

## LAB-1: INSURANCE DATABASE

USN: 1BM19CS168

NAME: SWETHA PATIL

```
create database insurance;  
use insurance;
```

```
use insurance;  
create table person(driver_id varchar(5),name varchar(10),address varchar(20),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));  
desc accident;
```

```
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','Richard','Srinivas Nagar');  
insert into person values('A02','Pradeep','Rajajinagar');  
insert into person values('A03','Smith','Ashoknagar');  
insert into person values('A04','Venu','N.R.Colony');  
insert into person values('A05','John','Hanumanth Naga');  
commit;  
select * from person;
```



The screenshot shows a database management tool interface. At the top, there is a toolbar with icons for 'Result Grid', 'Filter Rows', 'Edit', 'Export/Import', and 'Wrap Cell Content'. Below the toolbar, a table is displayed with the following data:

	driver_id	name	address
▶	A01	Richard	Srinivas Nagar
	A02	Pradeep	Rajajinagar
	A03	Smith	Ashoknagar
	A04	Venu	N.R.Colony
	A05	John	Hanumanth Naga
*	NULL	NULL	NULL

```

insert into car values('KA031181','Lancer',1957);
insert into car values('KA041702','Audi',2005);
insert into car values('KA052250','Indica',1990);
insert into car values('KA053408','Honda',2008);
insert into car values('KA095477','Toyota',1998);
commit;
select * from car;

```

reg_num	model	year
KA031181	Lancer	1957
KA041702	Audi	2005
KA052250	Indica	1990
KA053408	Honda	2008
KA095477	Toyota	1998
NULL	NULL	NULL

```

insert into accident values(11,'2003-01-01','Mysore Road');
insert into accident values(12,'2004-02-02','Southend Circle');
insert into accident values(13,'2003-01-21','Bulltemple Road');
insert into accident values(14,'2008-02-17','Mysore Road');
insert into accident values(15,'2005-03-04','Kanakpura Road');
commit;
select * from accident;

```

report_num	accident_date	location
11	2003-01-01	Mysore Road
12	2004-02-02	Southend Circle
13	2003-01-21	Bulltemple Road
14	2008-02-17	Mysore Road
15	2005-03-04	Kanakpura Road
NULL	NULL	NULL

```

insert into owns values('A01','KA031181');
insert into owns values('A02','KA041702');
insert into owns values('A03','KA052250');
insert into owns values('A04','KA053408');
insert into owns values('A05','KA095477');
commit;
select * from owns;

```

Result Grid		Filter Rows:	Edit:	Export/Import:	Wrap Cell Content:
driver_id	reg_num				
A01	KA031181				
A02	KA041702				
A03	KA052250				
A04	KA053408				
A05	KA095477				
* NULL	NULL				

owns 20 x Apply Revert

```

insert into participated values('A01','KA031181',11,10000);
insert into participated values('A02','KA041702',12,50000);
insert into participated values('A03','KA052250',13,25000);
insert into participated values('A04','KA053408',14,3000);
insert into participated values('A05','KA095477',15,5000);
commit;
select * from participated;

```

Result Grid		Filter Rows:	Edit:	Export/Import:	Wrap Cell Content:
driver_id	reg_num	report_num	damage_amount		
A01	KA031181	11	10000		
A02	KA041702	12	50000		
A03	KA052250	13	25000		
A04	KA053408	14	3000		
A05	KA095477	15	5000		
* NULL	NULL	NULL	NULL		

participated 19 x Apply Revert

```

update participated set damage_amount=25000 where report_num=12;
insert into accident values(16,'2009-04-03','Kanakpura Road');
select * from accident;

```

```

63
64 • update participated set damage_amount=25000 where report_num=12;
65 • insert into accident values(16,'2009-04-03','Kanakpura Road');
66 • select * from accident;
67

```

Result Grid		Filter Rows:	Edit:	Export/Import:	Wrap Cell Content:
report_num	accident_date	location			
11	2003-01-01	Mysore Road			
12	2004-02-02	Southend Circle			
13	2003-01-21	Bulltemple Road			
14	2008-02-17	Mysore Road			
15	2005-03-04	Kanakpura Road			
16	2009-04-03	Kanakpura Road			
* NULL	NULL	NULL			

accident 14 x Apply Revert

select count(\*) from accident where year(accident\_date)=2008;

67

68 • `select count(*) from accident where year(accident_date)=2008;`

69

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

count(*)
1

Result Grid

select count(report\_num) CNT from car c,participated p where c.reg\_num=p.reg\_num and model='Lancer';

70 • `select count(report_num) CNT from car c,participated p where c.reg_num=p.reg_num and model='Lancer';`

71

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

CNT
1

## LAB-2: BANKING ENTERPRISE DATABASE

USN:1BM19CS168

NAME : SWETHA PATIL

```
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','Bengaluru',50000);
insert into branch values('SBI_ResidencyRoad','Bengaluru',10000);
insert into branch values('SBI_ShivajiRoad','Bombay',20000);
insert into branch values('SBI_ParliamentRoad','Delhi',10000);
insert into branch values('SBI_Jantarantar','Delhi',20000);
select *from branch;
```

