The answers to Lab 2

Question 1. Find the emails of students.

```
SELECT s.email
FROM student s;
```

Question 2. Find the different emails of students.

```
SELECT s.email
FROM student s;
```

Comments: DISTINCT is not needed

Question 3. Print the names of students in descending alphabetical order.

```
SELECT s.name
FROM student s
ORDER BY name DESC;
```

Question 4. Are there students with the same name?

```
SELECT * FROM student s1, student s2 WHERE s1.name=s2.name AND s1.email <
s2.email;
```

Question 5. Find the different names of students. Is the result sorted? Look at the execution plan.

```
SELECT DISTINCT s.name
FROM student s;
```

The result is not sorted.

Question 6. Find the names of students who owned a copy of book '978-0262033848'.

```
SELECT s.name
FROM student s, copy c
WHERE c.owner=s.email AND c.book='978-0262033848';
```

Question 7. Find the names of students who owned a copy of book with more than 100 pages whose title contains the word 'Computer'.

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

Comments: use UPPER () or LOWER () to have case insensitive semantics.

Question 8. Find the number of A4 pages needed to photocopy the two books with ISBN-13 '978-0262033848' and '978-0321295354' (2 pages of a book can be copied on one A4 page).

```
SELECT (b1.pages + b2.pages)/2
FROM book b1, book b2
WHERE b1.ISBN13 = '978-0262033848' AND b2.ISBN13='978-0321295354';
```

Alternatively,

```
SELECT SUM (b.pages)
FROM book b
WHERE b.ISBN13 = '978-0262033848' OR b.ISBN13='978-0321295354';
```

Question 9. Find the different names of students who owned a copy of a book other than of '978-0262033848'.

```
SELECT DISTINCT s.name
FROM student s, copy c
WHERE c.owner=s.email AND c.book <> '978-0262033848';
```

Question 10. Find the names of students who borrowed a copy of book '978-0262033848'.

```
SELECT s.name
FROM student s, loan l
WHERE l.borrower=s.email AND l.book='978-0262033848';
```

Question 11. Find the names of students who owned or borrowed a copy of book '978-0262033848'. Use UNION.

```
SELECT s.name
FROM student s, copy c
WHERE c.owner=s.email AND c.book='978-0262033848'
UNION
SELECT s.name
FROM student s, loan l
WHERE l.borrower=s.email AND l.book='978-0262033848';
```

Question 12. Find the names of students who owned or borrowed a copy of book '978-0262033848'. USE OR.

```
SELECT s.name
FROM student s, copy c, loan l
WHERE (c.owner=s.email AND c.book='978-0262033848')
```

OR (l.borrower=s.email AND l.book='978-0262033848');

Question 13. Delete all the data in table loan.

DELETE FROM loan;

Question 14. Try again the last two queries.

We see that the query with OR returns no results. This is wrong. That means that the query was not correct. It happens because the Cartesian product in the FROM clause is empty.
When is it correct to use OR?
OR should be used among conditions on the exactly same tables.