Database Systems 1: CS3431, C-Term 2013
Practice Sheet 1 (SQL)
Solution

- This sheet is not subject to grading. Its purpose is to practice several SQL queries and commands to get familiar with its clauses and usage.
- This sheet is released on: 02/11/2013, the solution is posted on 02/18/2013

Refer to the project you are working on, i.e., the ***Hospital Database Application,*** and more specifically, the relational model provided to you in the solution of project 1. Write the SQL command to answer the following questions:

Q1: Report the equipment (serial#, typeID, purchase year, and last inspection) that exist in room 707 and purchased after 2005.

```
Select serialNum, TypeID, purchaseYear, lastInspection
From Equipment
Where roomNum = 707
And purchaseYear > 2005;
```

Q2: Report the comments inserted by doctor "John Smith" in admission number 1111.

```
Select E.comment
From Examine E, Doctor D
Where E.DoctorID = D.ID
And D.firstName = 'John'
And D.lastName = 'Smith'
And E.AdmissionNum = 1111;
```

Q3: Report the names (first and last) of division managers (in our model, this means the emp_rank = 1) who supervise more than 10 employees.

```
Select E.firstName, E.lastName
From Employee E, (Select supervisorID
                  From Employee
                  Where supervisorID is not null
                  Group By supervisorID
                  Having count(*) > 10) Q
Where E.ID = Q.supervisorID
And emp_rank = 1;
```

Q4: Report the patient information (SSN, first and last names) who stayed in at least 2 rooms in a single admission.

```
Select P.ssn, P.firstName, P.lastName
From Admission A, Patient P
Where A.patient_ssn = P.ssn
And A.num in (Select  AdmissionNum
              From StayIn
              Group By AdmissionNum
              Having count(*) >= 2);
```

Q5: Select the admission information (admission number, patient SSN) for admissions where the insurance payment covers more than 80% of the total payment.

```
Select Num, patient_ssn
From Admission
Where insurancePayment > 0.8 * totalPayment;
```

Q6: Report the patients (only SSN) for those who stayed in Intensive Care Unit (ICU) in a single admission more than 3 days during year 2010. Note that "ICU" in our application is modeled as a room service.

```
Select distinct A.patient_ssn
From RoomService R, StayIn S, Admission A
Where S.AdmissionNum = A.num
And R.roomNum = S.roomNum
And R.service = 'ICU'
And year(A.admission_time) = 2010
And S.numDays > 3;
```

Q7: Report the patients (only SSN) for those who stayed in Intensive Care Unit (ICU) more than 3 days during year 2010. Note that "ICU" in our application is modeled as a room service.

Hint: *Q7 differs from Q6 in that in Q7 the 3 days do not have to be in a single admission.*

```
Select A.patient_ssn
From RoomService R, StayIn S, Admission A
Where S.AdmissionNum = A.num
And R.roomNum = S.roomNum
And R.service = 'ICU'
And year(A.admission_time) = 2010
Group By A.patient_ssn
Having sum(S.NumDays) > 3;
```

Q8: Report the different employees who have the same names, i.e., they differ in their IDs but have the same first and last names. The output should be in the form of:

FirstName, LastName, ID1, ID2

Where *ID1* and *ID2* are distinct but they have the same first and last names.

```
Select E1.firstName, E1.lastName, E1.ID As ID1, E2.ID As ID2
From Employee E1, Employee E2
Where E1.firstName = E2.firstName
And E1.lastName = E2.lastName
And E1.ID < E2.ID;
```

Note: In Q8 if you make the last condition as 'E1.ID != E2.ID', you will get some repeated records with ID1 and ID2 switched. For example:

firsName	*LastName*	*ID1*	*ID2*
John	*Smith*	*10*	*20*
John	*Smith*	*20*	*10*

Q9: Report the distinct room numbers (no duplication) currently occupied or they offer ICU service.

```
      Select Num as roomNum
      From Room
      Where occupiedFlag = 1
Union All
      Select roomNum
      From RoomService
      Where service = 'ICU';
```

Q10: Report the equipment types (Type ID) that have equipment purchased in 2006 or 2007.

```
      Select distinct TypeID
      From Equipment
      Where purchaseYear = 2006
      Or purchaseYear = 2007;
```

Q11: Report the equipment types (Type ID) that have equipment purchased in two consecutive years.

```
      Select distinct E1.TypeID
      From Equipment E1, Equipment E2
      Where E1.TypeID = E2.TypeID
      And E1.purchaseYear = E2.purchaseYear -1;
```

Q12: Update the specialty of doctor "John Smith" to be *Cardiology*

```
      Update Doctor
      Set specialty = 'Cardiology'
      Where firstName = 'John'
      And lastName = 'Smith';
```

Q13: For non-occupied rooms, update the *last inspection* date of the equipment in these rooms to the current date.

```
      Update Equipment
      Set lastInspection = (Select sysdate From dual)
      Where roomNum in (Select num From Room Where occupiedFlag = 0);
```

Q14: Delete the doctors' records whose specialty is *Cardiology* or *Dermatology.*

```
      Delete From Doctor
      Where specialty = 'Cardiology'
      Or specialty = 'Dermatology';
```

Q15: Delete all the comments inserted by doctor "John Smith".

```
Delete From Examine
Where doctorID in (Select ID
                   From Doctor
                   Where firstName = 'John'
                   And lastName = 'Smith');
```