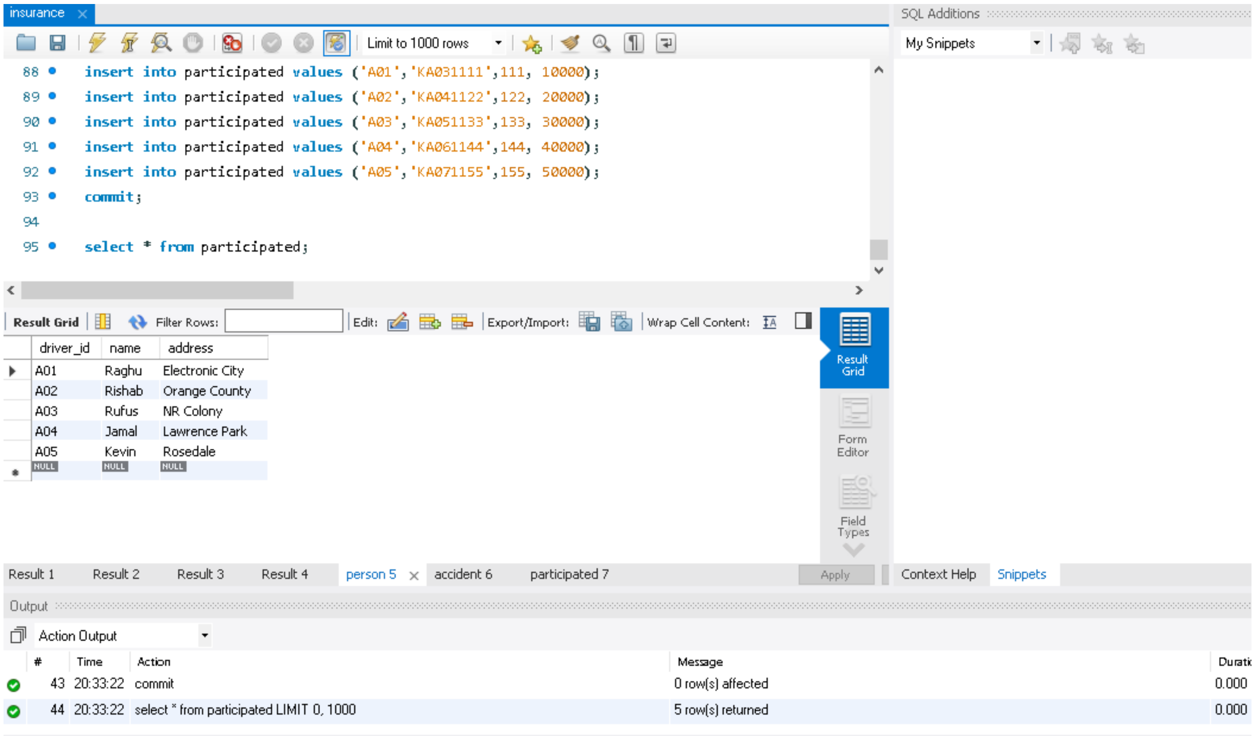
```
select * from accident;
```

```
insert into owns values ('A01','KA031111');
insert into owns values ('A02','KA041122');
insert into owns values ('A03','KA051133');
insert into owns values ('A04','KA061144');
insert into owns values ('A05','KA071155');
commit;
```

```
insert into participated values ('A01','KA031111',111, 10000);
insert into participated values ('A02','KA041122',122, 20000);
insert into participated values ('A03','KA051133',133, 30000);
insert into participated values ('A04','KA061144',144, 40000);
insert into participated values ('A05','KA071155',155, 50000);
commit;
```

```
select * from participated;
```

Output:

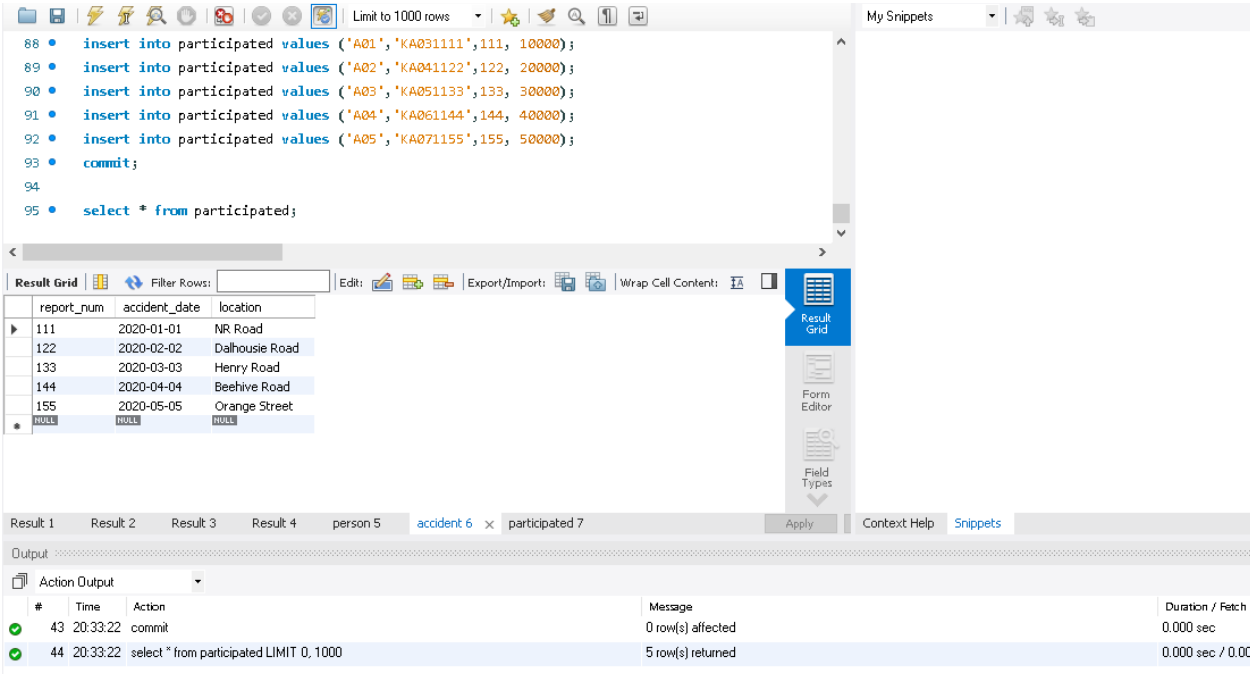


```
insert into participated values ('A01','KA031111',111, 10000);
insert into participated values ('A02','KA041122',122, 20000);
insert into participated values ('A03','KA051133',133, 30000);
insert into participated values ('A04','KA061144',144, 40000);
insert into participated values ('A05','KA071155',155, 50000);
commit;

select * from participated;
```

driver_id	name	address
A01	Raghu	Electronic City
A02	Rishab	Orange County
A03	Rufus	NR Colony
A04	Jamal	Lawrence Park
A05	Kevin	Rosedale
NULL	NULL	NULL

#	Time	Action	Message	Durati
43	20:33:22	commit	0 row(s) affected	0.000
44	20:33:22	select * from participated LIMIT 0, 1000	5 row(s) returned	0.000

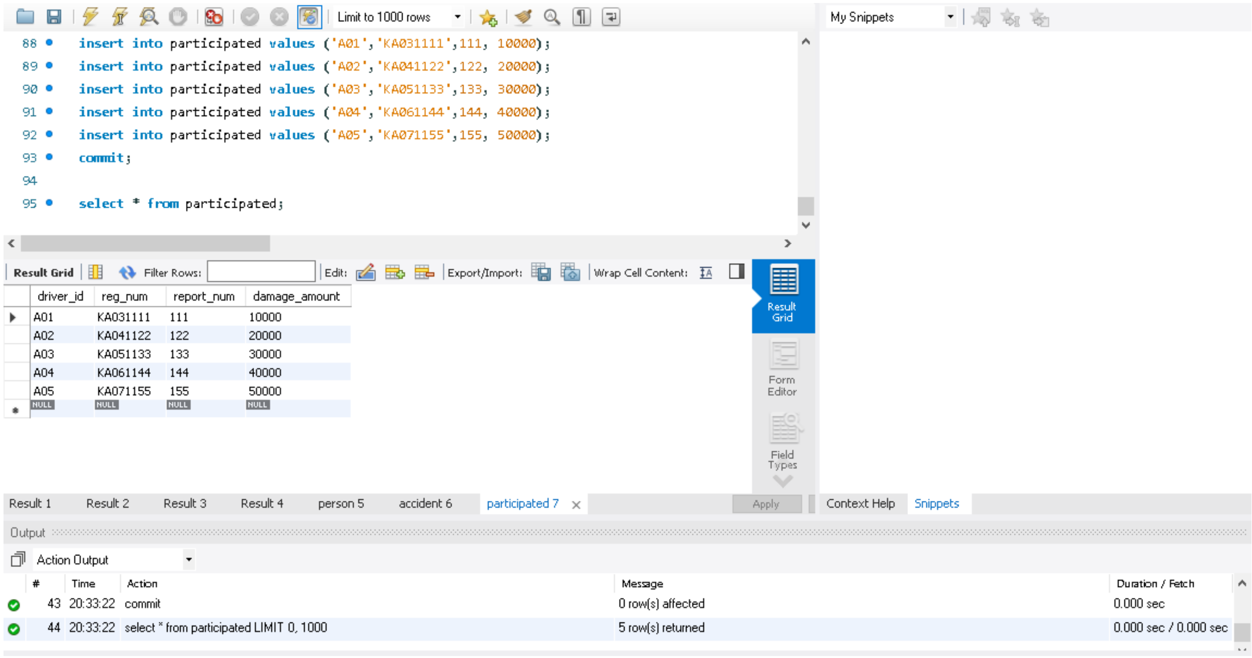


```
insert into participated values ('A01','KA031111',111, 10000);
insert into participated values ('A02','KA041122',122, 20000);
insert into participated values ('A03','KA051133',133, 30000);
insert into participated values ('A04','KA061144',144, 40000);
insert into participated values ('A05','KA071155',155, 50000);
commit;

select * from participated;
```

