

DBMS Lab Record (Prog. 1-5)

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Lab 1

Question:

Consider the Insurance database given below. The primary keys are underlined and the data types are specified.

PERSON (driver-id #: String, name: String, address: String)

CAR (Regno: String, model: String, year: int)

ACCIDENT (report-number: int, date: date, location: String)

OWNS (driver-id #: String, Regno: String)

PARTICIPATED (driver-id: String, Regno: String, report-number: int, damage-amount: int)

Queries:

- Create the above tables by properly specifying the primary keys and the foreign keys.

MySQL returned an empty result set (i.e. zero rows). (Query took 0.3309 seconds.)

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

[Edit inline] [Edit] [Create PHP code]

Your SQL query has been executed successfully.

```
desc person
```

[Edit inline] [Edit] [Create PHP code]

+ Options

Field	Type	Null	Key	Default	Extra
driver_id	varchar(10)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
address	varchar(30)	YES		NULL	

MySQL returned an empty result set (i.e. zero rows). (Query took 0.2096 seconds.)

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

[Edit inline] [Edit] [Create PHP code]

Your SQL query has been executed successfully.

```
desc car
```

[Edit inline] [Edit] [Create PHP code]

+ Options

Field	Type	Null	Key	Default	Extra
reg_num	varchar(10)	NO	PRI	NULL	
model	varchar(10)	YES		NULL	
year	int(11)	YES		NULL	

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.2495 seconds.)

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

[Edit inline] [Edit] [Create PHP code]

Your SQL query has been executed successfully.

```
desc accident
```

[Edit inline] [Edit] [Create PHP code]

+ Options

Field	Type	Null	Key	Default	Extra
report_num	int(11)	NO	PRI	NULL	
accident_date	date	YES		NULL	
location	varchar(20)	YES		NULL	

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.3451 seconds.)

```
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))
```

[Edit inline] [Edit] [Create PHP code]

Your SQL query has been executed successfully.

```
desc owns
```

[Edit inline] [Edit] [Create PHP code]

+ Options

Field	Type	Null	Key	Default	Extra
driver_id	varchar(10)	NO	PRI	NULL	
reg_num	varchar(10)	NO	PRI	NULL	

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.3808 seconds.)

```
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))
```

[Edit inline] [Edit] [Create PHP code]

Your SQL query has been executed successfully.

```
desc participated
```

[Edit inline] [Edit] [Create PHP code]

+ Options

Field	Type	Null	Key	Default	Extra
driver_id	varchar(10)	NO	PRI	NULL	
reg_num	varchar(10)	NO	PRI	NULL	
report_num	int(11)	NO	PRI	NULL	
damage_amount	int(11)	YES		NULL	

- ii. Enter at least five tuples for each relation.

Showing rows 0 - 4 (5 total, Query took 0.0040 seconds.)

```
select * from person
```

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

	driver_id	name	address
<input type="checkbox"/>	Edit Copy Delete AO1	Raj	Indiranagar
<input type="checkbox"/>	Edit Copy Delete AO2	Suraj	Koramangla
<input type="checkbox"/>	Edit Copy Delete AO3	Rahul	Basvangudi
<input type="checkbox"/>	Edit Copy Delete AO4	Naina	Frazer Town
<input type="checkbox"/>	Edit Copy Delete AO5	Sanjana	MG Road

Showing rows 0 - 4 (5 total, Query took 0.0054 seconds.)

```
select * from car
```

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

	reg_num	model	year
<input type="checkbox"/>	Edit Copy Delete KA018756	BMW	2005
<input type="checkbox"/>	Edit Copy Delete KA073421	Swift	1998
<input type="checkbox"/>	Edit Copy Delete KA520191	Ferrari	1999
<input type="checkbox"/>	Edit Copy Delete KA876534	Mercedes	2001
<input type="checkbox"/>	Edit Copy Delete KA993344	Maruthi	1992

Showing rows 0 - 4 (5 total, Query took 0.0020 seconds.)

```
select * from accident
```

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

	report_num	accident_date	location
<input type="checkbox"/>	Edit Copy Delete 101	1999-01-23	Church Street
<input type="checkbox"/>	Edit Copy Delete 102	2001-08-02	New Thippasandra
<input type="checkbox"/>	Edit Copy Delete 103	2005-11-18	Commercial Street
<input type="checkbox"/>	Edit Copy Delete 104	1994-07-09	Koramangla
<input type="checkbox"/>	Edit Copy Delete 105	2011-09-22	Gandhi Nagar

Showing rows 0 - 4 (5 total, Query took 0.0008 seconds.)

```
select * from owns
```

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

	driver_id	reg_num
<input type="checkbox"/>	Edit Copy Delete A01	KA993344
<input type="checkbox"/>	Edit Copy Delete A02	KA073421
<input type="checkbox"/>	Edit Copy Delete A03	KA876534
<input type="checkbox"/>	Edit Copy Delete A04	KA018756
<input type="checkbox"/>	Edit Copy Delete A05	KA520191

Showing rows 0 - 4 (5 total, Query took 0.0009 seconds.)

```
select * from participated
```

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

	driver_id	reg_num	report_num	damage_amount
<input type="checkbox"/>	Edit Copy Delete A01	KA993344	101	1000
<input type="checkbox"/>	Edit Copy Delete A02	KA073421	102	2000
<input type="checkbox"/>	Edit Copy Delete A03	KA876534	103	1500
<input type="checkbox"/>	Edit Copy Delete A04	KA018756	104	3400
<input type="checkbox"/>	Edit Copy Delete A05	KA520191	105	5000

iii. Demonstrate how you

- a. Update the damage amount for the car with a specific Regno in the accident with report number 101 to 25000.

1 row affected. (Query took 0.0313 seconds.)

```
update participated set damage_amount=25000 where reg_num='KA993344' and report_num=101
```

[Edit inline] [Edit] [Create PHP code]

Showing rows 0 - 4 (5 total, Query took 0.0008 seconds.)

```
select * from participated
```

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

	driver_id	reg_num	report_num	damage_amount
<input type="checkbox"/>	Edit Copy Delete A01	KA993344	101	25000
<input type="checkbox"/>	Edit Copy Delete A02	KA073421	102	2000
<input type="checkbox"/>	Edit Copy Delete A03	KA876534	103	1500
<input type="checkbox"/>	Edit Copy Delete A04	KA018756	104	3400
<input type="checkbox"/>	Edit Copy Delete A05	KA520191	105	5000

b. Add a new accident to the database.

```
insert into accident values(106, '2001-02-22',Domlur);
```

Showing rows 0 - 5 (6 total, Query took 0.0016 seconds.)

```
select * from accident
```

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

	report_num	accident_date	location
<input type="checkbox"/>	101	1999-01-23	Church Street
<input type="checkbox"/>	102	2001-08-02	New Thippasandra
<input type="checkbox"/>	103	2005-11-18	Commercial Street
<input type="checkbox"/>	104	1994-07-09	Koramangla
<input type="checkbox"/>	105	2011-09-22	Gandhi Nagar
<input type="checkbox"/>	106	2001-02-22	Domlur

iv. Find the total number of people who owned cars that involved in accidents in 2008.

