

Example 03: Database Management System

1. Consider the following Insurance database with these relations.
 - (i) person (nid, name, address)
 - (ii) car (license, year, model)
 - (iii) accident (date, driver, damage-amount)
 - (iv) owns (nid, license)
 - (v) log (license, date, driver)

a) Insert the following data into those relations

Person		
<u>nid</u>	name	Address
123451	Arif	Rajshahi
123452	Sumon	Moynamati
123453	Sagor	Sirajgang
123454	Abdul	Rajshahi
123455	Himesh	Dhaka
123456	Amirul	Sylhet
123457	Sajib	Chittagang

Car		
<u>license</u>	year	model
12-3000	2012	Axio
11-3000	2008	Corolla
12-4000	2013	Axio
12-5000	2013	Premio
11-5000	2010	Nano
11-6000	2011	Alto
12-6000	2015	Nano Twist

accident		
<u>date</u>	<u>driver</u>	d_amount
12/01/2013	Arif	10000
25/09/2015	Komol	12000
20/06/2014	Bahadur	11000
20/12/2011	Abdul	8000
19/09/2015	Akter	7000
15/05/2013	Arif	20000
20/08/2014	Arif	15000

owns	
<u>Nid</u>	<u>license</u>
123451	11-3000
123452	12-4000
123453	12-5000
123454	11-5000
123455	11-6000
123456	12-6000
123457	12-3000

Log		
<u>license</u>	<u>date</u>	<u>driver</u>
11-3000	12/01/2013	Arif
12-4000	25/09/2015	Komol
11-6000	20/06/2014	Bahadur
11-5000	20/12/2011	Abdul
12-6000	19/09/2015	Akter
11-3000	15/05/2013	Arif
11-3000	20/08/2014	Arif

Ans:

```
-- CREATE TABLE person (
  nid int PRIMARY KEY,
  name varchar(155),
  address varchar(255)
);

CREATE TABLE car (
  license varchar(255) PRIMARY KEY,
  year int,
  model varchar(255)
);

CREATE TABLE accident (
  date date PRIMARY KEY,
  driver varchar(155),
  d_amount varchar(255)
);

CREATE TABLE owns (
  nid int,
  license varchar(255),
```

```

PRIMARY KEY(nid, license),
FOREIGN KEY (nid) REFERENCES person(nid),
FOREIGN KEY (license) REFERENCES car(license)

);
CREATE TABLE log (
license varchar(255),
date date ,
driver VARchar(255),
PRIMARY KEY (license,date,driver),
FOREIGN KEY (license) REFERENCES car(license)
)

```

Insert data into person table

```

INSERT INTO person (nid, name, address) VALUES
(123451, 'Arif', 'Rajshahi'),
(123452, 'Sumon', 'Moynamati'),
(123453, 'Sagor', 'Sirajgang'),
(123454, 'Abdul', 'Rajshahi'),
(123455, 'Himesh', 'Dhaka'),
(123456, 'Amirul', 'Sylhet'),
(123457, 'Sajib', 'Chittagang');

```

-- Insert data into car table

```

INSERT INTO car (license, year, model) VALUES
('12-3000', 2012, 'Axio'),
('11-3000', 2008, 'Corolla'),
('12-4000', 2013, 'Axio'),
('12-5000', 2013, 'Premio'),
('11-5000', 2010, 'Nano'),
('11-6000', 2011, 'Alto'),
('12-6000', 2015, 'Nano Twist');

```

-- Insert data into accident table

```

INSERT INTO accident (date, driver, d_amount) VALUES
('2013-12-01', 'Arif', 10000),
('2015-09-25', 'Komol', 12000),
('2014-06-20', 'Bahadur', 11000),
('2011-12-20', 'Abdul', 8000),
('2015-09-19', 'Akter', 7000),
('2013-05-15', 'Arif', 20000),
('2014-08-20', 'Arif', 15000);

```

-- Insert data into owns table

```
INSERT INTO owns (nid, license) VALUES
(123451, '11-3000'),
(123452, '12-4000'),
(123453, '12-5000'),
(123454, '11-5000'),
(123455, '11-6000'),
(123456, '12-6000'),
(123457, '12-3000');
```

-- Insert data into log table

```
INSERT INTO log (license, date, driver) VALUES
('11-3000', '2013-12-01', 'Arif'),
('12-4000', '2015-09-25', 'Komol'),
('11-6000', '2014-06-20', 'Bahadur'),
('11-5000', '2011-12-20', 'Abdul'),
('12-6000', '2015-09-19', 'Akter'),
('11-3000', '2013-05-15', 'Arif'),
('11-3000', '2014-08-20', 'Arif');
```

b) Find the names of all person who live in Rajshahi.

```
SELECT name
FROM person
WHERE address = 'Rajshahi';
```

c) Which model was sold in 2013?

```
SELECT model
FROM car
WHERE year = 2013;
```

d) Find the name of those driver where damage amount is between 10000 and 15000.

```
SELECT driver
FROM accident
WHERE damage_amount BETWEEN 10000 AND 15000;
```

e) Find the national id (nid) of those person who has Axio.

```
SELECT o.nid
FROM owns o
JOIN car c ON o.license = c.license
WHERE c.model = 'Axio';
```

f) Find the name and address of those person who has Alto.

```
SELECT p.name, p.address
FROM person p
JOIN owns o ON p.nid = o.nid
JOIN car c ON o.license = c.license
WHERE c.model = 'Alto';
```

g) Who (driver) was involved in the accident by 20/12/2011?

```
SELECT driver
FROM accident
WHERE date = '2011-12-20';
```

h) Who was the owner of the car with license 12-4000?

```
SELECT p.name
FROM person p
JOIN owns o ON p.nid = o.nid
WHERE o.license = '12-4000';
```

i) Who was the owner of the car whose driver is Arif?

```
SELECT p.name
FROM person p
JOIN owns o ON p.nid = o.nid
JOIN log ON o.license = log.license
WHERE log.driver = 'Arif';
```

j) Which car was involved in accident by 19/09/2015?

```
SELECT c.model
FROM car c
WHERE c.license IN (SELECT license FROM log WHERE date = '2015-09-19');
```

Or

```
SELECT c.model
FROM car c
JOIN log ON log.license = c.license
WHERE log.date = '2015-09-19';
```

k) Find the number of accidents in which the cars belonging to “Arif” were involved.

```
SELECT COUNT(*)
FROM accident
WHERE driver IN (SELECT driver FROM log WHERE license IN
    (SELECT license FROM owns WHERE nid = 123451));
```

Or

```
SELECT COUNT(*)  
FROM accident a  
JOIN log ON a.date = log.date  
JOIN owns ON log.license = owns.license  
WHERE nid = 123451
```

l) Find the dates of accidents in which the cars belonging to “Arif” were involved.

```
SELECT date  
FROM accident  
WHERE driver IN (SELECT driver FROM log WHERE license IN  
                (SELECT license FROM owns WHERE nid = 123451));
```

m) Modify the database so that “Arif” now lives in Natore.

```
UPDATE person  
SET address = 'Natore'  
WHERE name = 'Arif';
```