Limit to 1000 rows

```

28 • insert into branch values('SBI_Jantarmanantar','Delhi',20000);
29 • select *from branch;
30
31 • insert into Loan values(1,'SBI_Chamrajpet',10000);
32 • insert into Loan values(2,'SBI_ResidencyRoad',20000);
33 • insert into Loan values(3,'SBI_ShivajiRoad',30000);
34 • insert into Loan values(4,'SBI_ParliamentRoad',40000);
35 • insert into Loan values(5,'SBI_Jantarmanantar',30000);
36 • select *from Loan;
37
38 • insert into BankAccount values(1,'SBI_Chamrajpet',2000);
39 • insert into BankAccount values(2,'SBI_ResidencyRoad',5000);

```

Result Grid

branchname	branchcity	assets
SBI_Chamrajpet	Bengaluru	50000
SBI_Jantarmanantar	Delhi	20000
SBI_ParliamentRoad	Delhi	10000
SBI_ResidencyRoad	Bengaluru	10000
SBI_ShivajiRoad	Bombay	20000
NULL	NULL	NULL

branch 38

```

insert into Loan values(1,'SBI_Chamrajpet',10000);
insert into Loan values(2,'SBI_ResidencyRoad',20000);
insert into Loan values(3,'SBI_ShivajiRoad',30000);
insert into Loan values(4,'SBI_ParliamentRoad',40000);
insert into Loan values(5,'SBI_Jantarmanantar',30000);
select *from Loan;

```

```

30
31 • insert into Loan values(1,'SBI_Chamrajpet',10000);
32 • insert into Loan values(2,'SBI_ResidencyRoad',20000);
33 • insert into Loan values(3,'SBI_ShivajiRoad',30000);
34 • insert into Loan values(4,'SBI_ParliamentRoad',40000);
35 • insert into Loan values(5,'SBI_Jantarmanantar',30000);
36 • select *from Loan;
37

```

Result Grid

loannumber	branchname	Amount
1	SBI_Chamrajpet	10000
2	SBI_ResidencyRoad	20000
3	SBI_ShivajiRoad	30000
4	SBI_ParliamentRoad	40000
5	SBI_Jantarmanantar	30000
NULL	NULL	NULL

```

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_ParliamentRoad',9000);
insert into BankAccount values(5,'SBI_Jantarmanantar',8000);
insert into BankAccount values(6,'SBI_ShivajiRoad',4000);
insert into BankAccount values(8,'SBI_ResidencyRoad',4000);
insert into BankAccount values(9,'SBI_ParliamentRoad',3000);
insert into BankAccount values(10,'SBI_ResidencyRoad',5000);
insert into BankAccount values(11,'SBI_Jantarmanantar',2000);
commit;
select * from BankAccount;

```

```

49 • select * from BankAccount;
50
51 • insert into BankCustomer values('Avinash','Bull_temple_Road','Bengaluru');
52 • insert into BankCustomer values('Dinesh','Bannerghatta_Road','Bengaluru');

```

Acno	branchname	balance
1	SBI_Chamrajpet	2000
2	SBI_ResidencyRoad	5000
4	SBI_ParliamentRoad	9000
5	SBI_Jantarmanatar	8000
8	SBI_ResidencyRoad	4000
9	SBI_ParliamentRoad	3000
10	SBI_ResidencyRoad	5000
11	SBI_Jantarmanatar	2000

```

insert into BankCustomer values('Avinash','Bull_temple_Road','Bengaluru');
insert into BankCustomer values('Dinesh','Bannerghatta_Road','Bengaluru');
insert into BankCustomer values('Mohan','NationalCollege_Road','Bengaluru');
insert into BankCustomer values('Nikil','Akbar_Road','Delhi');
insert into BankCustomer values('Ravi','Prithviraj_Road','Delhi');
select * from BankCustomer;

```

```

51 • insert into BankCustomer values('Avinash','Bull_temple_Road','Bengaluru');
52 • insert into BankCustomer values('Dinesh','Bannerghatta_Road','Bengaluru');
53 • insert into BankCustomer values('Mohan','NationalCollege_Road','Bengaluru');
54 • insert into BankCustomer values('Nikil','Akbar_Road','Delhi');
55 • insert into BankCustomer values('Ravi','Prithviraj_Road','Delhi');
56 • select * from BankCustomer;

```

CustomerName	CustomerStreet	Customercity
Avinash	Bull_temple_Road	Bengaluru
Dinesh	Bannerghatta_Road	Bengaluru
Mohan	NationalCollege_Road	Bengaluru
Nikil	Bull_temple_Road	Bengaluru
Ravi	Bull_temple_Road	Bengaluru

```

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;

