1.

```
/** */
CREATE DATABASE SWCom;
USE SWCom;
CREATE TABLE Employee (
 Empid INT AUTO INCREMENT PRIMARY KEY,
  EmpName VARCHAR(40) NOT NULL,
 Addr VARCHAR(50),
 DOB DATE,
 Salary INTEGER
);
--DESC Employee;
INSERT INTO
  Employee (Empname, Addr, DoB, Salary)
VALUES
    'IAmGroot',
    'Somewhere in Space',
    '2012-12-12',
    1E5
  ),
    'Suzaku Kururugi',
    'Main Palace, Britannia',
    '2000-07-10',
    1E4
  ),
  ('Amber', 'Mondstadt, Teyvat', '2001-8-10', 1E6),
    'Btuturuu',
    'Dubai st, New York nagar, India',
    '1993-02-01',
    1E7
  );
CREATE TABLE Project (
    Projno INTEGER AUTO_INCREMENT PRIMARY KEY,
    ProjName VARCHAR(50) NOT NULL,
    Duration INT DEFAULT 0,
    Descr VARCHAR(255)
  );
INSERT INTO
  Project (ProjName, Duration, Descr)
VALUES
```

```
('Storyboard', 2, 'Duration in days'),
  ('Sketching', 3, 'Lot of fleshing out work'),
  ('Final Revisions', 1, 'Consistency check');
CREATE TABLE WorksOn (
    Empid INT,
    FOREIGN KEY (Empid) REFERENCES Employee(Empid),
    Projno INT,
    FOREIGN KEY(Projno) REFERENCES Project(Projno)
  );
INSERT INTO
 Works0n
VALUES
  (2, 1),
  (4, 1),
  (1, 2),
  (3, 2),
 (3, 2),
 (4, 3);
 -- create table employee(datte int);
 -- DELETE FROM Employee, Project, WorksOn;
DELETE FROM
 WorksOn;
DELETE FROM
 Employee;
DELETE FROM
 Project;
DROP TABLE Employee, Project, WorksOn;
DROP DATABASE SWCom;
```

Inputs:

→ Employee Table

0	* Empid 💠	* EmpName varchar(40)	Addr varchar(50) ◆	DoB date ◆	Salary int(11) ◆
	Filter	Filter	Filter	Filter	Filter
1	1	IAmGroot	Somewhere in Space	2012-12-12	100000
2	2	Suzaku Kururugi	Main Palace, Britannia	2000-07-10	10000
3	3	Amber	Mondstadt, Teyvat	2001-08-10	1000000
4	4	Btuturuu	Dubai st, New York nagar,	1993-02-01	10000000

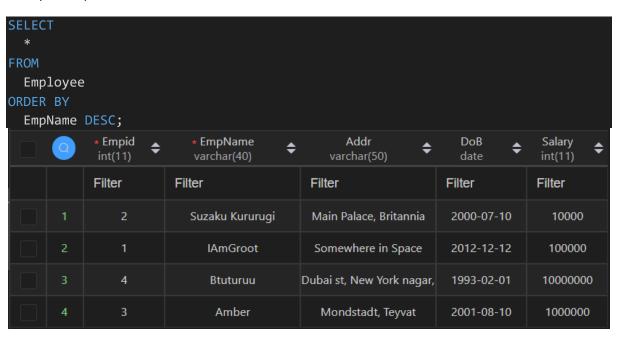
→ Project Table

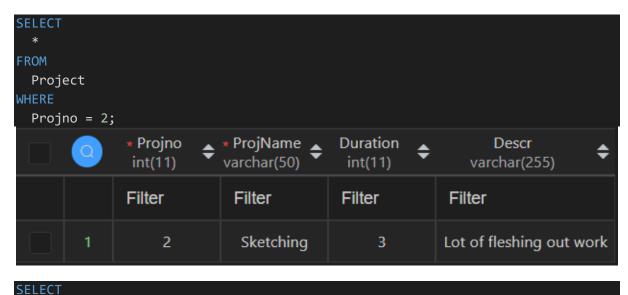
0	* Projno 💠	* ProjName varchar(50) ◆	Duration int(11)	Descr varchar(255) ◆
	Filter	Filter	Filter	Filter
1	1	Storyboard	2	Duration in days
2	2	Sketching	3	Lot of fleshing out work
3	3	Final Revisions	1	Consistency check