Showing rows 0 - 0 (1 total, Query took 0.0029 seconds.)

```
select count(distinct driver_id) CNT from participated a, accident b where a.report_num=b.report_num and b.accident_date like '%08'
```

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

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

+ Options

CNT
0

v. Find the number of accidents in which cars belonging to a specific model were involved.

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

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

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

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

+ Options

CNT
1

Lab 2

Question:

Consider the following database for a banking enterprise.

BRANCH (branch-name: String, branch-city: String, assets: real)

ACCOUNTS (accno: int, branch-name: String, balance: real)

DEPOSITOR (customer-name: String, customer-street: String, customer-city: String)

LOAN (loan-number: int, branch-name: String, amount: real)

BORROWER (customer-name: String, loan-number: int)

Queries:

- i. Create the above tables by properly specifying the primary keys and the foreign keys.

MySQL returned an empty result set (i.e. zero rows). (Query took 0.2369 seconds.)

```
create table Branch(branchname varchar(30),branchcity varchar(30),assests real,primary key(branchname))
```

[Edit inline] [Edit] [Create PHP code]

Your SQL query has been executed successfully.

```
desc Branch
```

[Edit inline] [Edit] [Create PHP code]

+ Options

Field	Type	Null	Key	Default	Extra
branchname	varchar(30)	NO	PRI	NULL	
branchcity	varchar(30)	YES		NULL	
assests	double	YES		NULL	

MySQL returned an empty result set (i.e. zero rows). (Query took 0.3935 seconds.)

```
create table BankAccount(accno integer, branchname varchar(30), balance real, primary key(accno),foreign key(branchname) references Branch(branchname))
```

[Edit inline] [Edit] [Create PHP code]

Your SQL query has been executed successfully.

```
desc BankAccount
```

[Edit inline] [Edit] [Create PHP code]

+ Options

Field	Type	Null	Key	Default	Extra
accno	int(11)	NO	PRI	NULL	
branchname	varchar(30)	YES	MUL	NULL	
balance	double	YES		NULL	

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.3600 seconds.)

```
create table BankCustomer(customername varchar(30),customerstreet varchar(30),customercity varchar(30), primary key(customername))
```

[Edit inline] [Edit] [Create PHP code]

Your SQL query has been executed successfully.

```
desc BankCustomer
```

[Edit inline] [Edit] [Create PHP code]

+ Options

Field	Type	Null	Key	Default	Extra
customername	varchar(30)	NO	PRI	NULL	
customerstreet	varchar(30)	YES		NULL	
customercity	varchar(30)	YES		NULL	

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.3067 seconds.)

```
create table Depositor(customername varchar(30),accno integer, primary key(customername,accno),foreign key(customername) references BankCustomer(customername), foreign key(accno) references BankAccount(accno))
```

[Edit inline] [Edit] [Create PHP code]

Your SQL query has been executed successfully.

```
desc Depositor
```

[Edit inline] [Edit] [Create PHP code]

+ Options

Field	Type	Null	Key	Default	Extra
customername	varchar(30)	NO	PRI	NULL	
accno	int(11)	NO	PRI	NULL	

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.3609 seconds.)

```
create table loan(loannumber integer,branchname varchar(30),amount real, primary key(loannumber), foreign key(branchname) references branch(branchname))
```

[Edit inline] [Edit] [Create PHP code]

Your SQL query has been executed successfully.

```
desc loan
```

[Edit inline] [Edit] [Create PHP code]

+ Options

Field	Type	Null	Key	Default	Extra
loannumber	int(11)	NO	PRI	NULL	
branchname	varchar(30)	YES	MUL	NULL	
amount	double	YES		NULL	

- ii. Enter at least five tuples for each relation.

```
Showing rows 0 - 4 (5 total, Query took 0.0136 seconds.)
select * from branch
```

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

	branchname	branchcity	assets
<input type="checkbox"/>	ICICI_GandhiNagar	Delhi	20000
<input type="checkbox"/>	ICICI_Indiranagar	Bangalore	50000
<input type="checkbox"/>	ICICI_Koramangala	Bangalore	10000
<input type="checkbox"/>	ICICI_ParliamentRoad	Delhi	10000
<input type="checkbox"/>	ICICI_ShivajiRoad	Bombay	20000

```
Showing rows 0 - 4 (5 total, Query took 0.0015 seconds.)
select * from bankaccount
```

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

	accno	branchname	balance
<input type="checkbox"/>	1	ICICI_Indiranagar	2000
<input type="checkbox"/>	2	ICICI_Koramangala	3000
<input type="checkbox"/>	3	ICICI_ShivajiRoad	4000
<input type="checkbox"/>	4	ICICI_ParliamentRoad	6000
<input type="checkbox"/>	5	ICICI_GandhiNagar	2000

```
Showing rows 0 - 4 (5 total, Query took 0.0033 seconds.) [accno: 5... - 1...]
select * from depositor ORDER BY `accno` DESC
```

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

Show all | Number of rows: 25 Filter rows: Search this table Sort by key: accno (DESC)

+ Options

	customername	accno	1
<input type="checkbox"/>	Dharini	5	
<input type="checkbox"/>	Sannidhi	4	
<input type="checkbox"/>	Anjali	3	
<input type="checkbox"/>	Bharat	2	
<input type="checkbox"/>	Ajith	1	

Showing rows 0 - 4 (5 total, Query took 0.0034 seconds.)

```
select * from bankcustomer
```

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

	customername	customerstreet	customercity
<input type="checkbox"/>	Edit  Copy  Delete Ajith	Church Street	Bangalore
<input type="checkbox"/>	Edit  Copy  Delete Anjali	Frazer Town	Bombay
<input type="checkbox"/>	Edit  Copy  Delete Bharat	New Thippasandra	Bangalore
<input type="checkbox"/>	Edit  Copy  Delete Dharini	Lajpat Road	Delhi
<input type="checkbox"/>	Edit  Copy  Delete Sannidhi	Gandhi Street	Delhi

Showing rows 0 - 4 (5 total, Query took 0.0030 seconds.)

```
select * from loan
```

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

	loannumber	branchname	amount
<input type="checkbox"/>	Edit  Copy  Delete 1	ICICI_Indiranagar	1000
<input type="checkbox"/>	Edit  Copy  Delete 2	ICICI_Koramangala,	2000
<input type="checkbox"/>	Edit  Copy  Delete 3	ICICI_ShivajiNagar	3000
<input type="checkbox"/>	Edit  Copy  Delete 4	ICICI_ParliamentRoad	4000
<input type="checkbox"/>	Edit  Copy  Delete 5	ICICI_GandhiNagar	5000

- iii. Find all the customers who have at least two accounts at the Main branch.