```

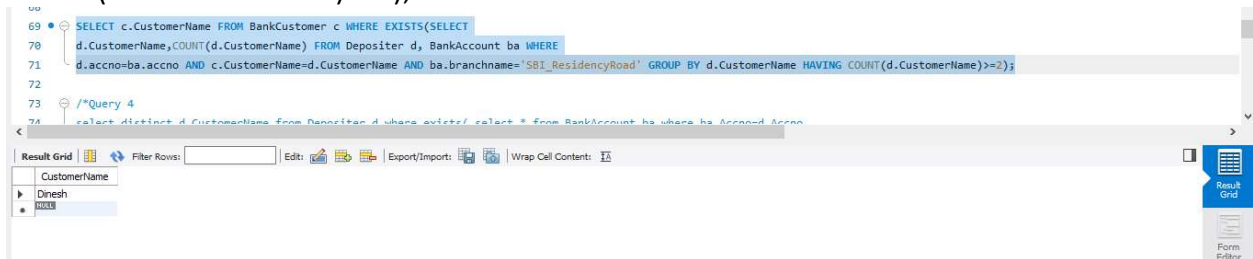
```

66 • COMMIT;
67 • select * from Depositer;

```

CustomerName	Acno
Avinash	1
Dinesh	2
Nikil	4
Ravi	5
Avinash	8
Nikil	9
Dinesh	10
Nikil	11

```
SELECT c.CustomerName FROM BankCustomer c WHERE EXISTS(SELECT
d.CustomerName,COUNT(d.CustomerName) FROM Depositor 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);
```



/\*Query 4\*/

```
select distinct d.CustomerName from Depositor d where exists( select * from BankAccount ba
where ba.Accno=d.Accno
and exists (select * from branch b where b.branchname = ba.branchname and
b.branchcity='Delhi'));
```



/\*Query 5\*/

```
delete from BankAccount
where branchname IN(
select branchname
from Branch
where branchcity='Bombay'
);
Select * from BankAccount;
```



```
88      /*Query 5*/
89      delete from BankAccount
90      where branchname IN(
91      select branchname
92      from Branch
93      where branchcity='Bombay'
94      );
95      select * from BankAccount; /* 1st row deleted*/
96
97      SELECT d.CustomerName
```

Result Grid

	Accno	branchname	balance
1	SBI_Chamrajpet		2000
2	SBI_ResidencyRoad		5000
4	SBI_ParliamentRoad		9000
5	SBI_Jantamantar		8000
8	SBI_ResidencyRoad		4000
9	SBI_ParliamentRoad		3000
10	SBI_ResidencyRoad		5000
11	SBI_Jantamantar		2000

Form Editor

### LAB-3: SUPPLIER DATABASE

USN: 1BM19CS168

```
create database Supplier;  
use Supplier;
```

NAME: SWETHA PATL

```
create table Suppliers(  
sid varchar(20) ,  
sname varchar(20),  
city varchar(20),  
primary key(sid)  
);  
desc Suppliers;
```

```
create table Parts(  
pid integer,  
pname varchar(20),  
color varchar(20),  
primary key(pid)  
);  
desc Parts;
```

```
create table Catalog(  
sid varchar(20),  
pid integer,  
cost real,  
primary key(sid,pid),  
foreign key(sid) references Suppliers(sid),  
foreign key(pid) references Parts(pid)  
);  
desc Catalog;
```

```
insert into Suppliers values(10001,'Acme Widget','Bangalore');  
insert into Suppliers values(10002,'Johns','Kolkata');  
insert into Suppliers values(10003,'Vimal','Mumbai');  
insert into Suppliers values(10004,'Reliance','Delhi');  
insert into Suppliers values(10005, 'Mahindra','Mumbai');  
select *from Suppliers;
```

```

33 • insert into Suppliers values(10004,'Reliance','Delhi');
34 • insert into Suppliers values(10005, 'Mahindra', 'Mumbai');
35 • select *from Suppliers;
36
37 • insert into Parts values(20001,'Book','Red');
38 • insert into Parts values(20002,'Pen','Red');
39 • insert into Parts values(20003,'Pencil','green');
40 • insert into Parts values(20004,'Mobile','green');
41 • insert into Parts values(20005,'Charger','Black');
42 • select *from Parts;

```

Result Grid	Filter Rows:	Edit:	Export/Import:	Wrap Cell Content:
sid	sname	city		
10001	Acme Widget	Bangalore		
10002	Johns	Kolkata		
10003	Vimal	Mumbai		
10004	Reliance	Delhi		
10005	Mahindra	Mumbai		
NULL	NULL	NULL		

Suppliers 15 x

```

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;

```

```

37 • insert into Parts values(20001,'Book','Red');
38 • insert into Parts values(20002,'Pen','Red');
39 • insert into Parts values(20003,'Pencil','green');
40 • insert into Parts values(20004,'Mobile','green');
41 • insert into Parts values(20005,'Charger','Black');
42 • select *from Parts;

```

Result Grid	Filter Rows:	Edit:	Export/Import:	Wrap Cell Content:
pid	pname	color		
20001	Book	Red		
20002	Pen	Red		
20003	Pencil	green		
20004	Mobile	green		
20005	Charger	Black		
NULL	NULL	NULL		