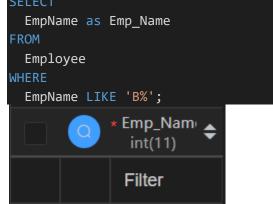
→ WorksOn

0	Empid int(11)	Projno int(11) ◆
	Filter	Filter
1	2	1
2	4	1
3	1	2
4	3	2
5	4	3

Query & Outputs:







Btuturuu





```
CREATE DATABASE College;
USE College;
CREATE TABLE student (
  rno INT,
 sname VARCHAR(20) NOT NULL,
 m1 INT,
 m2 INT,
 m3 INT,
 m4 INT,
 m5 INT,
 m6 INT,
  total INT as (m1 + m2 + m3 + m4 + m5 + m6),
 PRIMARY KEY(rno)
);
INSERT INTO
  student (
    `rno`,
    `sname`,
    `m1`,
    `m2`,
    `m3`,
    `m4`,
    `m5`,
    `m6`
VALUES
  (106119, 'Ravi', 89, 89, 98, 75, 80, 86),
  (106115, 'Kiran', 89, 89, 98, 75, 81, 86),
  (106118, 'Rakesh Kanna', 89, 89, 98, 77, 80, 86),
  (106125, 'Vamsi', 97, 95, 90, 93, 99, 91),
  (106114, 'Hemanth', 95, 96, 95, 96, 98, 97),
  (106116, 'Pavan', 92, 93, 94, 94, 93, 91),
  (106103, 'Durga Naik', 62, 72, 71, 80, 41, 51),
  (106122, 'Susender', 91, 50, 88, 48, 32, 64),
  (106121, 'Sundara Srinivasan', 82, 72, 64, 58, 62, 54),
  (106101, 'Raiden Baal', 100, 99, 89, 97, 96, 95);
CREATE TABLE dept (
  deptid INT PRIMARY KEY,
  deptname VARCHAR(20) NOT NULL,
 HOD VARCHAR (20)
);
INSERT INTO
  dept
VALUES
```

```
(106, 'CSE', "Rajeswari Ma'aM"),
  (105, 'Meta', 'Shankar Sir'),
(104, 'Prod', 'Karthik Sir')
CREATE TABLE stud_dept (
  rno INT,
  FOREIGN KEY (rno) REFERENCES student(rno),
  deptid INT,
  FOREIGN KEY (deptid) REFERENCES dept(deptid)
);
INSERT INTO
  stud_dept
VALUES
  (106119, 106),
  (106115, 106),
  (106118, 105),
 (106125, 106),
  (106114, 105),
  (106116, 104),
  (106103, 105),
 (106122, 104),
  (106121, 106),
  (106101, 106);
DELETE FROM stud_dept;
DELETE FROM dept;
DELETE FROM student;
DROP TABLE stud_dept;
DROP TABLE dept;
DROP TABLE student;
DROP DATABASE db_college;
```

Inputs:

→ Student Table

0	* rno int(11)	* sname varchar(20) ◆	m1 int(11) ◆	m2 int(11) ◆	m3 int(11) ◆	m4 int(11) ◆	m5 int(11) ◆	m6 int(11) ◆	total 💠
	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter
	106101	Raiden Baal	100	99	89	97	96	95	576
	106103	Durga Naik	62	72	71	80	41	51	377
	106114	Hemanth	95	96	95	96	98	97	577
	106115	Kiran	89	89	98	75	81	86	518
	106116	Pavan	92	93	94	94	93	91	557
	106118	Rakesh Kanna	89	89	98	77	80	86	519
	106119	Ravi	89	89	98	75	80	86	517
	106121	Sundara Srinivasan	82	72	64	58	62	54	392
	106122	Susender	91	50	88	48	32	64	373
	106125	Vamsi	97	95	90	93	99	91	565

→ Department Table

0	* deptid int(11) ◆	* deptname varchar(20) ◆	HOD varchar(20) ♦
	Filter	Filter	Filter
1	104	Prod	Karthik Sir
2	105	Meta	Shankar Sir
3	106	CSE	Rajeswari Ma'aM

→ Student-Department

0	rno int(11)	deptid int(11) ♦
	Filter	Filter
1	106119	106
2	106115	106
3	106118	105
4	106125	106
5	106114	105
6	106116	104
7	106103	105
8	106122	104
9	106121	106
10	106101	106