MySQL returned an empty result set (i.e. zero rows). (Query took 0.1173 seconds.)

```
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='ICICI_Indiranagar' group by d.customername having count(d.customername)>=2)
```

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

customername

- iv. Find all the customers who have an account at all the branches located in a specific city.

Showing rows 0 - 1 (2 total, Query took 0.0354 seconds.)

```
select * from bankaccount where branchname in (select branchname from branch where branchcity='Delhi')
```

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

	accno	branchname	balance
<input type="checkbox"/>	Edit  Copy  Delete 4	ICICI_ParliamentRoad	6000
<input type="checkbox"/>	Edit  Copy  Delete 5	ICICI_GandhiNagar	2000

- v. Demonstrate how you delete all account tuples at every branch located in a specific city.

✓ 2 rows affected. (Query took 0.1204 seconds.)

```
delete from bankaccount where branchname in (select branchname from branch where branchcity='Delhi')
```

[Edit inline] [Edit] [Create PHP code]

Lab 3

Consider the following schema:

SUPPLIERS (sid: integer, sname: string, address: string)

PARTS (pid: integer, pname: string, color: string)

CATALOG (sid: integer, pid: integer, cost: real)

Creating Tables:

MySQL returned an empty result set (i.e. zero rows). (Query took 0.4619 seconds.)

```
CREATE TABLE SUPPLIERS(SID INTEGER,SNAME VARCHAR(20),ADDRESS VARCHAR(40),PRIMARY KEY(SID))
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.1682 seconds.)

```
CREATE TABLE PARTS(PID INTEGER,PNAME VARCHAR(20),COLOR VARCHAR(20),PRIMARY KEY(PID))
```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.3094 seconds.)

```
CREATE TABLE CATALOG(SID INTEGER,PID INTEGER,COST REAL,FOREIGN KEY(SID) REFERENCES SUPPLIERS(SID) ON DELETE SET NULL ON UPDATE CASCADE, FOREIGN KEY(PID) REFERENCES PARTS(PID) ON DELETE SET NULL ON UPDATE CASCADE)
```

[Edit inline] [Edit] [Create PHP code]

The screenshot shows the MySQL Workbench interface for the 'supplier' database. The top navigation bar includes tabs for Structure, SQL, Search, Query, Export, Import, Operations, Privileges, Routines, Events, and More. A 'Filters' button is also present. Below the navigation bar, there is a search field labeled 'Containing the word:'.

The main area displays a table of three tables: catalog, parts, and suppliers. The table has columns for Table, Action, Rows, Type, Collation, Size, and Overhead.

Table	Action	Rows	Type	Collation	Size	Overhead
catalog	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	48.0 KiB	-
parts	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
suppliers	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
3 tables	Sum	0	InnoDB	utf8mb4_general_ci	80.0 KiB	0 B

'SUPPLIERS' TABLE:

✓ 1 row inserted. (Query took 0.1070 seconds.)

```
INSERT INTO SUPPLIERS(SID,SNAME,ADDRESS) VALUES (101,'Acme Widget','Bangalore')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0521 seconds.)

```
INSERT INTO SUPPLIERS(SID,SNAME,ADDRESS) VALUES (102,'Johns','Kolkata')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0630 seconds.)

```
INSERT INTO SUPPLIERS(SID,SNAME,ADDRESS) VALUES (103,'Vimal','Mumbai')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0277 seconds.)

```
INSERT INTO SUPPLIERS(SID,SNAME,ADDRESS) VALUES (104,'Reliance','Delhi')
```

[Edit inline] [Edit] [Create PHP code]

✓ Showing rows 0 - 3 (4 total, Query took 0.0025 seconds.)

```
SELECT * FROM SUPPLIERS
```

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

	SID	SNAME	ADDRESS
<input type="checkbox"/>	101	Acme Widget	Bangalore
<input type="checkbox"/>	102	Johns	Kolkata
<input type="checkbox"/>	103	Vimal	Mumbai
<input type="checkbox"/>	104	Reliance	Delhi

'PARTS' TABLE:

✓ 1 row inserted. (Query took 0.0313 seconds.)

```
INSERT INTO PARTS(PID,PNAME,COLOR)VALUES(201,'Cable','Red')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0358 seconds.)

```
INSERT INTO PARTS(PID,PNAME,COLOR)VALUES(202,'Microcontroller','Black')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0307 seconds.)

```
INSERT INTO PARTS(PID,PNAME,COLOR)VALUES(203,'Bulbs','White')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0430 seconds.)

```
INSERT INTO PARTS(PID,PNAME,COLOR)VALUES(204,'Mobile','Red')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0351 seconds.)

```
INSERT INTO PARTS(PID,PNAME,COLOR)VALUES(205,'Charger','Red')
```

[Edit inline] [Edit] [Create PHP code]

Server: 127.0.0.1 » Database: supplier » Table: PARTS

Show query box

Showing rows 0 - 4 (5 total, Query took 0.0027 seconds.)

```
SELECT * FROM PARTS
```

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

	PID	PNAME	COLOR
<input type="checkbox"/>	201	Cable	Red
<input type="checkbox"/>	202	Microcontroller	Black
<input type="checkbox"/>	203	Bulbs	White
<input type="checkbox"/>	204	Mobile	Red
<input type="checkbox"/>	205	Charger	Red

'CATALOG' TABLE:

✓ 1 row inserted. (Query took 0.0887 seconds.)

```
INSERT INTO CATALOG(SID,PID,COST)VALUES(101,201,10)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0679 seconds.)

```
INSERT INTO CATALOG(SID,PID,COST)VALUES(101,202,10)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.3513 seconds.)

```
INSERT INTO CATALOG(SID,PID,COST)VALUES(101,203,30)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0476 seconds.)

```
INSERT INTO CATALOG(SID,PID,COST)VALUES(101,204,10)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0450 seconds.)

```
INSERT INTO CATALOG(SID,PID,COST)VALUES(101,205,10)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.3593 seconds.)

```
INSERT INTO CATALOG(SID,PID,COST)VALUES(102,201,10)
```

[Edit inline] [Edit] [Create PHP code]

```

✓ 1 row inserted. (Query took 0.3292 seconds.)

INSERT INTO CATALOG(SID,PID,COST)VALUES(102,202,20)

[Edit inline] [ Edit ] [ Create PHP code ]

✓ 1 row inserted. (Query took 0.1068 seconds.)

INSERT INTO CATALOG(SID,PID,COST)VALUES(103,203,30)

[Edit inline] [ Edit ] [ Create PHP code ]

✓ 1 row inserted. (Query took 0.1137 seconds.)

INSERT INTO CATALOG(SID,PID,COST)VALUES(104,203,40)

[Edit inline] [ Edit ] [ Create PHP code ]

```

Server: 127.0.0.1 » Database: supplier » Table: CATALOG

SID	PID	COST
101	201	10
101	202	10
101	203	30
101	204	10
101	205	10
102	201	10
102	202	20
103	203	30
104	203	40

1. Find the PNAME of parts for which there is a supplier.