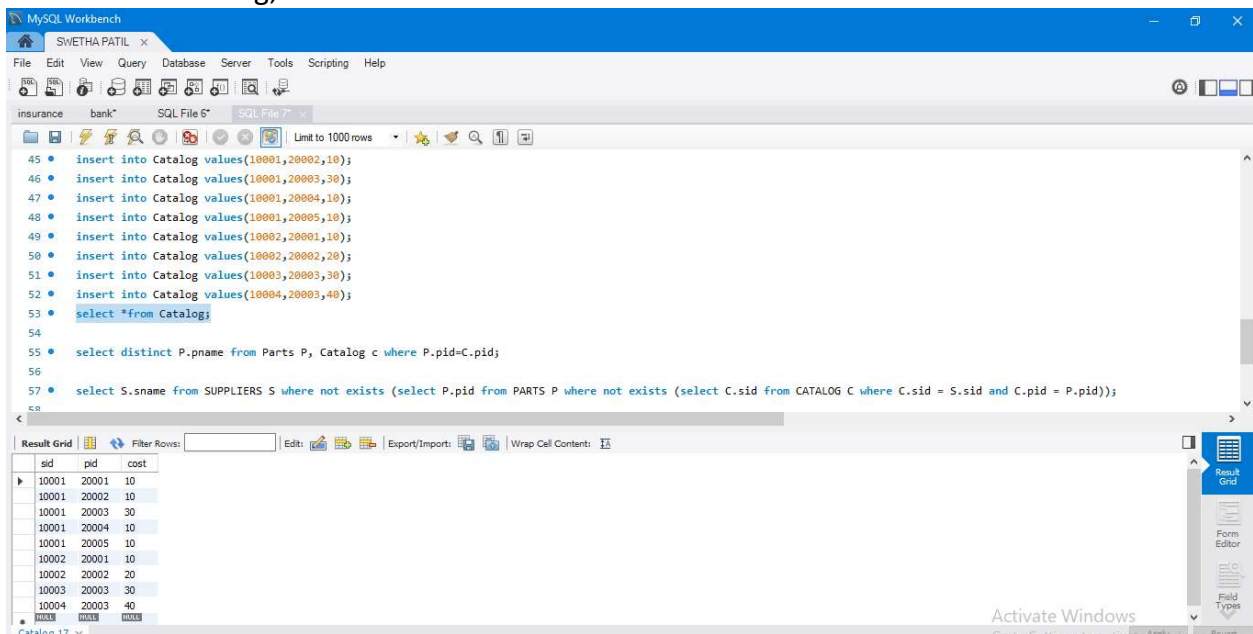
Parts 16 x

```

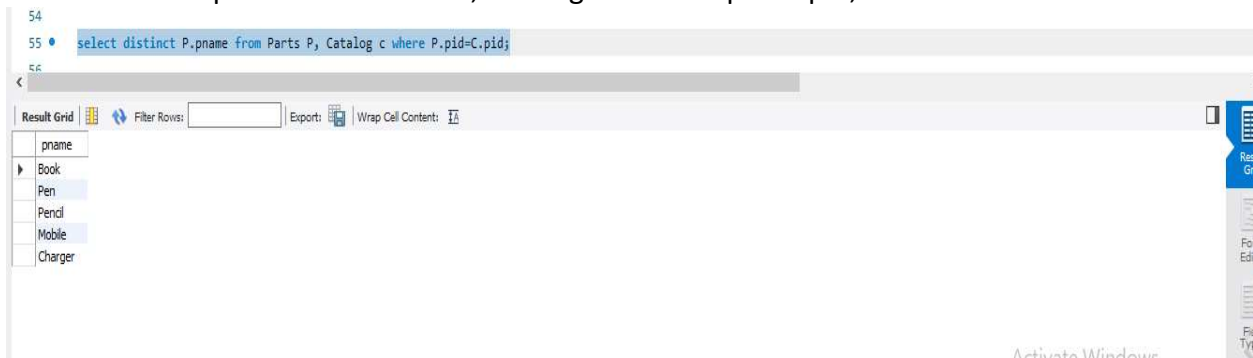
insert into Catalog values(10001,20001,10);
insert into Catalog values(10001,20002,10);
insert into Catalog values(10001,20003,30);
insert into Catalog values(10001,20004,10);
insert into Catalog values(10001,20005,10);
insert into Catalog values(10002,20001,10);
insert into Catalog values(10002,20002,20);
insert into Catalog values(10003,20003,30);
insert into Catalog values(10004,20003,40);

```

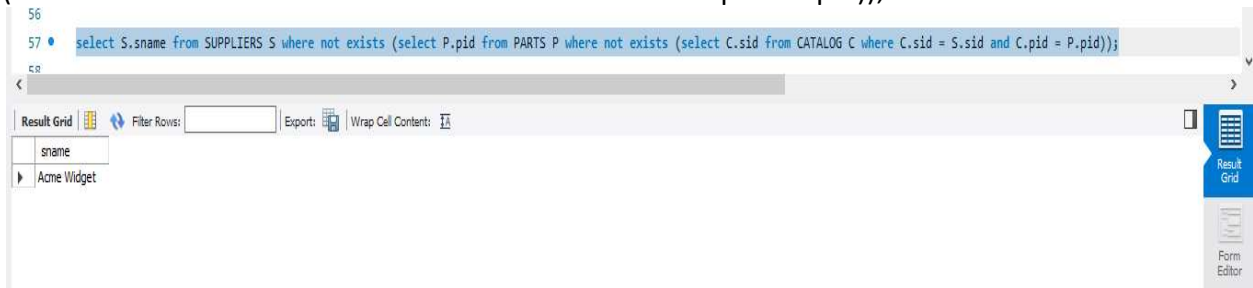
select \*from Catalog;