report_num	accident_date	location
111	2020-01-01	NR Road
122	2020-02-02	Dalhousie Road
133	2020-03-03	Henry Road
144	2020-04-04	Beehive Road
155	2020-05-05	Orange Street
NULL	NULL	NULL

#	Time	Action	Message	Duration / Fetch
43	20:33:22	commit	0 row(s) affected	0.000 sec
44	20:33:22	select * from participated LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.00



```
insert into participated values ('A01','KA031111',111, 10000);
insert into participated values ('A02','KA041122',122, 20000);
insert into participated values ('A03','KA051133',133, 30000);
insert into participated values ('A04','KA061144',144, 40000);
insert into participated values ('A05','KA071155',155, 50000);
commit;

select * from participated;
```

driver_id	reg_num	report_num	damage_amount
A01	KA031111	111	10000
A02	KA041122	122	20000
A03	KA051133	133	30000
A04	KA061144	144	40000
A05	KA071155	155	50000
NULL	NULL	NULL	NULL

```
#   Time      Action                                  Message              Duration / Fetch
43  20:33:22  commit                                  0 row(s) affected    0.000 sec
44  20:33:22  select * from participated LIMIT 0, 1000   5 row(s) returned    0.000 sec / 0.000 sec
```

Lab Program 2: Banking Database

Code:

```
 create
 database
 bank;
            use bank;
            create table Branch(branchname varchar(30),branchcity varchar(30),assets
            real,primary key(branchname));
            desc Branch;
            create table BankAccount(accno int,branchname varchar(30),balance real,primary
            key(accno),foreign key(branchname) references Branch(branchname));
            desc BankAccount;
            create table BankCustomer(customername varchar(30), customerstreet varchar(30),
            customercity varchar(30), primary key(customername));
            desc BankCustomer;
```

```
create table Depositer(customername varchar(30),accno integer, primary
key(customername,accno),foreign key(customername) references
BankCustomer(customername), foreign key(accno) references BankAccount (accno));
desc Depositer;
create table Loan (loannumber int, branchname varchar(30),amount real, primary
key(loannumber), foreign key (branchname) references Branch(branchname));
desc Loan;


insert into Branch values('SBI_Chamrajpet','Bangalore',50000);
insert into Branch values('SBI_ResidencyRoad','Bangalore',10000);
insert into Branch values('SBI_ShivajiRoad','Bombay',20000);
insert into Branch values('SBI_ParlimentRoad','Delhi',10000);
insert into Branch values('SBI_Jantarmantar','Delhi',20000);
commit;
select * from Branch;


insert into Loan values(1, 'SBI_Chamrajpet',1000);
insert into Loan values(2, 'SBI_ResidencyRoad',2000);
insert into Loan values(3, 'SBI_ShivajiRoad',3000);
insert into Loan values(4, 'SBI_ParlimentRoad',4000);
insert into Loan values(5, 'SBI_Jantarmantar',5000);
commit;
select * from Loan;




insert into BankAccount values(1,'SBI_Chamrajpet',2000);
insert into BankAccount values(2,'SBI_ResidencyRoad',5000);
insert into BankAccount values(3,'SBI_ShivajiRoad',6000);
insert into BankAccount values(4,'SBI_ParlimentRoad',9000);
insert into BankAccount values(5,'SBI_Jantarmantar',8000);
insert into BankAccount values(6,'SBI_ShivajiRoad',4000);
insert into BankAccount values(8,'SBI_ResidencyRoad',4000);
insert into BankAccount values(9,'SBI_ParlimentRoad',3000);
insert into BankAccount values(10,'SBI_ResidencyRoad',5000);
insert into BankAccount values(11,'SBI_Jantarmantar',2000);
commit;
select * from BankAccount;
```

```
insert into BankCustomer values("Avinash","Bull_Temple_Road","Bangalore");
insert into BankCustomer values("Dinesh","Bannergatta_Road","Bangalore");
insert into BankCustomer values("Mohan","NationalCollege_Road","Bangalore");
insert into BankCustomer values("Nikil","Akbar_Road","Delhi");
insert into BankCustomer values("Ravi","Prithiviraj_Road","Delhi");
commit;
select * from BankCustomer;
```

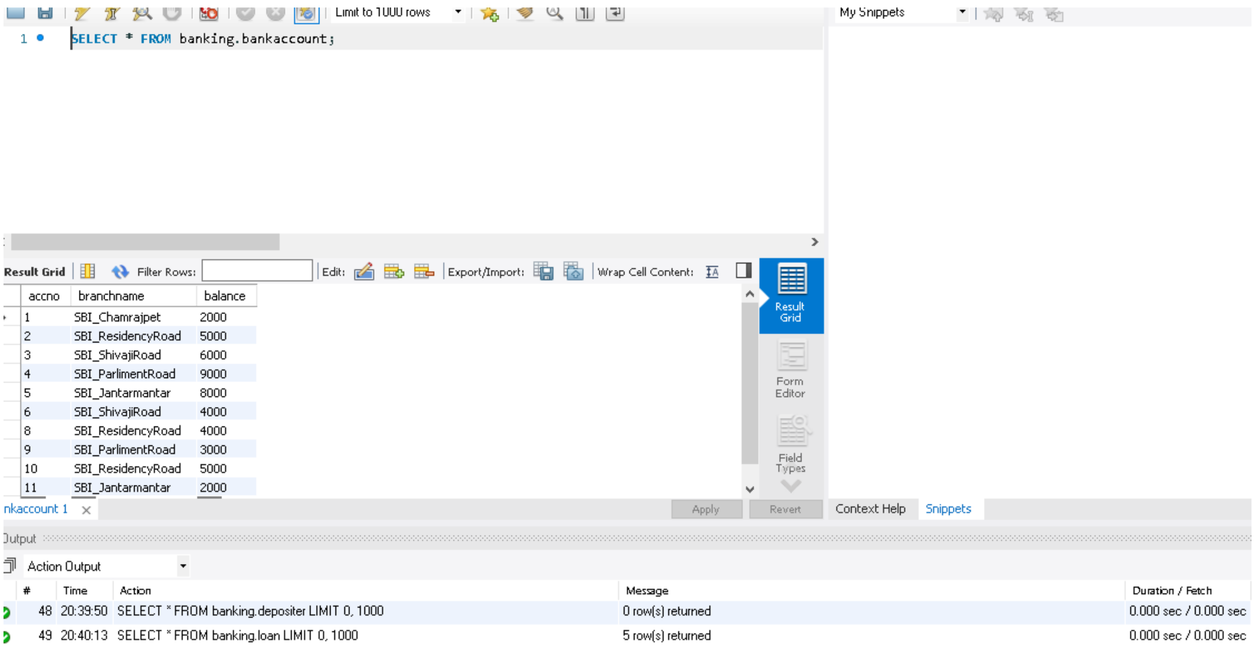
```
insert into Depositer values("Avinash",1);
insert into Depositer values("Dinesh",2);
insert into Depositer values("Nikil",4);
insert into Depositer values("Ravi",5);
insert into Depositer values("Avinash",8);
insert into Depositer values("Nikil",9);
insert into Depositer values("Dinesh",10);
insert into Depositer values("Nikil",11);
commit;
select * from Depositer;
```

```
SELECT c.customername FROM BankCustomer c WHERE EXISTS(SELECT
d.customername,COUNT(d.customername) FROM Depositer d, BankAccount ba WHERE
d.accno=ba.accno AND c.customername=d.customername AND
ba.branchname='SBI_ResidencyRoad' GROUP BY d.customername HAVING
COUNT(d.customername)>=2);
```

```
select BC.customername from BankCustomer BC where not exists( select branchname
from Branch where branchcity='Delhi'
and not exists (select BA.branchname from Depositer D, BankAccount BA where
D.accno=BA.accno and BC.customername=D.customername));
```

```
DELETE FROM BankAccount WHERE branchname IN (SELECT branchname FROM BRANCH
WHERE branchcity='Bombay');
select * from BankAccount;
```

