SQL Database for Beginners

Lab Exercise 7
Answer Key

1) Write a query returning staff details with all records in the projectperson table.

   Answer:
   ```
   select *
   from projectperson pp, person p
   where pp.pid=p.id
   ```

2) Write a query returning the names of staff per project in the projectperson table.

   Answer:
   ```
   select pp.prid, p.firstname, p.lastname
   from projectperson pp, person p
   where pp.pid=p.id
   ```

3) Improve the output of the previous query by sorting and removing duplicates.

   Answer:
   ```
   select distinct pp.prid, p.firstname, p.lastname
   from projectperson pp, person p
   where pp.pid=p.id
   order by pp.prid asc
   ```

4) Extend the previous query to include the project name.

   Answer:
   ```
   select distinct pr.label, p.firstname, p.lastname
   from project pr, projectperson pp, person p
   where pr.id=pp.prid
   and pp.pid=p.id
   order by pp.prid asc
   ```

5) Extend the previous query to also output the role of each person within the respective project.

   Answer:
   ```
   select distinct pr.label, r.label, p.firstname, p.lastname
   from project pr, role r, projectperson pp, person p
   where pr.id=pp.prid
   and r.id=pp.rid
   and pp.pid=p.id
   order by pp.prid asc
   ```

6) Extend the previous query to also output the name of the manager of each person in the respective

project.

```
select distinct pr.label, r.label, p.firstname, p.lastname, m.firstname, m.lastname
from project pr, role r, projectperson pp, person p, person m
where pr.id=pp.prid
and r.id=pp.rid
and pp.pid=p.id
and p.managerid=m.id
order by pp.prid asc
```

Note: Using inner joins here results in records without manager assignment to be excluded.

7) Write a query returning a list of persons including, if assigned, their respective manager.

```
select p.firstname, p.lastname, m.firstname, m.lastname
from person p
left join person m
on p.managerid=m.id
```

8) Combine the previous two queries to ensure persons without manager assignment are included in the result.

Tip: Before including the outer join rebuild the query from step 5 as explicit inner join:
```
select distinct pr.label, r.label, p.firstname, p.lastname
from
(((project pr
inner join projectperson pp
on pr.id=pp.prid)
inner join role r
on r.id=pp.rid)
inner join person p
on pp.pid=p.id)
order by pp.prid asc
```

Then extend with the outer join to add the manager:
```
select distinct pr.label, r.label, p.firstname, p.lastname, m.firstname, m.lastname
from
((((project pr
inner join projectperson pp
on pr.id=pp.prid)
inner join role r
on r.id=pp.rid)
inner join person p
on pp.pid=p.id)
left join person m
on p.managerid=m.id)
order by pp.prid asc
```

9) Write a query returning a list of projects in the project table that have no staff assigned.

Answer:

```
select pr.label
from project pr
left join projectperson pp
on pr.id=pp.prid
where pp.prid is null
```