select distinct P.pname from Parts P, Catalog c where P.pid=C.pid;



select S.sname from SUPPLIERS S where not exists (select P.pid from PARTS P where not exists (select C.sid from CATALOG C where C.sid = S.sid and C.pid = P.pid));



select S.sname from SUPPLIERS S where not exists (select P.pid from PARTS P where P.color = 'Red' and (not exists (select C.sid from CATALOG C where C.sid = S.sid and C.pid = P.pid)));

58

59 • select S.sname from SUPPLIERS S where not exists (select P.pid from PARTS P where P.color = 'Red' and (not exists (select C.sid from CATALOG C where C.sid = S.sid and C.pid = P.pid)));

60

Result Grid Filter Rows: Exports Wrap Cell Content:

sname
Acme Widget
Johns

Result Grid Form

select P.pname from PARTS P, CATALOG C, SUPPLIERS S where P.pid = C.pid and C.sid = S.sid and S.sname = 'Acme Widget' and not exists (select \* from CATALOG C1, SUPPLIERS S1 where P.pid = C1.pid and C1.sid = S1.sid and S1.sname <> 'Acme Widget');

60

61 • = C.pid and C.sid = S.sid and S.sname = 'Acme Widget' and not exists (select \* from CATALOG C1, SUPPLIERS S1 where P.pid = C1.pid and C1.sid = S1.sid and S1.sname <> 'Acme Widget');

62

Result Grid Filter Rows: Exports Wrap Cell Content:

pname
Mobile
Charger

Result Grid Form Editor

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

62

63 • select distinct c.sid from Catalog c where c.cost > (select avg(ca.cost) from Catalog ca where ca.pid=c.pid);

64

Result Grid Filter Rows: Exports Wrap Cell Content:

sid
10002
10004

Result Grid Form Editor

select s.sname ,p.pid from Suppliers s, Catalog c, Parts p where s.sid=c.sid and c.pid =p.pid and c.cost=(select max(ca.cost) from catalog ca where ca.pid=p.pid);

The screenshot shows a database query editor interface. At the top, a SQL query is entered in a text area:

```
65  
66 • select s.sname ,p.pid from Suppliers s, Catalog c, Parts p where s.sid=c.sid and c.pid =p.pid and c.cost=(select max(ca.cost) from catalog ca where ca.pid=p.pid);
```

Below the query editor, there is a toolbar with options: "Result Grid" (selected), "Filter Rows:", "Export:", and "Wrap Cell Content:". Below the toolbar, a table displays the results of the query:

sname	pid
Acme Widget	20001
Johns	20001
Johns	20002
Reliance	20003
Acme Widget	20004
Acme Widget	20005

On the right side of the interface, there is a vertical toolbar with icons for "Result Grid", "Form Editor", and "Field Types". At the bottom right, there is a watermark that says "Activate Windows Go to Settings to activate Windows. Read Only."

```
create database student_faculty;  
use student_faculty;
```

```
CREATE TABLE student(  
    snum INT,  
    sname VARCHAR(10),  
    major VARCHAR(2),  
    lvi 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),  
    meets_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, 'jhon', '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);  
select * from student;
```

```

34 • INSERT INTO STUDENT VALUES(1, 'Jhon', 'CS', 'Sr', 19);
35 • INSERT INTO STUDENT VALUES(2, 'Smith', 'CS', 'Jr', 20);
36 • INSERT INTO STUDENT VALUES(3, 'Jacob', 'CV', 'Sr', 20);
37 • INSERT INTO STUDENT VALUES(4, 'Tom', 'CS', 'Jr', 20);
38 • INSERT INTO STUDENT VALUES(5, 'Rahul', 'CS', 'Jr', 20);
39 • INSERT INTO STUDENT VALUES(6, 'Rita', 'CS', 'Sr', 21);
40 • select * from student;
41

```

snum	sname	major	lvl	age
1	Jhon	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

```

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);
select * from faculty;

```

```

42 • INSERT INTO FACULTY VALUES(11, 'Harish', 1000);
43 • INSERT INTO FACULTY VALUES(12, 'MV', 1000);
44 • INSERT INTO FACULTY VALUES(13, 'Mira', 1001);
45 • INSERT INTO FACULTY VALUES(14, 'Shiva', 1002);
46 • INSERT INTO FACULTY VALUES(15, 'Nupur', 1000);
47 • select * from faculty;
48

```

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

```

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);
select * from class;

```



```

50 • insert into class values('class1', '12/11/15 10:15:16', 'R1', 14);
51 • insert into class values('class10', '12/11/15 10:15:16', 'R128', 14);
52 • insert into class values('class2', '12/11/15 10:15:20', 'R2', 12);
53 • insert into class values('class3', '12/11/15 10:15:25', 'R3', 11);
54 • insert into class values('class4', '12/11/15 20:15:20', 'R4', 14);
55 • insert into class values('class5', '12/11/15 20:15:20', 'R3', 15);
56 • insert into class values('class6', '12/11/15 13:20:20', 'R2', 14);
57 • insert into class values('class7', '12/11/15 10:10:10', 'R3', 14);
58 • select * from class;

