The answer to Lab 3

Question 1. Find the total number of copies

```
SELECT COUNT(*)
FROM copy c;
```

Question 2. Find, for each book, the corresponding number of copies. [Print the primary key of the book and the number of copies.]

```
SELECT c.book, COUNT(*)
FROM copy c
GROUP BY c.book;
```

Question 3. Find the available books with the largest number of copies.

```
SELECT c.book
FROM copy c
WHERE c.available='TRUE'
GROUP BY c.book
HAVING COUNT(*) >= ALL (SELECT COUNT(*) FROM copy c WHERE c.available='TRUE'
GROUP BY c.book);
```

Question 4. Find the names of the students who have borrowed some book by ‘Charles Dickens’.

```
SELECT s.name
FROM student s, loan l, book b
WHERE l.borrower=s.email AND l.book=b.ISBN13 AND b.authors='Charles Dickens';
```

Question 5. Find the number of different books by ‘Charles Dickens’.

```
SELECT COUNT(*)
FROM book b
WHERE b.authors='Charles Dickens';
```

Question 6. Find the names of the different students who have borrowed all the books by ‘Charles Dickens’. Use aggregate functions.

```
SELECT s.name
FROM student s, loan l, book b
WHERE l.borrower=s.email AND l.book=b.ISBN13 AND b.authors='Charles Dickens'
GROUP BY s.name, s.email
HAVING COUNT(DISTINCT b.ISBN13) = (SELECT COUNT(*)
        FROM book b
        WHERE b.authors='Charles Dickens');
```

Question 7. Find the names of students who owned a copy of a book with more than 100 pages whose title contains the word ‘Computer’. Use nested queries. This is not the preferred answer.

```
SELECT s.name
FROM student s, copy c
WHERE c.owner=s.email AND c.book IN (
SELECT b.ISBN13 FROM book b WHERE b.title LIKE '%Computer%' AND b.pages > 100);
```

```
SELECT s.name
FROM student s
WHERE s.email IN (
SELECT c.owner FROM copy c WHERE c.book IN (
SELECT b.ISBN13 FROM book b WHERE b.title LIKE '%Computer%' AND b.pages > 100));
```

```
SELECT s.name
FROM student s, copy c, book b
WHERE s.email = c.owner AND c.book = b.ISBN13 AND b.title LIKE '%Computer%' AND
b.pages >100;
```

Question 8. Find the different names of students who never owned a copy of a book other than of book ‘978-0262033848’.

```
SELECT DISTINCT s.name
FROM student s
WHERE s.email NOT IN (SELECT c.owner FROM copy c WHERE  c.book <> '978-
0470128725');
```

Question 9. Find the names of the different students who have borrowed all the books by ‘Charles Dickens’. Use NOT EXISTS.

```
SELECT s.name
FROM student s
WHERE NOT EXISTS
(SELECT *
FROM book b
WHERE b.authors=‘Charles Dickens’ AND NOT EXISTS
(SELECT *
FROM loan l
WHERE l.book=b.ISBN13 AND l.borrower=s.email));
```

Question 10. Find the names of the different students who have borrowed all the books by ‘Amelie Nothomb’.

There is no such book so … every student has borrowed all her books! Or none?

Question 11. Create and query views for the copies and loans for which the owner is a Computer Science student.

```
create view copy_cs as
select c.owner as owner, c.book as book, c.copy as copy, c.available as available
from  copy c, student s
where c.owner=s.email and s.faculty='School of Computing';

create view loan_cs as
select l.borrower as borrower, l.owner as owner, l.book as book, l.copy as copy,
l.borrowed as borrowed, l.returned as returned
from  loan l, student s
where l.owner=s.email and s.faculty='School of Computing';
```