Activity 3:

Multi-table queries

Exercise #1:

For three tables R, S, T that only have one attribute A:

- R = {1,2,3,4,5}
- S = {1,3,5,7,9}
- T = {1,4,7,10}
-
```
create database Exercise2;
create table R(A int primary key );
create table S(A int primary key );
create table T(A int primary key );

insert into R values (1);
insert into R values (2);
insert into R values (3);
insert into R values (4);
insert into R values (5);

insert into S values (1);
insert into S values (3);
insert into S values (5);
insert into S values (7);
insert into S values (9);

insert into T values (1);
insert into T values (4);
insert into T values (7);
insert into T values (10);
```
-

Write a query to select $R \cap (S \cup T)$- in other words elements that are in R and either S or T?

Write your query here:

In [1]:
```
select distinct R.A
from R,S,T
where R.A = S.A or R.A = T.A;
```

Out [1]:

```
MariaDB [Exercise2]> select distinct R.A
    -> from R,S,T
    -> where R.A = S.A or R.A = T.A;
+---+
| A |
+---+
| 1 |
| 4 |
| 3 |
| 5 |
+---+
4 rows in set (0.001 sec)
```

- Now test your query above for the case where $S = \emptyset$- what happens and why?

با توجه به اینکه مجموعه S تهی است ،ضرب دکارتی هر مجموعه دیگر در آن تهی می شود پس خروجی
مجموعه تهی خواهد بود.

- Execute the below, then re-run your query above

In [2]:
%%sql
delete from S;

Out [2]:
Empty set

Write a query to select $R \cup (S \cap T)$?

Write your query here:

In [1]:

```
select   distinct A
from R
union
select   distinct S.A
from R,S,T
where    S.A = T.A ;
```

Out [1]:

```
+---+
| A |
+---+
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 7 |
+---+
6 rows in set (0.007 sec)
```

Exercise #2

- Schema is same as before

```
MariaDB [Company]> select *
    -> from Product;
+------------+--------+-------------+--------------+
| PName      | Price  | Category    | Manufacturer |
+------------+--------+-------------+--------------+
| Gizmo      |  19.99 | Gadgets     | GizmoWorks   |
| MultiTouch | 203.99 | Household   | Hitachi      |
| Powergizmo |  29.99 | Gadgets     | GizmoWorks   |
| SingleTouch| 149.99 | Photography | Canon        |
+------------+--------+-------------+--------------+
4 rows in set (0.000 sec)

MariaDB [Company]> select * from Company;
+------------+------------+---------+
| CName      | StockPrice | Country |
+------------+------------+---------+
| Canon      |         65 | Japan   |
| GizmoWorks |         25 | USA     |
| Hitachi    |         15 | Japan   |
+------------+------------+---------+
3 rows in set (0.000 sec)
```

Product (PName, price, category, manufacturer)
Company (Cname, stockPrice, country)

- Our goal is to answer the following question:

Find all categories of products that are made by Chinese companies

Write your query here:

In [3]:
```
select Category
from Company,Product
where Manufacturer = CName and Country ='China';
```

Out [3]:

```
MariaDB [Company]> select Category
    -> from Company,Product
    -> where Manufacturer = CName and Country ='China';
Empty set (0.000 sec)

MariaDB [Company]> _
```