```

✓ Showing rows 0 - 4 (5 total, Query took 0.1528 seconds.)

SELECT DISTINCT PNAME FROM PARTS,CATALOG WHERE CATALOG.PID=PARTS.PID AND CATALOG.SID IS NOT NULL

□ 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
PNAME
Cable
Microcontroller
Bulbs
Mobile
Charger

```

2. Find the SNAME of suppliers who supply every part.

```

✓ Showing rows 0 - 0 (1 total, Query took 0.2060 seconds.)

SELECT S.SNAME FROM SUPPLIERS S WHERE NOT EXISTS((SELECT P.PID FROM PARTS P)EXCEPT(SELECT C.PID FROM CATALOG C WHERE C.SID=S.SID))

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

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

+ Options
SNAME
Acme Widget

```

3. Find the SNAME of suppliers who supply every red part.

Showing rows 0 - 0 (1 total, Query took 0.1632 seconds.)

```
SELECT S.SNAME FROM SUPPLIERS S WHERE NOT EXISTS((SELECT P.PID FROM PARTS P WHERE P.COLOR='Red')EXCEPT(SELECT C.PID FROM CATALOG C,PARTS P WHERE C.SID=S.SID AND C.PID=P.PID AND P.COLOR='Red'))
```

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

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

+ Options

SNAME
Acme Widget

Edit Copy Delete Acme Widget

4. Find the PNAME of parts supplied by Acme Widget Suppliers and by no one else.

Showing rows 0 - 1 (2 total, Query took 0.0114 seconds.)

```
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')
```

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

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

+ Options

PNAME
Mobile
Charger

Edit Copy Delete Mobile
 Edit Copy Delete Charger

5. Find the SID of suppliers who charge more for some part than the average cost of that part(averaged over all the suppliers who supply that part).

Showing rows 0 - 1 (2 total, Query took 0.0687 seconds.)

```
SELECT DISTINCT C.SID FROM CATALOG C WHERE C.COST > (SELECT AVG (C1.COST) FROM CATALOG C1 WHERE C1.PID=C.PID)
```

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

SID
102
104

6. For each part, find the SNAME of the supplier who charges the most for that part.

Showing rows 0 - 5 (6 total, Query took 0.0253 seconds.)

```
SELECT * FROM SUPPLIERS S, PARTS P, CATALOG C WHERE P.PID=C.PID AND C.SID=S.SID AND COST IN (SELECT MAX(COST) FROM CATALOG C1 WHERE C1.PID=P.PID)
```

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

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

+ Options

SID	SNAME	ADDRESS	PID	PNAME	COLOR	SID	PID	COST
101	Acme Widget	Bangalore	201	Cable	Red	101	201	10
101	Acme Widget	Bangalore	204	Mobile	Red	101	204	10
101	Acme Widget	Bangalore	205	Charger	Red	101	205	10
102	Johns	Kolkata	201	Cable	Red	102	201	10
102	Johns	Kolkata	202	Microcontroller	Black	102	202	20
104	Reliance	Delhi	203	Bulbs	White	104	203	40

7. Find the SID of suppliers who supply only red parts.

Showing rows 0 - 0 (1 total, Query took 0.0017 seconds.)

```
SELECT * FROM SUPPLIERS S WHERE NOT EXISTS ((SELECT PID FROM CATALOG C WHERE C.SID=S.SID) EXCEPT (SELECT PID FROM PARTS WHERE COLOR='Red'))
```

Profiling [Edit inline] [Edit] [Export]

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

+ Options

← → ▾ sid sname address

 Edit  Copy  Delete 102 Johns Kolkata

Lab 4

Consider the following database for student enrolment for course:

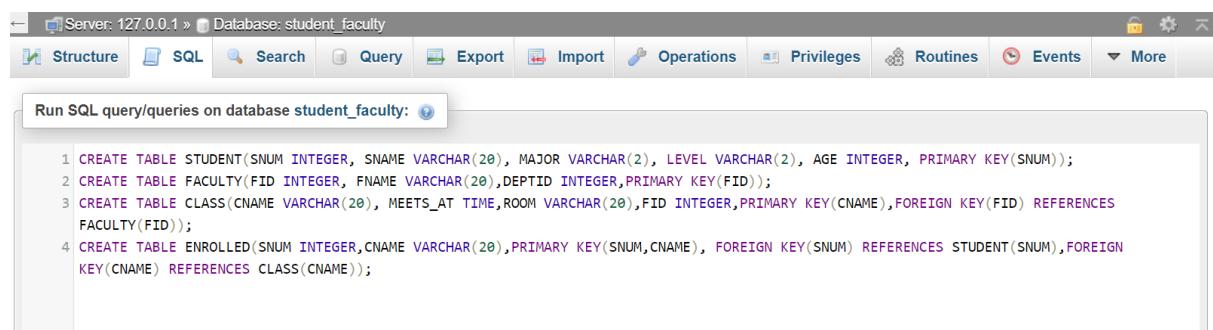
STUDENT (snum: integer, sname: string, major: string, level: string, age: integer)

CLASS (name: string, meets at: time, room: string, fid: integer)

ENROLLED (snum: integer, cname: string)

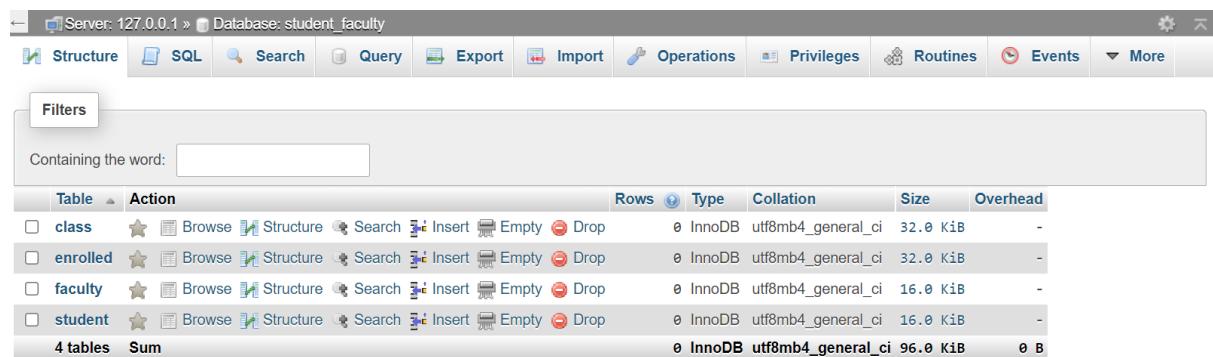
FACULTY (fid: integer, fname: string, deptid: integer)

The meaning of these relations is straightforward; for example, Enrolled has one record per student-class pair such that the student is enrolled in the class. Level is a two character code with 4 different values (example: Junior: JR etc)



Run SQL query/queries on database student_faculty: [?](#)