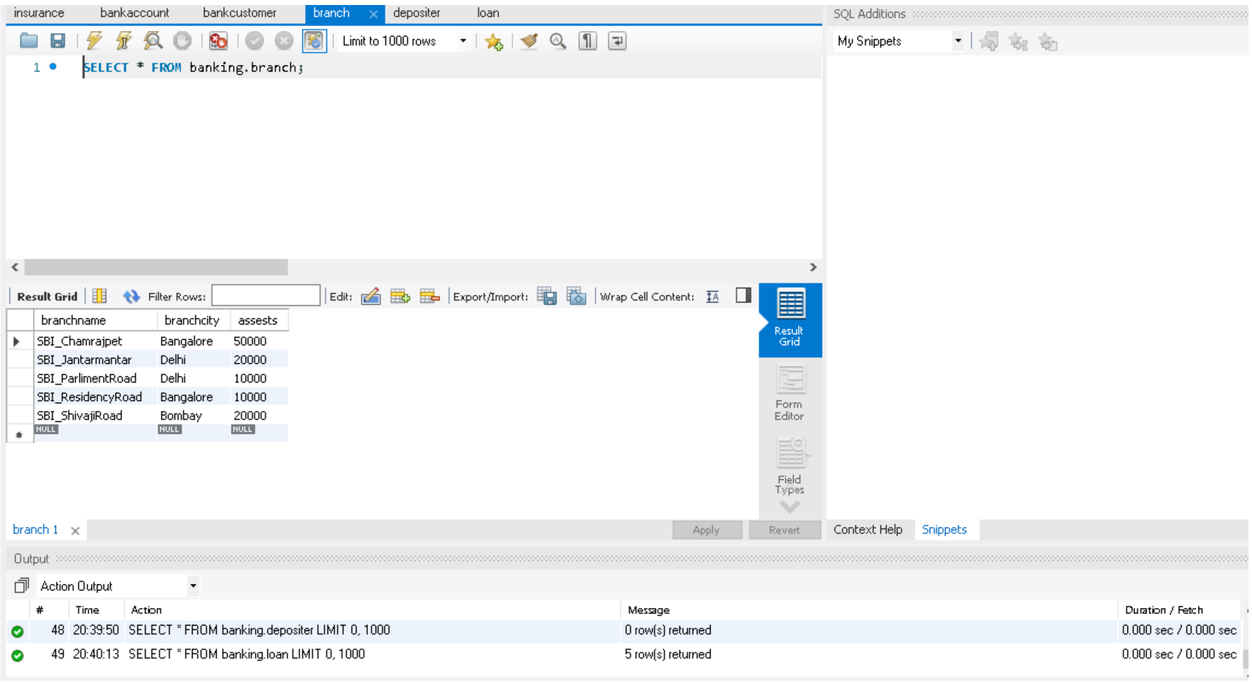
Output:



```
1 ● SELECT * FROM banking.bankaccount;
```

accno	branchname	balance
1	SBI_Chamrajpet	2000
2	SBI_ResidencyRoad	5000
3	SBI_ShivajiRoad	6000
4	SBI_ParlimentRoad	9000
5	SBI_Jantarmantar	8000
6	SBI_ShivajiRoad	4000
8	SBI_ResidencyRoad	4000
9	SBI_ParlimentRoad	3000
10	SBI_ResidencyRoad	5000
11	SBI_Jantarmantar	2000

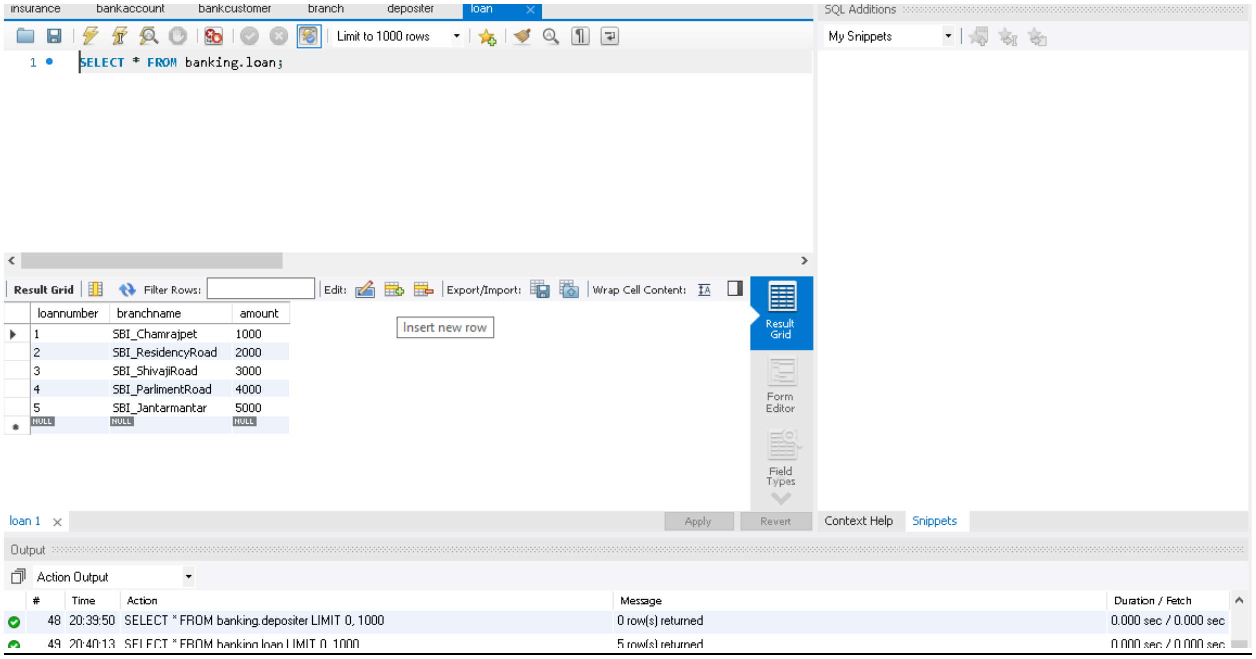
```
#   Time      Action                                      Message              Duration / Fetch
48  20:39:50  SELECT * FROM banking.depositer LIMIT 0, 1000   0 row(s) returned   0.000 sec / 0.000 sec
49  20:40:13  SELECT * FROM banking.loan LIMIT 0, 1000        5 row(s) returned   0.000 sec / 0.000 sec
```



```
1 ● SELECT * FROM banking.branch;
```

branchname	branchcity	assests
SBI_Chamrajpet	Bangalore	50000
SBI_Jantarmantar	Delhi	20000
SBI_ParlimentRoad	Delhi	10000
SBI_ResidencyRoad	Bangalore	10000
SBI_ShivajiRoad	Bombay	20000
NULL	NULL	NULL

```
#   Time      Action                                      Message              Duration / Fetch
48  20:39:50  SELECT * FROM banking.depositer LIMIT 0, 1000   0 row(s) returned   0.000 sec / 0.000 sec
49  20:40:13  SELECT * FROM banking.loan LIMIT 0, 1000        5 row(s) returned   0.000 sec / 0.000 sec
```



```
SELECT * FROM banking.loan;
```

loannumber	branchname	amount
1	SBI_Chamrajpet	1000
2	SBI_ResidencyRoad	2000
3	SBI_ShivajiRoad	3000
4	SBI_ParlimentRoad	4000
5	SBI_Jantarmantar	5000
NULL	NULL	NULL

```
#   Time      Action                                      Message            Duration / Fetch
48  20:39:50  SELECT * FROM banking.depositer LIMIT 0, 1000  0 row(s) returned  0.000 sec / 0.000 sec
49  20:40:13  SELECT * FROM banking.loan LIMIT 0, 1000       5 row(s) returned  0.000 sec / 0.000 sec
```

