

Solutions for Some of the Queries Problems in Lab 9

The following queries are based on the *Supplier* database that you have created in Labwork 2:

1. Get all names of parts that are either red or green.

- RA Expression

$$\pi_{Name}(\sigma_{Color='Red' \text{ or } Color='Green'}(Part))$$

- SQL

```
mysql> select P.PName from Part P
      -> where P.Color in ('Red','Green');
```

- Output

```
+-----+
| PName |
+-----+
| Bolt  |
| Screw |
| Cog   |
| Nut   |
+-----+
4 rows in set (0.00 sec)
```

2. Get all names of supplier who are located in either Rome or London.

- RA expression:

$$\pi_{Name}(\sigma_{City='Rome' \text{ or } City='London'}(Supplier))$$

- SQL query

```
mysql> select S.SName from Supplier S
      -> where S.City in ('Rome','London');
```

- Output

```
+-----+
| Sname |
+-----+
| Smith |
| Clark |
+-----+
2 rows in set (0.00 sec)
```

3. Get all names of supplier who supply both nut and bolt.

Quite of you can't get this one right. We actually did something like this in class, see p. 63 in the lecture notes, where we want to find students who have take both CS305 and CS315.

- RA Expression:

$$\pi_{SName}(Supplier \bowtie_{SID=SID} (\pi_{SupplierId}(SupplyPart \bowtie_{PID=PID} (\pi_{PartId}(\sigma_{PName='Bolt'}(Part)))))) \cap \pi_{SName}(Supplier \bowtie_{SID=SID} (\pi_{SupplierId}(SupplyPart \bowtie_{PID=PID} (\pi_{PartId}(\sigma_{PName='Nut'}(Part))))))$$

- SQL query

```
mysql> select distinct S.SName
-> from Supplier S, SupplyPart SP1,
->      SupplyPart SP2, Part P1, Part P2
-> where S.SupplierId=SP1.SupplierId
->      and SP1.PartId=P1.PartId and P1.PName='Bolt'
->      and S.SupplierId=SP2.SupplierId
->      and SP2.PartId=P2.PartId and P2.PName='Nut';
```

- Output

```
+-----+
| SName |
+-----+
| Smith |
| Jones |
+-----+
2 rows in set (0.00 sec)
```

4. Get supplier names for those who are located either Rome or London and sell at least two kinds of parts.

- RA Expression:

$$\pi_{SName}(\sigma_{City='Rome' \text{ or } City='London'}(Supplier)) \cap \pi_{SName}(Supply \bowtie_{SupplierId} (\sigma_{PartId1 \neq PartId2}(SupplyPart \bowtie_{\pi_{SupplierId, PartId2}}(SupplyPart))))$$

- SQL query:

```
mysql> select distinct S.SName
-> from Supplier S, SupplyPart S1, SupplyPart S2
-> where S.City in ('Rome', 'London')
-> and S1.PartId <> S2.PartId and S1.SupplierId=S2.SupplierId
-> and S.SupplierId=S1.SupplierId;
```

- Output:

```
+-----+
| SName |
```

```

+-----+
| Smith |
| Clark |
+-----+
2 rows in set (0.00 sec)

```

You can certainly also use aggregation operators to do it, just as we did in the class to find those who has taken at least two courses.

```

Select Supplier.SName
From (Select SupplierId, count(PartID) As Num
      From SupplyPart
      Group by SupplierId) T, Supplier S
Where T.Num>1 and T.SupplierId=S.Id
Order by S.Name;

```

5. Get supplier names for suppliers who do not supply red parts.

- RA Expression:

$$\pi_{SName}(Supplier) - \pi_{SName}(Supplier \bowtie_{SID=SID} (SupplyPart \bowtie_{PartId=PartId} (\sigma_{Color='Red'} Part)))$$

- SQL query:

```

mysql> select S.SName from Supplier S
-> where S.SupplierId not in
-> (select distinct SP.SupplierId from SupplyPart SP,Part P
-> where SP.PartId=P.PartId and P.Color='Red')

```

- Output:

```

+-----+
| SName |
+-----+
| Blake |
| Adams |
+-----+
2 rows in set (0.00 sec)

```