```

name	meets_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

```

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');
select * from enrolled;

```

```

61 • insert into enrolled values(2, 'class1');
62 • insert into enrolled values(3, 'class3');
63 • insert into enrolled values(4, 'class3');
64 • insert into enrolled values(5, 'class4');
65 • insert into enrolled values(1, 'class5');
66 • insert into enrolled values(2, 'class5');
67 • insert into enrolled values(3, 'class5');
68 • insert into enrolled values(4, 'class5');
69 • insert into enrolled values(5, 'class5');
70 • select * from enrolled;

```

srnum	cname
1	class1
2	class1
3	class3
4	class3
5	class4
1	class5
2	class5
3	class5
4	class5
5	class5

```

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';

```

```

67 • insert into enrolled values(3, 'class5');
68 • insert into enrolled values(4, 'class5');
69 • insert into enrolled values(5, 'class5');
70 • select * from enrolled;
71
72 • SELECT DISTINCT S.Sname
73 FROM Student S, Class C, Enrolled E, Faculty F
74 WHERE S.snum = E.snum AND E.cname = C.cname AND C.fid = F.fid AND
75 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);

```

```

78 • SELECT C.cname
79 FROM class C
80 WHERE C.room = 'R128'
81 OR C.cname IN (SELECT E.cname
82                FROM enrolled E
83                GROUP BY E.cname
84                HAVING COUNT(*) >= 5);
85
86 • SELECT DISTINCT C.cname

```



```

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.meets_at = C2.meets_at);

```

```

86 • SELECT DISTINCT S.sname
87 FROM Student S
88 WHERE S.snum IN (SELECT E1.snum
89 FROM Enrolled E1, Enrolled E2, Class C1, Class C2
90 WHERE E1.snum = E2.snum AND E1.cname <> E2.cname
91 AND E1.cname = C1.cname
92 AND E2.cname = C2.cname AND C1.meets_at = C2.meets_at);

```

Result Grid

sname
Rahul

```

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));

```

```

94 • SELECT f.fname,f.fid
95 FROM faculty f
96 WHERE f.fid in ( SELECT fid FROM class
97 GROUP BY fid HAVING COUNT(*)=(SELECT COUNT(DISTINCT room) FROM class));
98
99 • SELECT DISTINCT F.fname
100 FROM Faculty F
101 WHERE 5 > (SELECT COUNT(E.snum)

```

Result Grid

fname	fid
Shiva	14

```

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);

```

```

99 • SELECT DISTINCT F.fname
100 FROM Faculty F
101 WHERE 5 > (SELECT COUNT(E.snum)
102 FROM Class C, Enrolled E
103 WHERE C.cname = E.cname
104 AND C.fid = F.fid);
105

```

Result Grid

fname
Harish
MV
Mira
Shiva

```

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

```

```

106
107 • SELECT DISTINCT S.sname
108 FROM Student S
109 WHERE S.snum NOT IN (SELECT E.snum
110 FROM enrolled E );
111
112 • SELECT S.age, S.lvl
113 FROM Student S

```

Result Grid

sname
Rita

```

SELECT S.age, S.lvl
FROM Student S
GROUP BY S.age, S.lvl
HAVING S.lvl IN (SELECT S1.lvl FROM Student S1
    WHERE S1.age = S.age
GROUP BY S1.lvl, S1.age
HAVING COUNT(*) >= ALL (SELECT COUNT(*)
FROM Student S2
WHERE s1.age = S2.age
GROUP BY S2.lvl, S2.age));

```

```

111
112 • SELECT S.age, S.lvl
113 FROM Student S
114 GROUP BY S.age, S.lvl
115 HAVING S.lvl IN (SELECT S1.lvl FROM Student S1
116     WHERE S1.age = S.age
117 GROUP BY S1.lvl, S1.age
118 HAVING COUNT(*) >= ALL (SELECT COUNT(*)
119 FROM Student S2
120 WHERE s1.age = S2.age
121 GROUP BY S2.lvl, S2.age));
122

```

Result Grid

age	lvl
19	Sr
20	Jr
21	Sr

**USN: 1BM19CS168**

## **LAB-5: AIRLINE FLIGHT DATABASE**

**NAME: SWETHA PATIL**

```
create database flights;  
use flights;
```

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

```
34
35 • insert into aircraft values(101,'747',3000);
36 • insert into aircraft values(102,'Boeing',900);
37 • insert into aircraft values(103,'647',800);
38 • insert into aircraft values(104,'Dreamliner',10000);
39 • insert into aircraft values(105,'Boeing',3500);
40 • insert into aircraft values(106,'707',1500);
41 • insert into aircraft values(107,'Dream', 120000);
42 • select * from aircraft;
```