Lab Program 3: Supplier Database

Code:

```
create
database
Supplier;
      use Supplier;


      create table SUPPLIERS (
      sid integer
      primary key,
      sname varchar(20),
      city varchar(20)
      );


      desc SUPPLIERS;
```

```
create table PARTS(
pid integer primary key,
pname varchar(20),
color varchar(10)
);


desc PARTS;


create table CATALOG (
sid integer,
pid integer,
foreign key(sid) references SUPPLIERS(sid),
foreign key(pid) references PARTS(pid),
cost float(6),
primary key(sid,pid)
);


desc CATALOG;




insert into suppliers value (10001,'Acme Widget','Bangalore');
insert into suppliers value (10002,'Johns','Kolkata');
insert into suppliers value (10003,'Vimal','Mumbai');
insert into suppliers value (10004,'Reliance','Delhi');
insert into suppliers value(10005,'Mahindra','Mumbai');


select * from SUPPLIERS;


commit;


insert into PARTS values(20001,'Book','Red');
insert into PARTS values(20002,'Pen','Red');
insert into PARTS values(20003,'Pencil','Green');
insert into PARTS values(20004,'Mobile','Green');
insert into PARTS values(20005,'Charger','Black');


select * from PARTS;


commit;


insert into CATALOG values(10001,'20001','10');
insert into CATALOG values(10001,'20002','10');
insert into CATALOG values(10001,'20003','30');
insert into CATALOG values(10001,'20004','10');
insert into CATALOG values(10001,'20005','10');


insert into CATALOG values(10002,'20001','10');
insert into CATALOG values(10002,'20002','20');


insert into CATALOG values(10003,'20003','30');


insert into CATALOG values(10004,'20003','40');


select * from CATALOG;

 commit;


 -- i. Find the pnames of parts for which there is some supplier.


insert into parts values(5,'tiles','blue');
select p.pname from parts p where p.pid in
 (select pid from catalog c group by c.pid having count(c.sid)>0);
insert into catalog values(1,5,140);
select p.pname from parts p where p.pid in
 (select pid from catalog c group by c.pid having count(c.sid)>0);
delete from catalog where pid=5;
delete from parts where pid=5;
```

```sql
-- ii. Find the snames of suppliers who supply every part.


select s.sname from suppliers s where s.sid in
(select c.sid from catalog c
group by c.sid having count(distinct (c.pid))=(select count(p.pid) from parts
p));




-- iii. Find the snames of suppliers who supply every red part.


select s.sname from suppliers s where s.sid in
 (select ca.sid  from catalog ca,
 parts p where ca.pid=p.pid and p.color='red'
 group by ca.sid having count(ca.pid)=(select count(*) from parts p where
p.color='red'));






-- iv. Find the pnames of parts supplied by Acme Widget Suppliers and by no one
else.


select ca.pid from catalog ca
 where ca.sid=(select s.sid from suppliers s where s.sname ='Acme Widget')
 having (select count(c.pid) from catalog c where c.pid=ca.pid)=1;
```

```
-- v. Find the sids of suppliers who charge more for some part than the average
cost of that part (averaged over
-- all the suppliers who supply that part).


select distinct c.sid,
c.pid from catalog c where c.cost > (select avg(ca.cost)
 from catalog ca where ca.pid=c.pid);
```

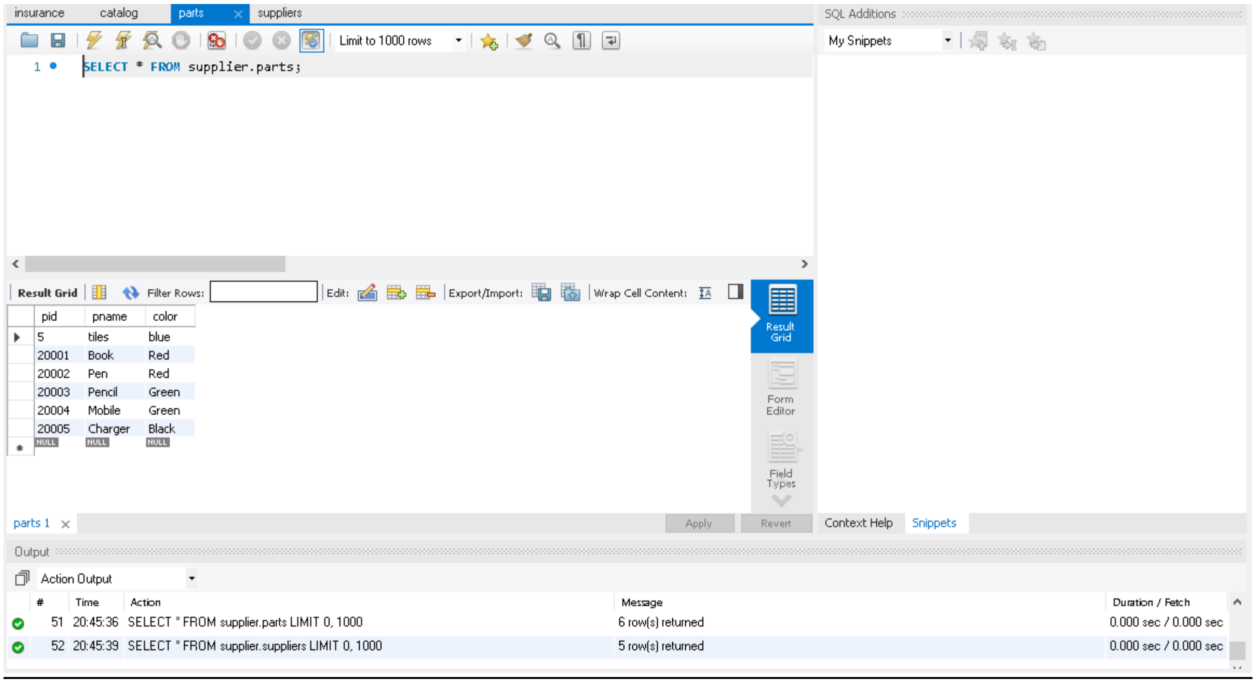
```
-- vi. For each part, find the sname of the supplier who charges the most for
that part.


select s.sname from suppliers s where s.sid in
(select c.sid from catalog c where c.cost=(select max(cost) from catalog ca
where ca.pid=c.pid));
```

```
-- vii. select supplier who sell only red parts


select s.sname from suppliers s where s.sid in(select c.sid from catalog c
where c.sid not in (select distinct(ca.sid) from catalog ca,parts p where
ca.pid=p.pid and p.color!='red'));
insert into catalog values(5,1,140);
select s.sname from suppliers s where s.sid in(select c.sid from catalog c
where c.sid not in (select distinct(ca.sid) from catalog ca,parts p where
ca.pid=p.pid and p.color!='red'));
delete from catalog where sid=5;
```

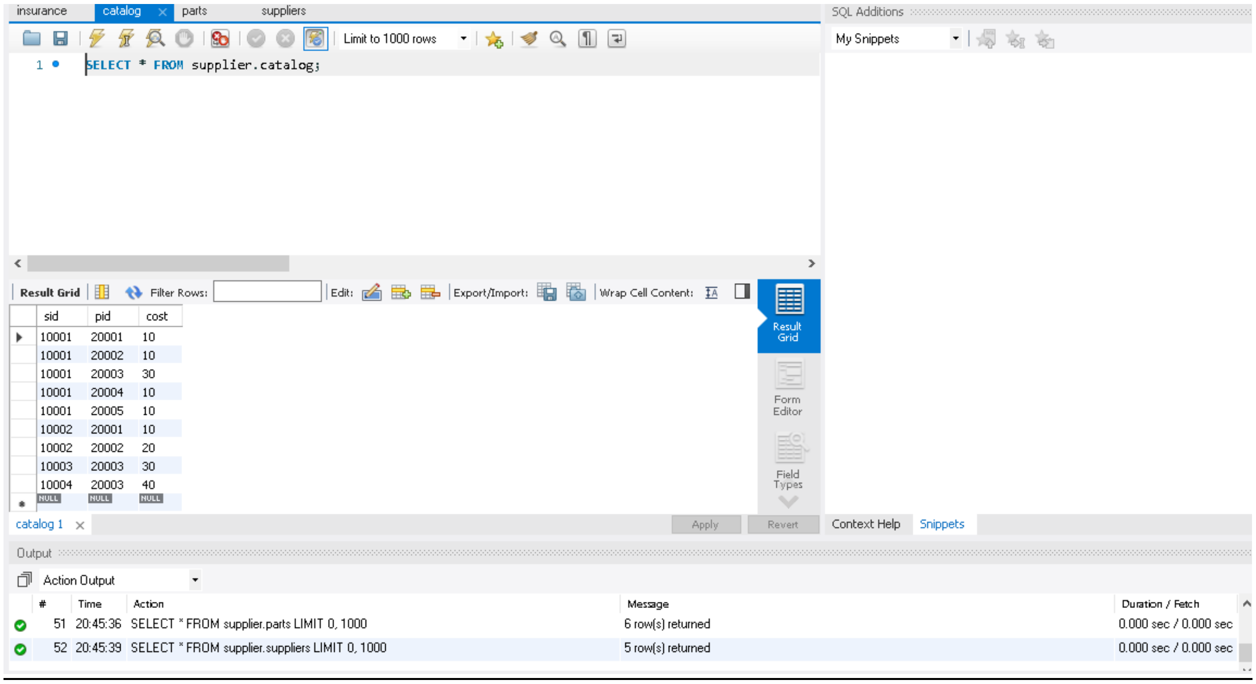
Output:



```
SELECT * FROM supplier.parts;
```

pid	pname	color
5	tiles	blue
20001	Book	Red
20002	Pen	Red
20003	Pencil	Green
20004	Mobile	Green
20005	Charger	Black
NULL	NULL	NULL