Queries & Outputs:

```
SELECT
   *
FROM
   student
WHERE
   rno IN (
     SELECT
       rno
      FROM
      stud_dept
   WHERE
      deptid = 105
);
```

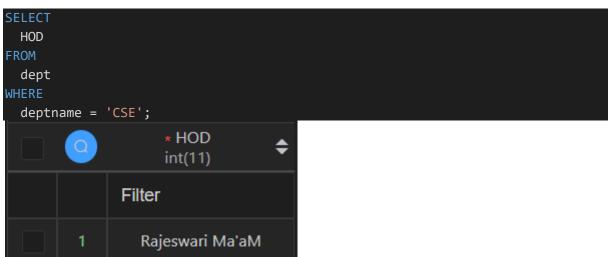
<u></u>	* rno int(11)	* sname varchar(20)	m1 int(11) ♦	m2 int(11) \$	m3 int(11) \$	m4 int(11) ◆	m5 int(11) \$	m6 int(11) ≑	total int(11) ◆
	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter
	106103	Durga Naik	62	72	71	80	41	51	377
	106114	Hemanth	95	96	95	96	98	97	577
	106118	Rakesh Kanna	89	89	98	77	80	86	519

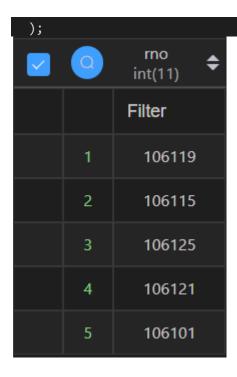
```
SELECT
   *
FROM
   dept
WHERE
   deptid IN (
    SELECT
        deptid
    FROM
        stud_dept
    WHERE
        rno = 106121
   );
```

V	<u>Q</u>	* deptid int(11) ◆	* deptname varchar(20) ◆	HOD varchar(20) ♦
		Filter	Filter	Filter
	1	106	CSE	Rajeswari Ma'aM

```
SELECT
sname
FROM
student
WHERE
total > 500;
```







3.

```
CREATE DATABASE Travels;
USE Travels;
CREATE TABLE salesperson (
    ssn INT PRIMARY KEY,
    salesperson_name VARCHAR(50),
    start_year INT, -- YEAR can be used, check range
    dept_no INTEGER
);
INSERT INTO salesperson
VALUES (1000, 'Kinji Ninomiya',2000,1),
    (2000, 'Maou Sadao',2001,02),
    (3000, "Steve Jobs",2004,001)
CREATE TABLE trip (
    ssn INT,
    from_city VARCHAR(50),
    to_city VARCHAR(50),
    departure_date DATE,
```

```
return_date DATE,
    trip id INT AUTO INCREMENT,
    PRIMARY KEY (trip id),
    FOREIGN KEY (ssn) REFERENCES salesperson(ssn)
);
INSERT INTO trip (ssn, from_city, to_city, departure_date, return_date)
VALUES (1000, 'Trichy', 'Chennai', '2001-04-04', '2001-04-14'),
    (2000, 'Chennai', 'Time Travel', '2002-04-08', '2000-04-08'),
    (3000, 'Mumbai', 'Kolkata', '2013-08-12', '2013-08-16'),
    (2000, 'Hyderabad', 'Bangalore', '2012-04-11', '2012-04-18'),
    (1000, 'Delhi', 'Chennai', '2013-08-12', '2013-08-16')
CREATE TABLE salerep_expense (
    trip id INT,
    expense type ENUM('TRAVEL','STAY','FOOD'),
    amount INTEGER,
    FOREIGN KEY (trip_id) REFERENCES trip(trip_id)
);
INSERT INTO salerep expense
VALUES (1, 'TRAVEL', 14E3),
    (2, 'TRAVEL', 1E3),
    (2, 'STAY', 500),
    (2, 'FOOD', 499),
    (3, 'TRAVEL', 12E3),
    (3, 'STAY', 4E3),
    (3, 'FOOD', 2400)
DELETE FROM salerep_expense;
DELETE FROM trip;
DELETE FROM salesperson;
DROP TABLE salerep_expense;
DROP TABLE trip;
DROP TABLE salesperson;
DROP DATABASE Travels;
```

Inputs:

→ Salesperson Table

0	* ssn int(11) ◆	salesperson_name varchar(50)	start_year 💠	dept_no int(11) ◆
	Filter	Filter	Filter	Filter
1	1000	Kinji Ninomiya	2000	1
2	2000	Maou Sadao	2001	2
3	3000	Steve Jobs	2004	1

→ Trips Table

Q	ssn int(11)	from_city varchar(50)	to_city varchar(50) ◆	departure_date	return_date	* trip_id
	Filter	Filter	Filter	Filter	Filter	Filter
1	1000	Trichy	Chennai	2001-04-04	2001-04-14	1
2	2000	Chennai	Time Travel	2002-04-08	2000-04-08	2
3	3000	Mumbai	Kolkata	2013-08-12	2013-08-16	3
4	2000	Hyderabad	Bangalore	2012-04-11	2012-04-18	4
5	1000	Delhi	Chennai	2013-08-12	2013-08-16	5

→ SalesRep_Expense

<u> </u>	0	trip_id int(11) ◆	expense_type enum('TRAVEL','S	amount int(11) ◆
		Filter	Filter	Filter
	1	1	TRAVEL	14000
	2	2	TRAVEL	1000
	3	2	STAY	500
	4	2	FOOD	499
	5	3	TRAVEL	12000
	6	3	STAY	4000
	7	3	FOOD	2400

Queries & Outputs:

```
SELECT trip.*
FROM trip
WHERE trip.trip_id IN (
     SELECT DISTINCT(trip_id)
     FROM salerep expense
     GROUP BY trip_id
     HAVING SUM(amount) > 2000
);
                          from_city
varchar(50) ♦
                                       to_city
varchar(50) ♦
                                                      departure_date
                                                                          return_date
                                                                                           * trip_id
               int(11)
                                                           date
                                                                              date
              Filter
                           Filter
                                         Filter
                                                      Filter
                                                                           Filter
                                                                                           Filter
                                                          2001-04-04
                 1000
                              Trichy
                                          Chennai
                                                                            2001-04-14
                 3000
                             Mumbai
                                           Kolkata
                                                          2013-08-12
                                                                            2013-08-16
```

```
SELECT ssn

FROM trip

WHERE to_city = 'Chennai'

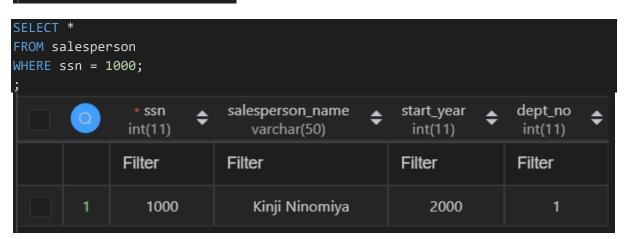
GROUP BY ssn

HAVING COUNT(to_city) >1

;

Filter

1 1000
```



```
SELECT *
FROM salesperson
ORDER BY salesperson_name;
```

0	* ssn int(11)	salesperson_name	start_year 💠	dept_no int(11) ◆
	Filter	Filter	Filter	Filter
1	1000	Kinji Ninomiya	2000	1
2	2000	Maou Sadao	2001	2
3	3000	Steve Jobs	2004	1