Result Grid

	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

```
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;
```

```
43
44 • insert into employees values(701,'A',50000);
45 • insert into employees values(702,'B',100000);
46 • insert into employees values(703,'C',150000);
47 • insert into employees values(704,'D',90000);
48 • insert into employees values(705,'E',40000);
49 • insert into employees values(706,'F',60000);
50 • insert into employees values(707,'G',90000);
51 • select * from employees;
```

Result Grid

	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

```
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;

```

The screenshot shows a database management tool interface. The top pane contains SQL queries:
 

```

59 • insert into certified values(704,104);
60 • insert into certified values(702,107);
61 • insert into certified values(703,107);
62 • insert into certified values(704,107);
63 • insert into certified values(702,101);
64 • insert into certified values(703,105);
65 • insert into certified values(704,105);
66 • insert into certified values(705,103);
67 • select * from certified;
    
```

 The bottom pane shows a 'Result Grid' with columns 'EID' and 'AID'. The data is as follows:
 

EID	AID
701	101
702	101
701	102
705	103
702	104
703	104
704	104
701	105
703	105
704	105
701	106
702	107
703	107
704	107

```

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

```

The screenshot shows a database management tool interface. The top pane contains SQL queries:
 

```

69 • insert into flights values(101,'Bangalore','Delhi',2500,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP '2005-05-13 17:15:31',5000);
70 • insert into flights values(102,'Bangalore','Lucknow',3000,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP '2005-05-13 11:15:31',6000);
71 • insert into flights values(103,'Lucknow','Delhi',500,TIMESTAMP '2005-05-13 12:15:31',TIMESTAMP '2005-05-13 17:15:31',3000);
72 • insert into flights values(107,'Bangalore','Frankfurt',8000,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP '2005-05-13 22:15:31',60000);
73 • insert into flights values(104,'Bangalore','Frankfurt',8500,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP '2005-05-13 23:15:31',75000);
74 • insert into flights values(105,'Kolkata','Delhi',3400,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP '2005-05-13 09:15:31',7000);
75 • select * from Flights;
    
```

 The bottom pane shows a 'Result Grid' with columns: FLNO, FFROM, TTO, DISTANCE, DEPARTS, ARRIVES, PRICE. The data is as follows:
 

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

```

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 ));

```

77  
78 • SELECT DISTINCT A.aname  
79 FROM Aircraft A  
80 WHERE A.Aid IN (SELECT C.aid  
81 FROM Certified C, Employees E  
82 WHERE C.eid = E.eid AND  
83 NOT EXISTS ( SELECT \*  
84 FROM Employees E1  
85 WHERE E1.eid = E.eid AND E1.salary < 80000 ));

Result Grid

aname
747
Dreamliner
Boeing
Dream

```

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

```

86  
87 • SELECT C.eid, MAX(A.cruisingrange)  
88 FROM Certified C, Aircraft A  
89 WHERE C.aid = A.aid  
90 GROUP BY C.eid  
91 HAVING COUNT(\*) > 3;

Result Grid

eid	MAX(A.cruisingrange)
701	3500

```

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' );

```

93 • SELECT DISTINCT E.ename  
94 FROM Employees E  
95 WHERE E.salary < ( SELECT MIN(F.price)  
96 FROM Flights F  
97 WHERE F.ffrom = 'Bangalore' AND F.tto = 'Frankfurt' );

Result Grid

ename
A
E



```

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;

```

98

99 • SELECT Temp.name, Temp.AvgSalary

100 FROM ( SELECT A.aid, A.aname AS name, AVG (E.salary) AS AvgSalary

101 FROM Aircraft A, Certified C, Employees E

102 WHERE A.aid = C.aid AND C.eid = E.eid AND A.cruisingrange > 1000

103 GROUP BY A.aid, A.aname ) Temp;

Result Grid

	name	AvgSalary
▶	747	75000.0000
	Dreamliner	113333.3333
	Boeing	96666.6667
	707	50000.0000
	Dream	113333.3333

```

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%';