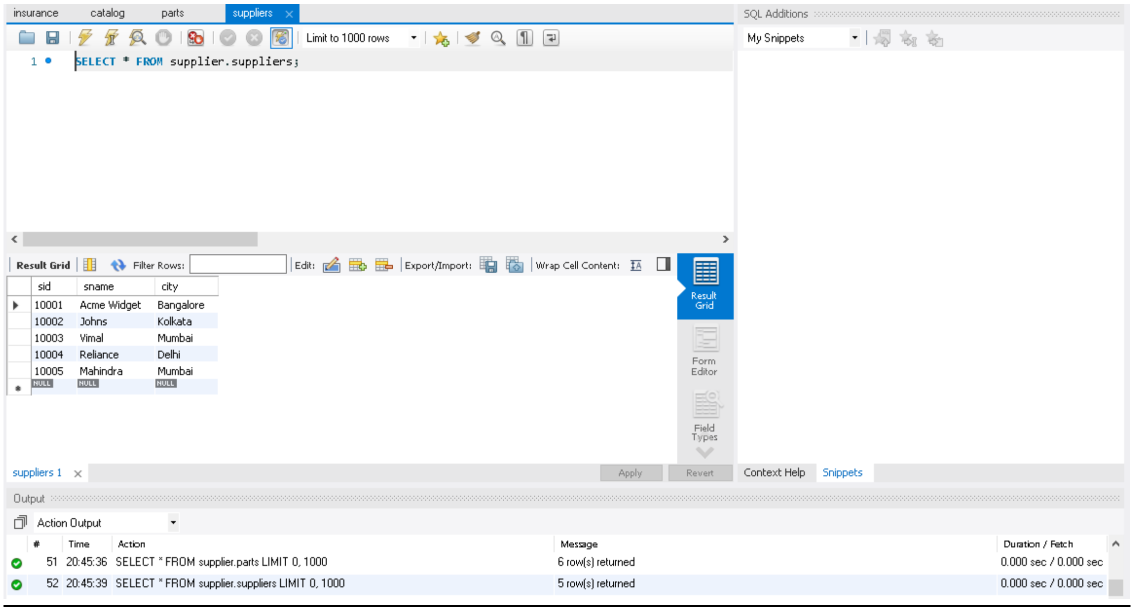
#	Time	Action	Message	Duration / Fetch
51	20:45:36	SELECT * FROM supplier.parts LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
52	20:45:39	SELECT * FROM supplier.suppliers LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec



```
SELECT * FROM supplier.catalog;
```

sid	pid	cost
10001	20001	10
10001	20002	10
10001	20003	30
10001	20004	10
10001	20005	10
10002	20001	10
10002	20002	20
10003	20003	30
10004	20003	40
NULL	NULL	NULL

```
#   Time      Action                                         Message            Duration / Fetch
51  20:45:36  SELECT * FROM supplier.parts LIMIT 0, 1000     6 row(s) returned  0.000 sec / 0.000 sec
52  20:45:39  SELECT * FROM supplier.suppliers LIMIT 0, 1000 5 row(s) returned  0.000 sec / 0.000 sec
```



```
SELECT * FROM supplier.suppliers;
```

sid	sname	city
10001	Acme Widget	Bangalore
10002	Johns	Kolkata
10003	Vimal	Mumbai
10004	Reliance	Delhi
10005	Mahindra	Mumbai
NULL	NULL	NULL

```
#   Time      Action                                         Message            Duration / Fetch
51  20:45:36  SELECT * FROM supplier.parts LIMIT 0, 1000     6 row(s) returned  0.000 sec / 0.000 sec
52  20:45:39  SELECT * FROM supplier.suppliers LIMIT 0, 1000 5 row(s) returned  0.000 sec / 0.000 sec
```

Lab Program 4: Student Faculty Database

Code:

```
create database
student_faculty;
                   use student_faculty;


                   create table student(
                   snum INT,
                    sname VARCHAR(10),
                    major VARCHAR(2),
                    lvl VARCHAR(2),
                    age INT,
                    primary key(snum));


                   desc student;
```

```
create table faculty(
fid INT,
fname VARCHAR(20),
deptid INT,
PRIMARY KEY(fid));


desc faculty;


CREATE TABLE class(
cname VARCHAR(20),
metts_at TIMESTAMP,
room VARCHAR(10),
fid INT,
PRIMARY KEY(cname),
FOREIGN KEY(fid) REFERENCES faculty(fid));


desc class;


CREATE TABLE enrolled(
snum INT,
cname VARCHAR(20),
PRIMARY KEY(snum,cname),
FOREIGN KEY(snum) REFERENCES student(snum),
FOREIGN KEY(cname) REFERENCES class(cname));


desc enrolled;


INSERT INTO STUDENT VALUES(1, 'John', 'CS', 'Sr', 19);
INSERT INTO STUDENT VALUES(2, 'Smith', 'CS', 'Jr', 20);
INSERT INTO STUDENT VALUES(3 , 'Jacob', 'CV', 'Sr', 20);
INSERT INTO STUDENT VALUES(4, 'Tom ', 'CS', 'Jr', 20);
INSERT INTO STUDENT VALUES(5, 'Rahul', 'CS', 'Jr', 20);
INSERT INTO STUDENT VALUES(6, 'Rita', 'CS', 'Sr', 21);
commit;


select * from student;
```

```
INSERT INTO FACULTY VALUES(11, 'Harish', 1000);
INSERT INTO FACULTY VALUES(12, 'MV', 1000);
INSERT INTO FACULTY VALUES(13 , 'Mira', 1001);
INSERT INTO FACULTY VALUES(14, 'Shiva', 1002);
INSERT INTO FACULTY VALUES(15, 'Nupur', 1000);
commit;


select * from faculty;


insert into class values('class1', '12/11/15 10:15:16', 'R1', 14);
insert into class values('class10', '12/11/15 10:15:16', 'R128', 14);
insert into class values('class2', '12/11/15 10:15:20', 'R2', 12);
insert into class values('class3', '12/11/15 10:15:25', 'R3', 11);
insert into class values('class4', '12/11/15 20:15:20', 'R4', 14);
insert into class values('class5', '12/11/15 20:15:20', 'R3', 15);
 insert into class values('class6', '12/11/15 13:20:20', 'R2', 14);
insert into class values('class7', '12/11/15 10:10:10', 'R3', 14);
commit;


select * from class;


insert into enrolled values(1, 'class1');
insert into enrolled values(2, 'class1');
insert into enrolled values(3, 'class3');
insert into enrolled values(4, 'class3');
insert into enrolled values(5, 'class4');
 insert into enrolled values(1, 'class5');
 insert into enrolled values(2, 'class5');
 insert into enrolled values(3, 'class5');
 insert into enrolled values(4, 'class5');
insert into enrolled values(5, 'class5');
commit;


select * from enrolled;
```

```
SELECT DISTINCT S.Sname
FROM Student S, Class C, Enrolled E, Faculty F
WHERE S.snum = E.snum AND E.cname = C.cname AND C.fid = F.fid AND
F.fname = 'Harish' AND S.lvl = 'Jr';
```

```
SELECT C.cname
FROM class C
WHERE C.room = 'R128'
OR C.cname IN (SELECT E.cname
              FROM enrolled E
              GROUP BY E.cname
              HAVING COUNT(*) >= 5);
```

```
SELECT DISTINCT S.sname
FROM student S
WHERE S.snum IN (SELECT E1.snum
FROM enrolled E1, enrolled E2, class C1, class C2
WHERE E1.snum = E2.snum AND E1.cname <> E2.cname
AND E1.cname = C1.cname
AND E2.cname = C2.cname AND C1.metts_at = C2.metts_at);
```