4.

```
CREATE DATABASE CarDealers;
USE CarDealers;
CREATE TABLE Car (
    serial_no INT AUTO_INCREMENT PRIMARY KEY,
   model VARCHAR(25),
   manufacturer VARCHAR(25),
   price INTEGER
);
INSERT INTO car(model, manufacturer, price) VALUES
    ('Swift ZDI', 'Maruthi Suzuki', 7E5),
    ('Sumo', 'Tata', 1E6),
    ('Veyron', 'Bugatti', 1.3E8),
    ('Portofino', 'Ferrari', 7.5E8)
CREATE TABLE options (
    serial_no INTEGER,
   option_name VARCHAR(50),
    price INTEGER,
   FOREIGN KEY (serial_no) REFERENCES Car(serial_no)
);
INSERT INTO options VALUES
    (1, 'Stepney Tyre', 7.3E3),
    (1, 'ABS Brakes', 7.5E3),
    (2, 'Stepney Tyre', 1.2E4),
    (2, 'Suspension', 1.4E4)
```

```
CREATE TABLE salesperson (
    salesperson id INT AUTO INCREMENT PRIMARY KEY,
    salesperson_name VARCHAR(50),
    phone VARCHAR(16)
);
INSERT INTO salesperson (salesperson name, phone) VALUES
    ('Woody Woodpecker', '1223334444'),
    ('John', '1234567890'),
    ('Kinji Ninomiya', '1000000000')
CREATE TABLE sales (
    salesperson_id INT,
    serial no INT,
    date ofsale DATE,
    sale_price INTEGER,
    FOREIGN KEY (salesperson_id) REFERENCES salesperson(salesperson_id),
    FOREIGN KEY (serial_no) REFERENCES car(serial_no)
);
INSERT INTO sales VALUES
    (1, 2, '2015-05-06', 1.2E7),
    (3, 2, '2014-04-10', 1.4E7),
    (2, 3, '2018-09-24', 1.35E8),
    (3, 1, '2017-12-30', 7.5E5),
    (2, 4, '2012-09-24', 7.6E8),
    (1, 1, '2016-10-01', 7.3E5)
 · Verify whether relation table can exist after deleting the tables it relates
/** Verified, we have to delete the refercing column or all entries before del
eting others */
DELETE FROM sales;
DELETE FROM options;
DELETE FROM car;
DELETE FROM salesperson;
DROP TABLE sales, options, car, salesperson;
DROP DATABASE CarDealers;
Inputs:
```

→ Car Table

0	* serial_no int(11)	model varchar(25) ◆	manufacturer varchar(25)	price int(11) ♦
	Filter	Filter	Filter	Filter
1	1	Swift ZDI	Maruthi Suzuki	700000
2	2	Sumo	Tata	1000000
3	3	Veyron	Bugatti	130000000
4	4	Portofino	Ferrari	750000000

→ Options

V	0	serial_no 💠	option_name varchar(50) ◆	price int(11) ♦
		Filter	Filter	Filter
	1	1	Stepney Tyre	7300
	2	1	ABS Brakes	7500
	3	2	Stepney Tyre	12000
	4	2	Suspension	14000

→ Salesperson Table

0	* salesperson_id	salesperson_name	phone varchar(16) ◆
	Filter	Filter	Filter
1	1	Woody Woodpecker	1223334444
2	2	John	1234567890
3	3	Kinji Ninomiya	1000000000

→ Sales

<u> </u>	0	salesperson_id •	serial_no 💠	date_ofsale ♦ date	sale_price ◆ int(11)
		Filter	Filter	Filter	Filter
	1	1	2	2015-05-06	12000000
	2	3	2	2014-04-10	14000000
	3	2	3	2018-09-24	135000000
	4	3	1	2017-12-30	750000
	5	2	4	2012-09-24	760000000
	6	1	1	2016-10-01	730000

Queries & Outputs:

```
SELECT sales.serial_no, car.manufacturer, sale_price
FROM sales, car, salesperson
WHERE salesperson_name = 'John'
    AND salesperson.salesperson_id = sales.salesperson_id
    AND sales.serial_no = car.serial_no
               serial_no
                              manufacturer
                                                   sale_price
                int(11)
                                  int(11)
                                                     date
               Filter
                               Filter
                                                   Filter
                                   Bugatti
                     3
                                                    135000000
                     4
                                    Ferrari
                                                    760000000
```

```
SELECT DISTINCT car.serial_no, model
FROM car, options
WHERE car.serial_no NOT IN (
    SELECT DISTINCT options.serial_no
    FROM options
);
```

0	* serial_no int(11)	‡	model varchar(25)	‡
	Filter		Filter	
1	3		Veyron	
2	4		Portofino	

SELECT DISTINCT car.serial_no, model

FROM car, options

WHERE car.serial_no = options.serial_no;

* serial_no = model varchar(25)

Filter Filter

1 1 1 Swift ZDI

2

2

```
UPDATE salesperson
SET phone = '1020304050'
WHERE salesperson_id = 2;

EXECUTE SUCCESS:

UPDATE salesperson SET phone = '1020304050' WHERE salesperson_id = 2

AffectedRows: 1
```

Sumo

0	∗ salesperson_id	salesperson_name	phone varchar(16) ◆
	Filter	Filter	Filter
1	1	Woody Woodpecker	1223334444
2	2	John	1020304050
3	3	Kinji Ninomiya	1000000000