```

106 • SELECT DISTINCT E.ename

107 FROM Employees E, Certified C, Aircraft A

108 WHERE E.eid = C.eid AND C.aid = A.aid AND A.aname LIKE 'Boeing%';

Result Grid

	ename
▶	A
	C
	D

```

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

```

109

110 • SELECT A.aid

111 FROM Aircraft A

112 WHERE A.cruisingrange > ( SELECT MIN(F.distance)

113 FROM Flights F

114 WHERE F.ffrom = 'Bangalore' AND F.tto = 'Frankfurt' );

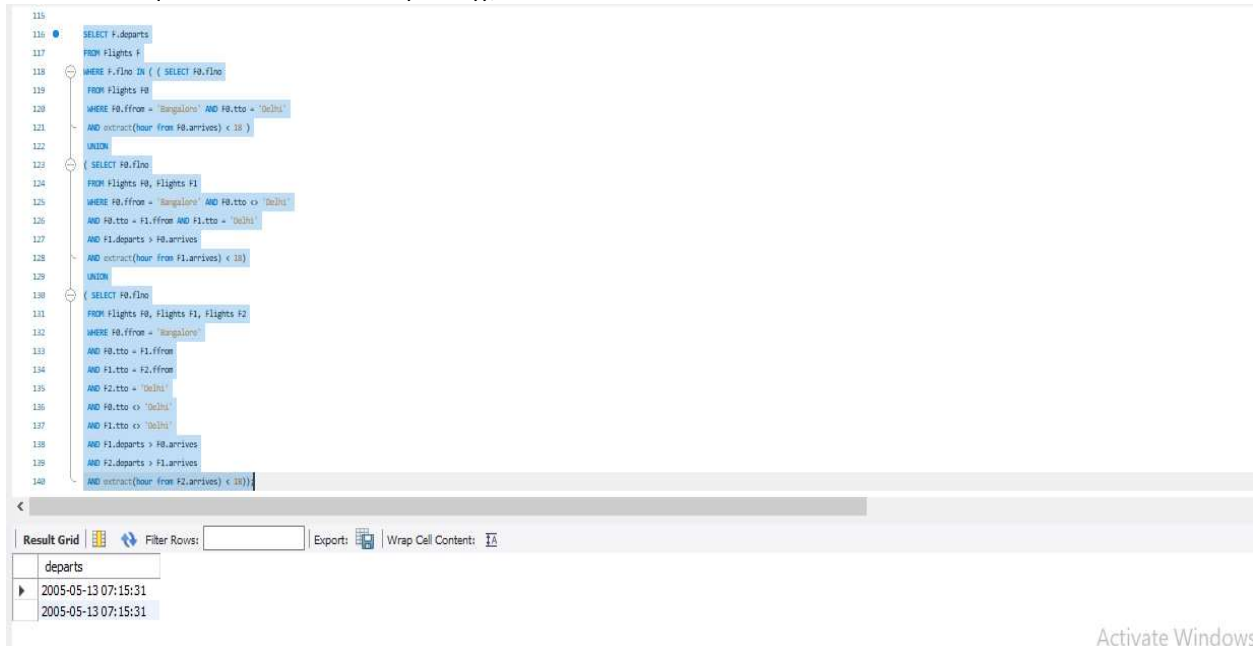
Result Grid

	aid
▶	104
	107

```

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));

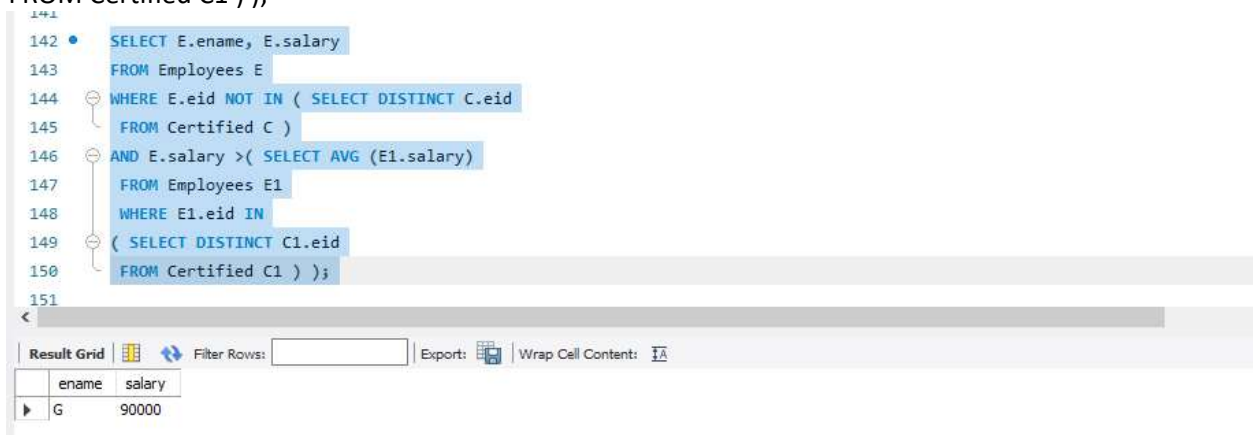
```



The screenshot shows a SQL query editor with a query window on the left and a results window on the right. The query is a complex SQL statement with multiple UNIONs and subqueries, as shown in the previous block. The results window displays a table with two columns: 'departs' and 'arrives'. The first row shows the departure time '2005-05-13 07:15:31' and the arrival time '2005-05-13 07:15:31'.

departs	arrives
2005-05-13 07:15:31	2005-05-13 07:15:31

```
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 ) );
```



The screenshot shows a SQL IDE interface. The top pane displays a SQL query with line numbers 142 to 151. The query is highlighted in blue. The bottom pane shows the 'Result Grid' with a table containing two columns: 'ename' and 'salary'. The table has one row with the values 'G' and '90000'. The interface includes a 'Filter Rows' field, an 'Export' button, and a 'Wrap Cell Content' checkbox.

```
142 • SELECT E.ename, E.salary
143 FROM Employees E
144 WHERE E.eid NOT IN ( SELECT DISTINCT C.eid
145 FROM Certified C )
146 AND E.salary >( SELECT AVG (E1.salary)
147 FROM Employees E1
148 WHERE E1.eid IN
149 ( SELECT DISTINCT C1.eid
150 FROM Certified C1 ) );
151
```

Result Grid

	ename	salary
▶	G	90000