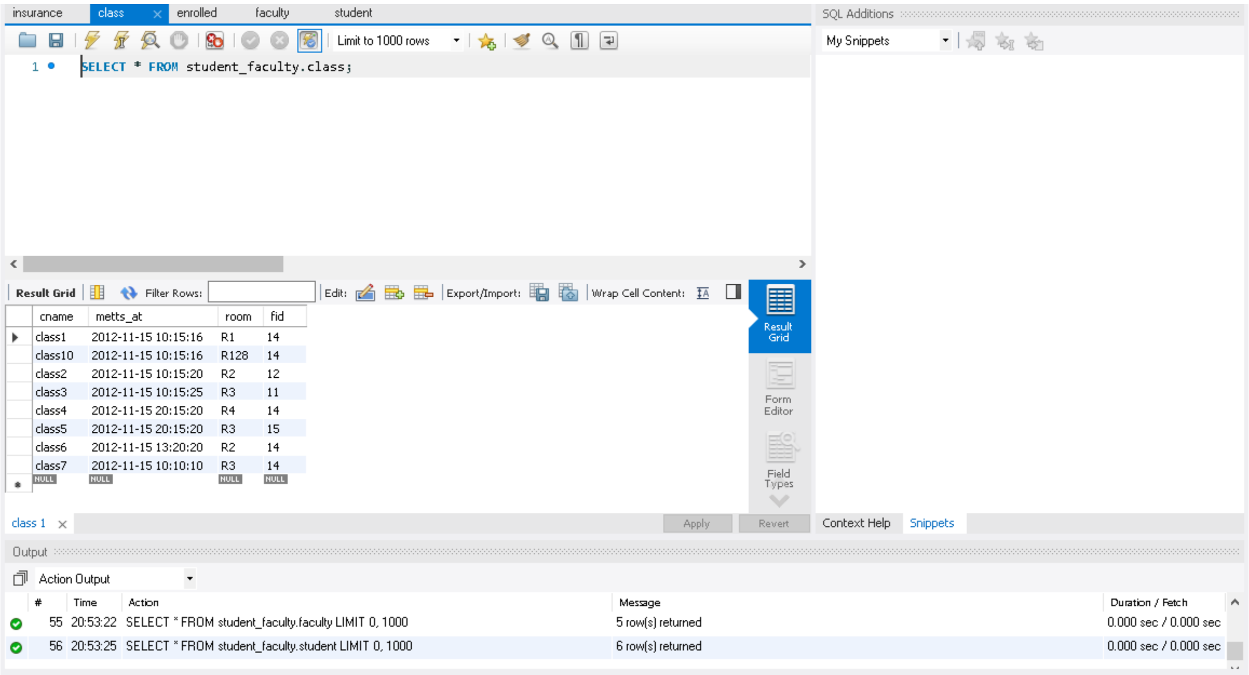
```
SELECT f.fname,f.fid
FROM faculty f
WHERE f.fid in ( SELECT fid FROM class
GROUP BY fid HAVING COUNT(*)=(SELECT COUNT(DISTINCT room) FROM class) );
```

```
SELECT DISTINCT F.fname
FROM faculty F
WHERE 5 > (SELECT COUNT(E.snum)
FROM class C, enrolled E
WHERE C.cname = E.cname
AND C.fid = F.fid);
```

```
SELECT DISTINCT S.sname
FROM Student S
WHERE S.snum NOT IN (SELECT E.snum
FROM Enrolled E );
```

```
select distinct(st.age),st.lvl from student st
where st.lvl = (select s.lvl from student s
where s.age=st.age  group by s.lvl order by count(s.lvl) desc limit 1);
```

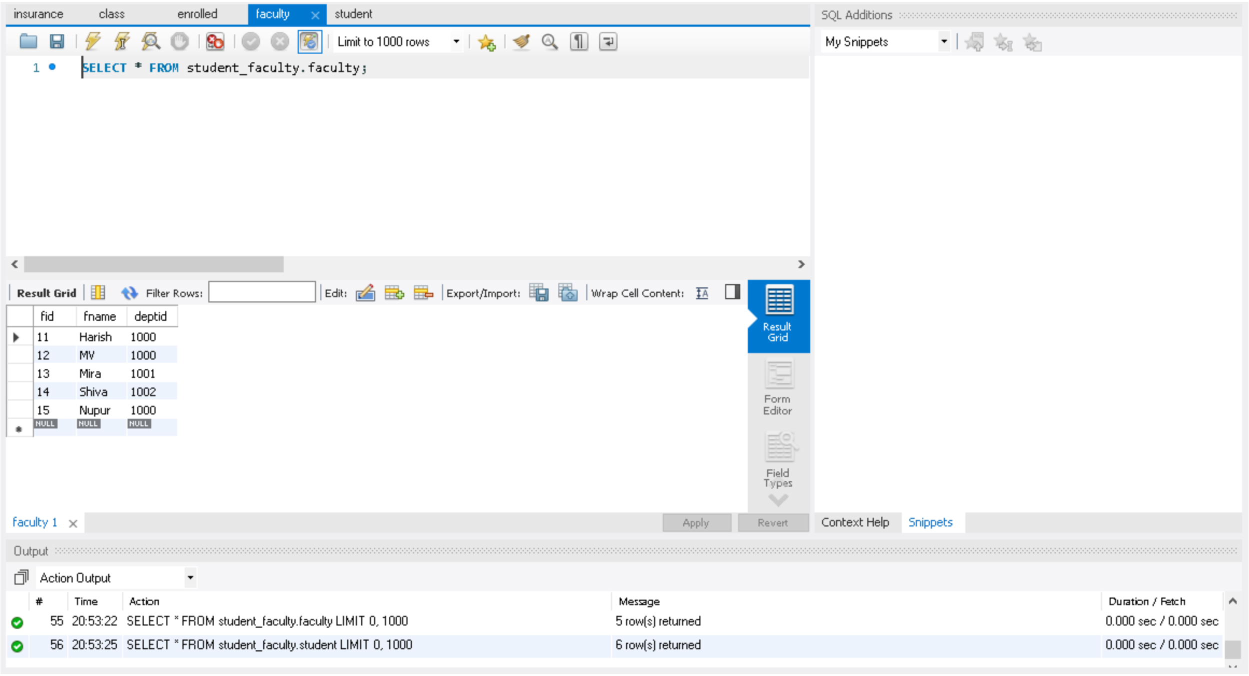
Output:



```
SELECT * FROM student_faculty.class;
```

cname	metts_at	room	fid
class1	2012-11-15 10:15:16	R1	14
class10	2012-11-15 10:15:16	R128	14
class2	2012-11-15 10:15:20	R2	12
class3	2012-11-15 10:15:25	R3	11
class4	2012-11-15 20:15:20	R4	14
class5	2012-11-15 20:15:20	R3	15
class6	2012-11-15 13:20:20	R2	14
class7	2012-11-15 10:10:10	R3	14
NULL	NULL	NULL	NULL

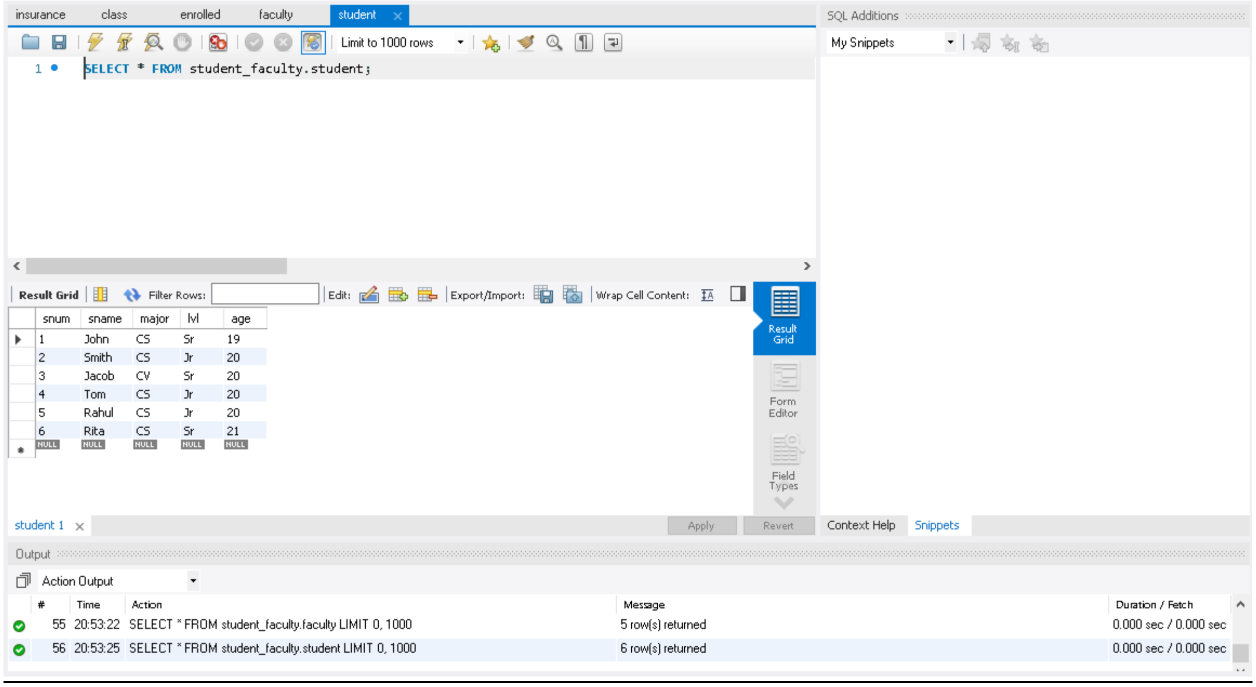
#	Time	Action	Message	Duration / Fetch
55	20:53:22	SELECT * FROM student_faculty.faculty LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
56	20:53:25	SELECT * FROM student_faculty.student LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec



```
SELECT * FROM student_faculty.faculty;
```

fid	fname	deptid
11	Harish	1000
12	MV	1000
13	Mira	1001
14	Shiva	1002
15	Nupur	1000
NULL	NULL	NULL