```
1 CREATE TABLE STUDENT(SNUM INTEGER, SNAME VARCHAR(20), MAJOR VARCHAR(2), LEVEL VARCHAR(2), AGE INTEGER, PRIMARY KEY(SNUM));
2 CREATE TABLE FACULTY(FID INTEGER, FNAME VARCHAR(20),DEPTID INTEGER,PRIMARY KEY(FID));
3 CREATE TABLE CLASS(CNAME VARCHAR(20), MEETS_AT TIME,ROOM VARCHAR(20),FID INTEGER,PRIMARY KEY(CNAME),FOREIGN KEY(FID) REFERENCES FACULTY(FID));
4 CREATE TABLE ENROLLED(SNUM INTEGER,CNAME VARCHAR(20),PRIMARY KEY(SNUM,CNAME), FOREIGN KEY(SNUM) REFERENCES STUDENT(SNUM),FOREIGN KEY(CNAME) REFERENCES CLASS(CNAME));
```



Containing the word:

Table	Action	Rows	Type	Collation	Size	Overhead
class	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
enrolled	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
faculty	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
student	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
4 tables	Sum	0	InnoDB	utf8mb4_general_ci	96.0 KiB	0 B

'STUDENT' TABLE:

✓ 1 row inserted. (Query took 0.1049 seconds.)

```
INSERT INTO STUDENT(SNUM,SNAME,MAJOR,LEVEL,AGE)VALUES(1,'Sam','CS','Sr',21)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0532 seconds.)

```
INSERT INTO STUDENT(SNUM,SNAME,MAJOR,LEVEL,AGE)VALUES(2,'Suraj','CS','Jr',19)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.1019 seconds.)

```
INSERT INTO STUDENT(SNUM,SNAME,MAJOR,LEVEL,AGE)VALUES(3,'Raj','CS','Sr',20)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0232 seconds.)

```
INSERT INTO STUDENT(SNUM,SNAME,MAJOR,LEVEL,AGE)VALUES(4,'Sita','CS','Jr',19)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0382 seconds.)

```
INSERT INTO STUDENT(SNUM,SNAME,MAJOR,LEVEL,AGE)VALUES(5,'Zeeshan','CS','Sr',21)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0516 seconds.)

```
INSERT INTO STUDENT(SNUM,SNAME,MAJOR,LEVEL,AGE)VALUES(6,'Shweta','CS','Sr',20)
```

[Edit inline] [Edit] [Create PHP code]

✓ Showing rows 0 - 5 (6 total, Query took 0.0016 seconds.)

```
SELECT*FROM STUDENT
```

[Edit inline] [Edit] [Create PHP code]

Show all

Number of rows: 25

Filter rows: Search this table

Sort by key: None

+ Options

		SNUM	SNAME	MAJOR	LEVEL	AGE
<input type="checkbox"/>		1	Sam	CS	Sr	21
<input type="checkbox"/>		2	Suraj	CS	Jr	19
<input type="checkbox"/>		3	Raj	CS	Sr	20
<input type="checkbox"/>		4	Sita	CS	Jr	19
<input type="checkbox"/>		5	Zeeshan	CS	Sr	21
<input type="checkbox"/>		6	Shweta	CS	Sr	20

'FACULTY' TABLE:

<p>✓ 1 row inserted. (Query took 0.0722 seconds.)</p> <pre>INSERT INTO FACULTY(FID,FNAME,DEPTID)VALUES(11,'Harsh',1000)</pre>
<p>[Edit inline] [Edit] [Create PHP code]</p>
<p>✓ 1 row inserted. (Query took 0.0678 seconds.)</p> <pre>INSERT INTO FACULTY(FID,FNAME,DEPTID)VALUES(12,'Vajay',1000)</pre>
<p>[Edit inline] [Edit] [Create PHP code]</p>
<p>✓ 1 row inserted. (Query took 0.1232 seconds.)</p> <pre>INSERT INTO FACULTY(FID,FNAME,DEPTID)VALUES(13,'Ram',1001)</pre>
<p>[Edit inline] [Edit] [Create PHP code]</p>
<p>✓ 1 row inserted. (Query took 0.0372 seconds.)</p> <pre>INSERT INTO FACULTY(FID,FNAME,DEPTID)VALUES(14,'Roopa',1002)</pre>
<p>[Edit inline] [Edit] [Create PHP code]</p>
<p>✓ 1 row inserted. (Query took 0.0380 seconds.)</p> <pre>INSERT INTO FACULTY(FID,FNAME,DEPTID)VALUES(15,'Nandini',1000)</pre>
<p>[Edit inline] [Edit] [Create PHP code]</p>

<p>✓ Showing rows 0 - 4 (5 total, Query took 0.0016 seconds.)</p> <pre>SELECT*FROM FACULTY</pre>																																				
<p>[Edit inline] [Edit] [Create PHP code]</p>																																				
<p><input type="checkbox"/> Show all Number of rows: 25 Filter rows: <input type="text"/> Search this table Sort by key: <input type="text"/> None</p> <p>+ Options</p> <table><thead><tr><th></th><th><input type="button" value="←"/></th><th><input type="button" value="→"/></th><th>FID</th><th>FNAME</th><th>DEPTID</th></tr></thead><tbody><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>11</td><td>Harsh</td><td>1000</td></tr><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>12</td><td>Vajay</td><td>1000</td></tr><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>13</td><td>Ram</td><td>1001</td></tr><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>14</td><td>Roopa</td><td>1002</td></tr><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>15</td><td>Nandini</td><td>1000</td></tr></tbody></table>		<input type="button" value="←"/>	<input type="button" value="→"/>	FID	FNAME	DEPTID	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	11	Harsh	1000	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	12	Vajay	1000	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	13	Ram	1001	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	14	Roopa	1002	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	15	Nandini	1000
	<input type="button" value="←"/>	<input type="button" value="→"/>	FID	FNAME	DEPTID																															
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	11	Harsh	1000																															
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	12	Vajay	1000																															
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	13	Ram	1001																															
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	14	Roopa	1002																															
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	15	Nandini	1000																															

'CLASS' TABLE:

<p>✓ Showing rows 0 - 7 (8 total, Query took 0.0034 seconds.)</p> <pre>SELECT*FROM CLASS</pre>																																																															
<p>[Edit inline] [Edit] [Create PHP code]</p>																																																															
<p><input type="checkbox"/> Show all Number of rows: 25 Filter rows: <input type="text"/> Search this table Sort by key: <input type="text"/> None</p> <p>+ Options</p> <table><thead><tr><th></th><th><input type="button" value="←"/></th><th><input type="button" value="→"/></th><th>CNAME</th><th>MEETS_AT</th><th>ROOM</th><th>FID</th></tr></thead><tbody><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>class1</td><td>10:15:16</td><td>R1</td><td>14</td></tr><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>class10</td><td>10:15:16</td><td>R128</td><td>14</td></tr><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>class2</td><td>10:15:20</td><td>R2</td><td>12</td></tr><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>class3</td><td>10:15:25</td><td>R3</td><td>11</td></tr><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>class4</td><td>20:15:20</td><td>R4</td><td>14</td></tr><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>class5</td><td>20:15:20</td><td>R3</td><td>15</td></tr><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>class6</td><td>13:20:20</td><td>R2</td><td>14</td></tr><tr><td><input type="checkbox"/></td><td><input type="button" value="Edit"/></td><td><input type="button" value="Copy"/></td><td>class7</td><td>10:10:10</td><td>R3</td><td>14</td></tr></tbody></table>		<input type="button" value="←"/>	<input type="button" value="→"/>	CNAME	MEETS_AT	ROOM	FID	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class1	10:15:16	R1	14	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class10	10:15:16	R128	14	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class2	10:15:20	R2	12	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class3	10:15:25	R3	11	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class4	20:15:20	R4	14	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class5	20:15:20	R3	15	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class6	13:20:20	R2	14	<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class7	10:10:10	R3	14
	<input type="button" value="←"/>	<input type="button" value="→"/>	CNAME	MEETS_AT	ROOM	FID																																																									
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class1	10:15:16	R1	14																																																									
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class10	10:15:16	R128	14																																																									
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class2	10:15:20	R2	12																																																									
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class3	10:15:25	R3	11																																																									
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class4	20:15:20	R4	14																																																									
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class5	20:15:20	R3	15																																																									
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class6	13:20:20	R2	14																																																									
<input type="checkbox"/>	<input type="button" value="Edit"/>	<input type="button" value="Copy"/>	class7	10:10:10	R3	14																																																									

'ENROLLED' TABLE:

✓ 1 row inserted. (Query took 0.0895 seconds.)

```
INSERT INTO ENROLLED(SNUM,CNAME)VALUES(1, 'class1')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0602 seconds.)

```
INSERT INTO ENROLLED(SNUM,CNAME)VALUES(2, 'class1')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0793 seconds.)

```
INSERT INTO ENROLLED(SNUM,CNAME)VALUES(3, 'class3')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0390 seconds.)

```
INSERT INTO ENROLLED(SNUM,CNAME)VALUES(4, 'class3')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0440 seconds.)

```
INSERT INTO ENROLLED(SNUM,CNAME)VALUES(5, 'class4')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0368 seconds.)

```
INSERT INTO ENROLLED(SNUM,CNAME)VALUES(1, 'class5')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0582 seconds.)

```
INSERT INTO ENROLLED(SNUM,CNAME)VALUES(2, 'class5')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0586 seconds.)

```
INSERT INTO ENROLLED(SNUM,CNAME)VALUES(3, 'class5')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.1835 seconds.)

```
INSERT INTO ENROLLED(SNUM,CNAME)VALUES(4, 'class5')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.1641 seconds.)

```
INSERT INTO ENROLLED(SNUM,CNAME)VALUES(5, 'class5')
```

[Edit inline] [Edit] [Create PHP code]

Showing rows 0 - 9 (10 total, Query took 0.0025 seconds.)

```
SELECT * FROM ENROLLED
```

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

← → SNUM CNAME

	Edit	Copy	Delete	SNUM	CNAME
<input type="checkbox"/>				1	class1
<input type="checkbox"/>				1	class5
<input type="checkbox"/>				2	class1
<input type="checkbox"/>				2	class5
<input type="checkbox"/>				3	class3
<input type="checkbox"/>				3	class5
<input type="checkbox"/>				4	class3
<input type="checkbox"/>				4	class5
<input type="checkbox"/>				5	class4
<input type="checkbox"/>				5	class5

1. Find the names of all Juniors(level=JR) who are enrolled in a class taught by 'Roopa'.

Showing rows 0 - 0 (1 total, Query took 0.0252 seconds.)

```
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 FNAME='Roopa' AND S.LEVEL='Jr'
```

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

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

+ Options

← → SNAME

	Edit	Copy	Delete	SNAME
<input type="checkbox"/>				Suraj

2. Find the names of all classes that either meet in room R128 or have five or more Students enrolled.

Showing rows 0 - 1 (2 total, Query took 0.0663 seconds.)

```
SELECT DISTINCT CNAME FROM CLASS WHERE ROOM='R128' OR CNAME IN (SELECT E.CNAME FROM ENROLLED E GROUP BY E.CNAME HAVING COUNT(*)>=5)
```

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

← → CNAME

	Edit	Copy	Delete	CNAME
<input type="checkbox"/>				class10
<input type="checkbox"/>				class5

3. Find the names of all students who are enrolled in two classes that meet at the same time.

Showing rows 0 - 0 (1 total, Query took 0.0990 seconds.)

```
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)
```

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

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

+ Options

← → SNAME

	Edit	Copy	Delete	SNAME
<input type="checkbox"/>				Zeeshan

4. Find the names of faculty members who teach in every room in which some class is taught.

Showing rows 0 - 0 (1 total, Query took 0.1506 seconds.)

```
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))
```

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

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

+ Options

FNAME	FID
Roopa	14

Edit Copy Delete Roopa

5. Find the names of faculty members for whom the combined enrolment of the courses that they teach is less than five.

Showing rows 0 - 3 (4 total, Query took 0.0276 seconds.)

```
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)
```

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

FNAME
Harsh
Vajay
Ram
Roopa

Edit Copy Delete Harsh
 Edit Copy Delete Vajay
 Edit Copy Delete Ram
 Edit Copy Delete Roopa

6. Find the names of student who are not enrolled in any class.

Showing rows 0 - 0 (1 total, Query took 0.0325 seconds.)

```
SELECT DISTINCT S.SNAME FROM STUDENT S WHERE S.SNUM NOT IN (SELECT E.SNUM FROM ENROLLED E)
```

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

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

+ Options

SNAME
Shweta

Edit Copy Delete Shweta

**7. For each age value that appears in Student, find the level value that appears most often.
For example, if there are more FR level students aged 18 than SR,JR,or SO students aged 18, you should print the pair(18,FR).**

Showing rows 0 - 2 (3 total, Query took 0.0394 seconds.) [AGE: 19... - 21...]

```
SELECT S.AGE,S.LEVEL FROM STUDENT S GROUP BY S.AGE,S.LEVEL HAVING S.LEVEL IN(SELECT S1.LEVEL FROM STUDENT S1 WHERE S1.AGE=S.AGE GROUP BY S1.AGE,S1.LEVEL HAVING COUNT(*)>=ALL (SELECT COUNT(*) FROM STUDENT S2 WHERE S1.AGE=S2.AGE GROUP BY S2.LEVEL,S2.AGE)) ORDER BY S.AGE
```

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

AGE	LEVEL
19	Jr
20	Sr
21	Sr

Edit Copy Delete 19 Jr
 Edit Copy Delete 20 Sr
 Edit Copy Delete 21 Sr

Lab 5

Consider the following database that keeps track of airline flight information:

FLIGHTS (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.



