Sometimes we need the result of one query to get the results of another query. Consider the following: List the name and age of all employees who are younger than the average age for all the employees in the company.

**The following WILL NOT WORK** - because the where clause can’t be applied to each row. (There is no average age for each row)

```sql
SELECT  enum,Lname, age
  From emp
where age > avg(age) ;
```

To answer this query we need to first find the average age as a separate query and then use this result to find all the employees who have an age greater than this value.

Consider the following query that simply finds the average age for all employees and then nest this query inside our original query as

```sql
SELECT  enum,Lname, age
  From emp
where age > (SELECT  avg(age)
    From emp) ;
```

Consider the following request: List the employee number, name and age, for all employees who work in departments with more than 5 people.

This will not work - Why???

```sql
SELECT  enum, Lname, age
  from emp
group by dnum
having count(enum)>5;
```

The solution is to first find a list of departments with more than 5 employees and then use this result to check each employee and see if the employee is in one of those departments

```sql
SELECT  enum, Lname, age
  from emp
where dnum IN ( Select Dnum
    from emp
    group by dnum
    having count(enum)>5 )
```

**Exercises** write SQL queries for each of the following. You will need to use sub queries as indicated

QN1) List the name, number and age of all employees make less than the average salary.
1. First write a query to simply find the average salary of all employees. (this will be your sub query)
2. Next write a nested query where we look at each employee and see if that employee makes less than the value calculated by the sub query

QN2) Find all the employees (enum, lname, dnum) who work in departments whose average salary is >40000

1. First write a sub query that lists all departments whose average salary is >40000
2. Next write a nested query which list all employees who are in any of the departments listed in the sub query

QN3) For all employees in “D25” who make more than the average salary in the department, List enum, lname and salary

1. First write a sub query that lists the average salary for those in d25 (Does not require grouping)
2. Next write a nested query which lists all employees who are in d25 AND make more than the average salary calculated in the sub query.

QN4) Find all employees (enum, lname, dnum) who work in departments that have no senior person (age>=55).
1. First write a sub query that lists the department that has any person older than 55
2. Next write a nested query which lists all employees who are NOT in department calculated in the sub query.

QN5) Find the department(s) which contains the most senior persons (age >=55)

1. First write a sub query that lists the count of seniors in each department.
2. Second write a nested query to get the maximum of such a count. So the above counting results must be stored in a temporary table say x.
3. Third, write another (higher level) nested query to select the departments while having its counting matches this minimum number.
QN6) Find all employees (enum, lname, dnum) who work in the smallest department(s).

1. First write a sub query that lists the count of members in each department.
2. Second write a nested query to get the minimum of such a count. So the above counting results must be stored in a temporary table say x.
3. Third, write another (higher level) nested query to select the departments while having its counting matches this minimum number.
4. Forth, write another (higher level) nested query to list all employees who are in department calculated in the above query.