#	Time	Action	Message	Duration / Fetch
55	20:53:22	SELECT * FROM student_faculty.faculty LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
56	20:53:25	SELECT * FROM student_faculty.student LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec



```
SELECT * FROM student_faculty.student;
```

snum	sname	major	lvl	age
1	John	CS	Sr	19
2	Smith	CS	Jr	20
3	Jacob	CV	Sr	20
4	Tom	CS	Jr	20
5	Rahul	CS	Jr	20
6	Rita	CS	Sr	21
NULL	NULL	NULL	NULL	NULL

#	Time	Action	Message	Duration / Fetch
55	20:53:22	SELECT * FROM student_faculty.faculty LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
56	20:53:25	SELECT * FROM student_faculty.student LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec

Lab Program 5: Airline Database

Code:

```
create
database
airlineflight;
        use airlineflight;

         CREATE TABLE FLIGHTS (
         FLNO INTEGER PRIMARY KEY,
          FFROM VARCHAR(15),
          TTO VARCHAR(15),
          DISTANCE INTEGER,
          DEPARTS TIMESTAMP,
          ARRIVES TIME,
          PRICE INTEGER
          );
```

```
DESC FLIGHTS;


CREATE TABLE AIRCRAFT
  (AID INTEGER PRIMARY KEY,
  ANAME VARCHAR(10),
  CRUISINGRANGE INTEGER);

 DESC AIRCRAFT;


 CREATE TABLE EMPLOYEES
  (EID INTEGER PRIMARY KEY,
  ENAME VARCHAR(15),
  SALARY INTEGER );


DESC EMPLOYEES;


CREATE TABLE CERTIFIED
  (EID INTEGER NOT NULL,
  AID INTEGER NOT NULL,
  PRIMARY KEY (EID, AID),
  FOREIGN KEY (EID) REFERENCES EMPLOYEES (EID),
  FOREIGN KEY (AID) REFERENCES AIRCRAFT (AID));

 DESC CERTIFIED;
COMMIT;


insert into aircraft values(101,'747',3000);
insert into aircraft values(102,'Boeing',900);
insert into aircraft values(103,'647',800);
insert into aircraft values(104,'Dreamliner',10000);
insert into aircraft values(105,'Boeing',3500);
insert into aircraft values(106,'707',1500);
insert into aircraft values(107,'Dream', 120000);


select * from aircraft;
```

```
insert into employees values(701,'A',50000);
insert into employees values(702,'B',100000);
insert into employees values(703,'C',150000);
insert into employees values(704,'D',90000);
insert into employees values(705,'E',40000);
insert into employees values(706,'F',60000);
insert into employees values(707,'G',90000);


select * from employees;


insert into certified values(701,101);
insert into certified values(701,102);
insert into certified values(701,106);
insert into certified values(701,105);
insert into certified values(702,104);
insert into certified values(703,104);
insert into certified values(704,104);
insert into certified values(702,107);
insert into certified values(703,107);
insert into certified values(704,107);
insert into certified values(702,101);
insert into certified values(703,105);
insert into certified values(704,105);
insert into certified values(705,103);


select * from certified;


insert into flights values(101,'Bangalore','Delhi',2500,TIMESTAMP '2005-
05-13 07:15:31',TIMESTAMP '2005-05-13 17:15:31',5000);
insert into flights values(102,'Bangalore','Lucknow',3000,TIMESTAMP '2005-
05-13 07:15:31',TIMESTAMP '2005-05-13 11:15:31',6000);
insert into flights values(103,'Lucknow','Delhi',500,TIMESTAMP '2005-05-13
12:15:31',TIMESTAMP ' 2005-05-13 17:15:31',3000);
insert into flights values(107,'Bangalore','Frankfurt',8000,TIMESTAMP
'2005-05-13  07:15:31',TIMESTAMP '2005-05-13 22:15:31',60000);
insert into flights values(104,'Bangalore','Frankfurt',8500,TIMESTAMP
'2005-05-13 07:15:31',TIMESTAMP '2005-05-13 23:15:31',75000);
```

```sql
insert into flights values(105,'Kolkata','Delhi',3400,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP  '2005-05-13 09:15:31',7000);
```

```sql
select * from Flights;
```

```sql
SELECT DISTINCT A.aname
FROM Aircraft A
WHERE A.Aid IN (SELECT C.aid
 FROM Certified C, Employees E
 WHERE C.eid = E.eid AND
 NOT EXISTS ( SELECT *
 FROM Employees E1
 WHERE E1.eid = E.eid AND E1.salary <80000 ));
```

```sql
SELECT C.eid, MAX(A.cruisingrange)
FROM Certified C, Aircraft A
WHERE C.aid = A.aid
GROUP BY C.eid
HAVING COUNT(*) > 3;
```

```sql
SELECT DISTINCT E.ename
FROM Employees E
WHERE E.salary <( SELECT MIN(F.price)
                      FROM Flights F
                      WHERE F.ffrom = 'Bangalore' AND F.tto = 'Frankfurt'
);
```

```
SELECT Temp.name, Temp.AvgSalary
FROM ( SELECT A.aid, A.aname AS name, AVG (E.salary) AS AvgSalary
 FROM Aircraft A, Certified C, Employees E
 WHERE A.aid = C.aid AND C.eid = E.eid AND A.cruisingrange > 1000
 GROUP BY A.aid, A.aname )  Temp;
```

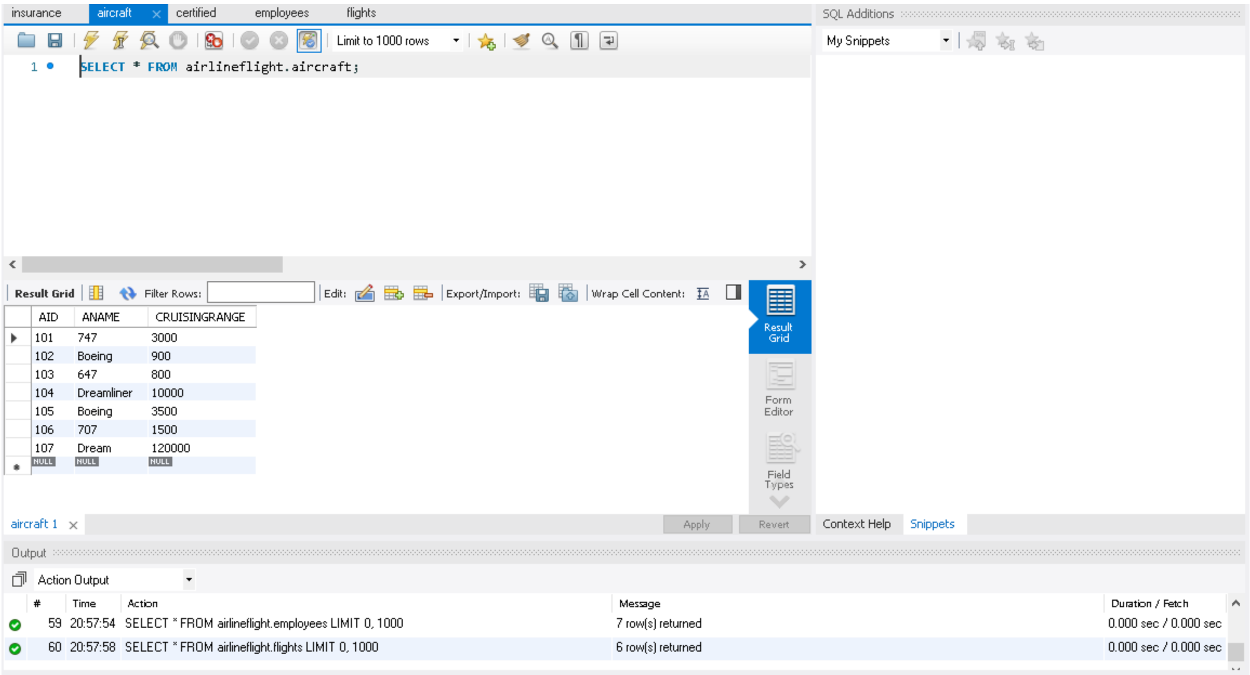
```
SELECT DISTINCT E.ename
FROM Employees E, Certified C, Aircraft A
WHERE E.eid = C.eid AND C.aid = A.aid AND A.aname LIKE 'Boeing%';
```

```
SELECT A.aid
FROM Aircraft A
WHERE A.cruisingrange >( SELECT MIN(F.distance)
                      FROM Flights F
                      WHERE F.ffrom = 'Bangalore' AND F.tto = 'Frankfurt'
);
```

```
SELECT F.departs
FROM Flights F
WHERE F.flno IN ( ( SELECT F0.flno
 FROM Flights F0
 WHERE F0.ffrom = 'Bangalore' AND F0.tto = 'Delhi'
 AND extract(hour from F0.arrives) < 18 )
 UNION
( SELECT F0.flno
 FROM Flights F0, Flights F1
 WHERE F0.ffrom = 'Bangalore' AND F0.tto <> 'Delhi'
 AND F0.tto = F1.ffrom AND F1.tto = 'Delhi'
 AND F1.departs > F0.arrives
 AND extract(hour from F1.arrives) < 18)
 UNION
( SELECT F0.flno
 FROM Flights F0, Flights F1, Flights F2
 WHERE F0.ffrom = 'Bangalore'
 AND F0.tto = F1.ffrom
 AND F1.tto = F2.ffrom
 AND F2.tto = 'Delhi'
 AND F0.tto <> 'Delhi'
 AND F1.tto <> 'Delhi'
 AND F1.departs > F0.arrives
 AND F2.departs > F1.arrives
 AND extract(hour from F2.arrives) < 18));
```

```
SELECT E.ename, E.salary
FROM Employees E
WHERE E.eid NOT IN ( SELECT DISTINCT C.eid
 FROM Certified C )
AND E.salary >( SELECT AVG (E1.salary)
 FROM Employees E1
 WHERE E1.eid IN
( SELECT DISTINCT C1.eid
 FROM Certified C1 ) );
```