```
1 CREATE TABLE FLIGHTS(FLNO INTEGER, FROMPLACE VARCHAR(15),TOPLACE VARCHAR(15),DISTANCE INTEGER, DEPARTS DATETIME,ARRIVES DATETIME,PRICE
INTEGER, PRIMARY KEY(FLNO));
2 DESC FLIGHTS;
3 CREATE TABLE AIRCRAFT(AID INTEGER,ANAME VARCHAR(15),CRUISINGRANGE INTEGER,PRIMARY KEY(AID));
4 DESC AIRCRAFT;
5 CREATE TABLE EMPLOYEES(EID INTEGER,ENAME VARCHAR(15),SALARY INTEGER,PRIMARY KEY(EID));
6 DESC EMPLOYEES;
7 CREATE TABLE CERTIFIED(EID INTEGER,AID INTEGER,FOREIGN KEY(EID) REFERENCES EMPLOYEES(EID),FOREIGN KEY(AID) REFERENCES AIRCRAFT(AID));
8 DESC CERTIFIED;
```



Table	Action	Rows	Type	Collation	Size	Overhead
aircraft	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
certified	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	48.0 KiB	-
employees	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
flights	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
4 tables	Sum	0	InnoDB	utf8mb4_general_ci	96.0 KiB	0 B

'FLIGHTS' TABLE:

✓ 1 row inserted. (Query took 0.2621 seconds.)

```
INSERT INTO FLIGHTS VALUES(101,'Bangalore','Kolkata',2500,'2021-01-03 08:20:31','2021-01-03 09:20:31',5000)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0825 seconds.)

```
INSERT INTO FLIGHTS VALUES(102,'Delhi','Bangalore',4000,'2021-01-03 16:10:15','2021-01-03 19:30:10',8000)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0680 seconds.)

```
INSERT INTO FLIGHTS VALUES(103,'Kolkata','Pune',1500,'2021-01-03 07:15:31','2021-01-03 07:20:31',3000)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0625 seconds.)

```
INSERT INTO FLIGHTS VALUES(104,'New York','Bangalore',25000,'2021-01-03 08:20:31','2021-01-04 09:20:31',50000)
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.2270 seconds.)

```
INSERT INTO FLIGHTS VALUES(105,'Bangalore','Chennai',1000,'2021-01-03 08:20:31','2021-01-03 09:20:31',2000)
```

[Edit inline] [Edit] [Create PHP code]

✓ Showing rows 0 - 4 (5 total, Query took 0.0049 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

v

+ Options

	FLNO	FROMPLACE	TOPLACE	DISTANCE	DEPARTS	ARRIVES	PRICE
<input type="checkbox"/>	101	Bangalore	Kolkata	2500	2021-01-03 08:20:31	2021-01-03 09:20:31	5000
<input type="checkbox"/>	102	Delhi	Bangalore	4000	2021-01-03 16:10:15	2021-01-03 19:30:10	8000
<input type="checkbox"/>	103	Kolkata	Pune	1500	2021-01-03 07:15:31	2021-01-03 07:20:31	3000
<input type="checkbox"/>	104	New York	Bangalore	25000	2021-01-03 08:20:31	2021-01-04 09:20:31	50000
<input type="checkbox"/>	105	Bangalore	Chennai	1000	2021-01-03 08:20:31	2021-01-03 09:20:31	2000

'AIRCRAFT' TABLE:

<p>✓ 1 row inserted. (Query took 0.1205 seconds.)</p> <pre>INSERT INTO AIRCRAFT VALUES(101,'747',3000)</pre>																								
[Edit inline] [Edit] [Create PHP code]																								
<p>✓ 1 row inserted. (Query took 0.0461 seconds.)</p> <pre>INSERT INTO AIRCRAFT VALUES(102,'Dreamliner',1500)</pre>																								
[Edit inline] [Edit] [Create PHP code]																								
<p>✓ 1 row inserted. (Query took 0.0837 seconds.)</p> <pre>INSERT INTO AIRCRAFT VALUES(103,'747',500)</pre>																								
[Edit inline] [Edit] [Create PHP code]																								
<p>✓ 1 row inserted. (Query took 0.0329 seconds.)</p> <pre>INSERT INTO AIRCRAFT VALUES(104,'Boeing',10000)</pre>																								
[Edit inline] [Edit] [Create PHP code]																								
<p>✓ 1 row inserted. (Query took 0.0732 seconds.)</p> <pre>INSERT INTO AIRCRAFT VALUES(105,'Dreamliner',4000)</pre>																								
[Edit inline] [Edit] [Create PHP code]																								
<p>✓ Showing rows 0 - 4 (5 total, Query took 0.0024 seconds.)</p> <pre>SELECT * FROM AIRCRAFT</pre>																								
<input type="checkbox"/> Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]																								
<input type="checkbox"/> Show all Number of rows: <select>25</select> Filter rows: <input type="text"/> Search this table Sort by key: <input type="text"/> None																								
+ Options																								
<table border="1"><thead><tr><th></th><th>AID</th><th>ANAME</th><th>CRUISINGRANGE</th></tr></thead><tbody><tr><td><input type="checkbox"/></td><td>101</td><td>747</td><td>3000</td></tr><tr><td><input type="checkbox"/></td><td>102</td><td>Dreamliner</td><td>1500</td></tr><tr><td><input type="checkbox"/></td><td>103</td><td>747</td><td>500</td></tr><tr><td><input type="checkbox"/></td><td>104</td><td>Boeing</td><td>10000</td></tr><tr><td><input type="checkbox"/></td><td>105</td><td>Dreamliner</td><td>4000</td></tr></tbody></table>		AID	ANAME	CRUISINGRANGE	<input type="checkbox"/>	101	747	3000	<input type="checkbox"/>	102	Dreamliner	1500	<input type="checkbox"/>	103	747	500	<input type="checkbox"/>	104	Boeing	10000	<input type="checkbox"/>	105	Dreamliner	4000
	AID	ANAME	CRUISINGRANGE																					
<input type="checkbox"/>	101	747	3000																					
<input type="checkbox"/>	102	Dreamliner	1500																					
<input type="checkbox"/>	103	747	500																					
<input type="checkbox"/>	104	Boeing	10000																					
<input type="checkbox"/>	105	Dreamliner	4000																					

'EMPLOYEES' TABLE:

✓ 1 row inserted. (Query took 0.0828 seconds.)
<pre>INSERT INTO EMPLOYEES VALUES(601, 'A', 60000)</pre>
[Edit inline] [Edit] [Create PHP code]
✓ 1 row inserted. (Query took 0.0631 seconds.)
<pre>INSERT INTO EMPLOYEES VALUES(602, 'B', 80000)</pre>
[Edit inline] [Edit] [Create PHP code]
✓ 1 row inserted. (Query took 0.1114 seconds.)
<pre>INSERT INTO EMPLOYEES VALUES(603, 'C', 160000)</pre>
[Edit inline] [Edit] [Create PHP code]
✓ 1 row inserted. (Query took 0.0367 seconds.)
<pre>INSERT INTO EMPLOYEES VALUES(604, 'D', 120000)</pre>
[Edit inline] [Edit] [Create PHP code]
✓ 1 row inserted. (Query took 0.0338 seconds.)
<pre>INSERT INTO EMPLOYEES VALUES(605, 'E', 40000)</pre>
[Edit inline] [Edit] [Create PHP code]
✓ Showing rows 0 - 4 (5 total, Query took 0.0031 seconds.)
<pre>SELECT * FROM EMPLOYEES</pre>
<input type="checkbox"/> Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

<input type="checkbox"/> Show all	Number of rows:	25	Filter rows:	<input type="text" value="Search this table"/>	Sort by key:	<input type="text" value="None"/>
+ Options						
			EID	ENAME	SALARY	
<input type="checkbox"/>				601	A	60000
<input type="checkbox"/>				602	B	80000
<input type="checkbox"/>				603	C	160000
<input type="checkbox"/>				604	D	120000
<input type="checkbox"/>				605	E	40000

'CERTIFIED' TABLE:

<p>✓ 1 row inserted. (Query took 0.0596 seconds.)</p>
<pre>INSERT INTO CERTIFIED VALUES(601,101)</pre>
[Edit inline] [Edit] [Create PHP code]
<p>✓ 1 row inserted. (Query took 0.0795 seconds.)</p>
<pre>INSERT INTO CERTIFIED VALUES(601,102)</pre>
[Edit inline] [Edit] [Create PHP code]
<p>✓ 1 row inserted. (Query took 0.1563 seconds.)</p>
<pre>INSERT INTO CERTIFIED VALUES(602,102)</pre>
[Edit inline] [Edit] [Create PHP code]
<p>✓ 1 row inserted. (Query took 0.1225 seconds.)</p>
<pre>INSERT INTO CERTIFIED VALUES(603,102)</pre>
[Edit inline] [Edit] [Create PHP code]
<p>✓ 1 row inserted. (Query took 0.0468 seconds.)</p>
<pre>INSERT INTO CERTIFIED VALUES(603,103)</pre>
[Edit inline] [Edit] [Create PHP code]
<p>✓ 1 row inserted. (Query took 0.0330 seconds.)</p>
<pre>INSERT INTO CERTIFIED VALUES(604,104)</pre>
[Edit inline] [Edit] [Create PHP code]
<p>✓ 1 row inserted. (Query took 0.0376 seconds.)</p>
<pre>INSERT INTO CERTIFIED VALUES(604,105)</pre>
[Edit inline] [Edit] [Create PHP code]
<p>✓ 1 row inserted. (Query took 0.0426 seconds.)</p>
<pre>INSERT INTO CERTIFIED VALUES(605,105)</pre>
[Edit inline] [Edit] [Create PHP code]

<p>✓ Showing rows 0 - 7 (8 total, Query took 0.0047 seconds.)</p>
<pre>SELECT * FROM CERTIFIED</pre>
<input type="checkbox"/> 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
601	101
601	102
602	102
603	102
603	103
604	104
604	105
605	105

- 1. Find the names of aircraft such that all pilots certified to operate them have salaries more than Rs. 80,000.**

Showing rows 0 - 1 (2 total, Query took 0.2238 seconds.)

```
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 SALARY>80000))
```

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

ANAME	
<input type="checkbox"/>	Edit Copy Delete 747
<input type="checkbox"/>	Edit Copy Delete Dreamliner

- 2. For each pilot who is certified for more than one aircraft, find the EID and the maximum cruising range of the aircraft for she/he is certified to fly.**

Showing rows 0 - 2 (3 total, Query took 0.0413 seconds.)

```
SELECT MAX(A.CRUISINGRANGE),C.EID FROM certified C, aircraft A WHERE C.AID=A.AID GROUP BY C.EID HAVING COUNT(C.EID)>1
```

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

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

+ Options

MAX(A.CRUISINGRANGE)	EID
3000	601
1500	603
10000	604

- 3. Find the names of pilots whose salary is less than the price of the cheapest route from New York to Bangalore.**

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

```
SELECT ENAME FROM employees WHERE SALARY < (SELECT MIN(PRICE) FROM flights WHERE FROMPLACE='New York' AND TOPLACE='Bangalore')
```

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"/>	Edit Copy Delete E

- 4. 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.**

Showing rows 0 - 3 (4 total, Query took 0.0499 seconds.)

```
SELECT AVG(E.SALARY), C.AID FROM certified C,employees E WHERE C.AID IN(SELECT AID FROM aircraft WHERE CRUISINGRANGE>1000) AND E.EID=C.EID GROUP BY C.AID
```

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

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

+ Options

AVG(E.SALARY)	AID
60000.0000	101
100000.0000	102
120000.0000	104
80000.0000	105

5. Find the names of the pilot for some Boeing aircraft.

Showing rows 0 - 0 (1 total, Query took 0.0113 seconds.)

```
SELECT ENAME FROM employees WHERE EID IN(SELECT EID FROM certified WHERE AID IN(SELECT AID FROM aircraft WHERE 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

Edit Copy Delete D

6. Find the aids of all aircraft that can be used on routes from Delhi to Bangalore.

Showing rows 0 - 0 (1 total, Query took 0.0030 seconds.)

```
SELECT ANAME FROM aircraft WHERE CRUISINGRANGE > ANY(SELECT DISTANCE FROM flights WHERE FROMPLACE='Delhi' AND TOPLACE='Bangalore')
```

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

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

+ Options

ANAME

Edit Copy Delete Boeing

7. A customer wants to travel from New York to Bangalore with no more than two changes of flight. List the choice of departure times from New York if the customer wants to arrive in Bangalore by 6 p.m.

Showing rows 0 - 0 (1 total, Query took 0.1198 seconds.)

```
SELECT F.flno, F.deperts FROM flights F WHERE F.flno IN ( ( SELECT F0.flno FROM flights F0 WHERE F0.fromplace = 'New York' AND F0.toplace = 'Bangalore' AND extract(hour from F0.arrives) < 18 ) UNION ( SELECT F0.flno FROM flights F0, flights F1 WHERE F0.fromplace = 'New York' AND F0.toplace <> 'Bangalore' AND F0.toplace = F1.fromplace AND F1.toplace = 'Bangalore' AND F1.deperts > F0.arrives AND extract(hour from F1.arrives) < 18 ) UNION ( SELECT F0.flno FROM flights F0, flights F1, flights F2 WHERE F0.fromplace = 'New York' AND F0.toplace = F1.fromplace AND F1.toplace = F2.fromplace AND F2.toplace = 'Bangalore' AND F0.toplace <> 'Bangalore' AND F1.toplace <> 'Bangalore' AND F1.deperts > F0.arrives AND F2.deperts > 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

+ Options

flno	departs
104	2021-01-03 08:20:31

Edit Copy Delete