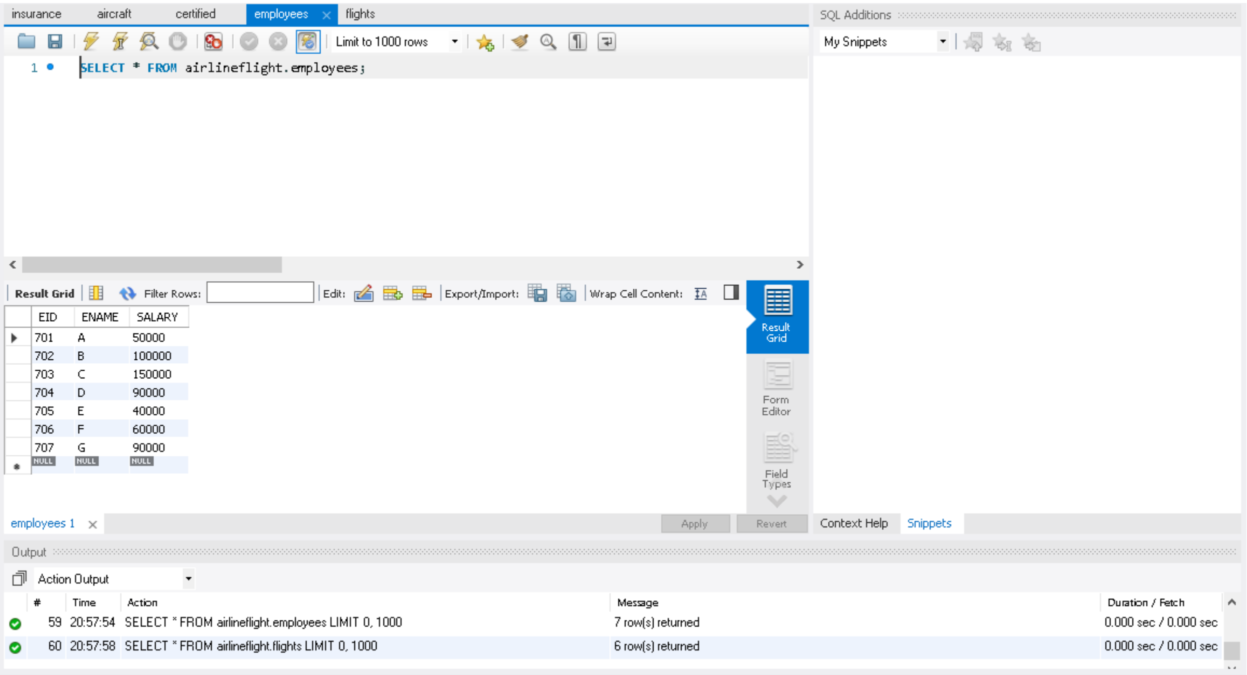
Output:



```
SELECT * FROM airlineflight.aircraft;
```

AID	ANAME	CRUISINGRANGE
101	747	3000
102	Boeing	900
103	647	800
104	Dreamliner	10000
105	Boeing	3500
106	707	1500
107	Dream	120000
NULL	NULL	NULL

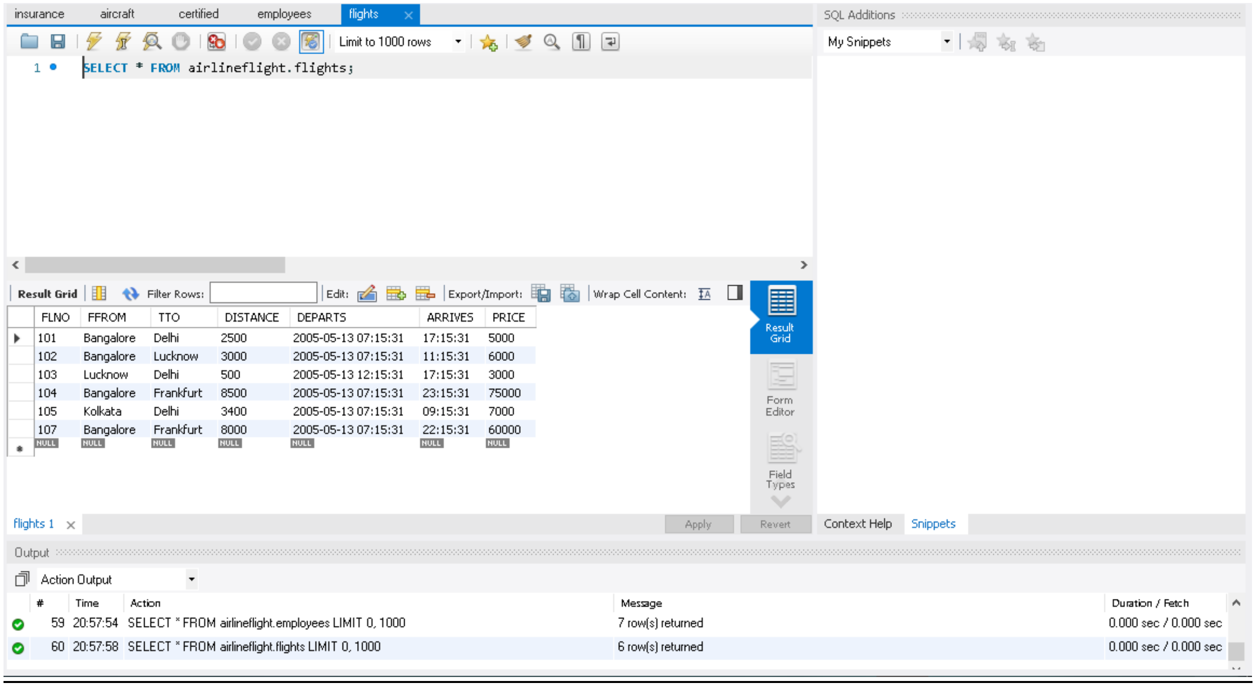
```
#   Time      Action                                            Message            Duration / Fetch
59  20:57:54  SELECT * FROM airlineflight.employees LIMIT 0, 1000  7 row(s) returned  0.000 sec / 0.000 sec
60  20:57:58  SELECT * FROM airlineflight.flights LIMIT 0, 1000    6 row(s) returned  0.000 sec / 0.000 sec
```



```
SELECT * FROM airlineflight.employees;
```

EID	ENAME	SALARY
701	A	50000
702	B	100000
703	C	150000
704	D	90000
705	E	40000
706	F	60000
707	G	90000
NULL	NULL	NULL

```
#   Time      Action                                            Message            Duration / Fetch
59  20:57:54  SELECT * FROM airlineflight.employees LIMIT 0, 1000  7 row(s) returned  0.000 sec / 0.000 sec
60  20:57:58  SELECT * FROM airlineflight.flights LIMIT 0, 1000    6 row(s) returned  0.000 sec / 0.000 sec
```



```
1 ● SELECT * FROM airlineflight.flights;
```

	FLNO	FFROM	TTO	DISTANCE	DEPARTS	ARRIVES	PRICE
▶	101	Bangalore	Delhi	2500	2005-05-13 07:15:31	17:15:31	5000
	102	Bangalore	Lucknow	3000	2005-05-13 07:15:31	11:15:31	6000
	103	Lucknow	Delhi	500	2005-05-13 12:15:31	17:15:31	3000
	104	Bangalore	Frankfurt	8500	2005-05-13 07:15:31	23:15:31	75000
	105	Kolkata	Delhi	3400	2005-05-13 07:15:31	09:15:31	7000
	107	Bangalore	Frankfurt	8000	2005-05-13 07:15:31	22:15:31	60000
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL

	#	Time	Action	Message	Duration / Fetch
✓	59	20:57:54	SELECT * FROM airlineflight.employees LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
✓	60	20:57:58	SELECT * FROM airlineflight.flights LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec