Assignment 3

Textbook Exercises 6.7, 6.8, 6.10, 6.12, 6.13

**6.7**

Consider the following Hotel, Room, Booking and Guest schemas in a DBMS. The hotelNo is the primary key for Hotel table and roomNo is the primary key for the Room relation. Booking stores the details of room reservations and bookingNo is the primary key. Guest stores the guests details and guestNo is the primary key.

Hotel (hotelNo, hotelName, hotelType, hotelAddress, hotelCity, numRoom)

Room (roomNo, hotelNo, roomPrice)

Booking (bookingNo, hotelNo, guestNo, checkIn, checkout, totelGuest, roomNo)

Guest (guestNo, firstName, lastName, guestAddress)

1. Write the SQL to list full details of all the hotels.

Select \* from hotels.hotel

1. Write the SQL to list full details of all the hotels in New York.

Select \* from hotels.hotel where hotelcity = “New York”

1. Write the SQL to list the guests in New York in descending order by last name.

SELECT a.hotelcity, c.\*

FROM hotels.hotel as a

JOIN hotels.booking as b

ON a.hotelno = b.hotelno

JOIN hotels.guest as c

ON b.guestno = c.guestno

WHERE a.hotelcity = 'New York';

Please use the exercise\_67.sql DDL to complete this exercise. You will need to write a join between booking, hotels, and guests. Your book specifies how to do on page 222, however, this does not work in PostgreSQL. Below is the format you will need to use, please replace all <> to answer the question. Please submit the query and the query results.

SELECT a.\*

FROM <relation> a

JOIN <relation> b

ON <alias.column> = <alias.column>

JOIN < alias.column > c

ON b.< alias.column > = c.< alias.column >

WHERE c.< alias.column > = '<value>';

**6.8**

Write appropriate SQL DDL statements for declaring the LIBRARY relational database schema of Figure 6.6. Specify the keys and referential triggered actions.

Write the schema create statement along with the relation create statements. You may insert data, but this is optional. Please submit your SQL DDL (schema & tables).

create schema if not exists lib;

create table if not exists lib.book (

book\_id INT not null,

title varchar,

publisher\_name varchar,

primary key(book\_id)

);

create table if not exists lib.book\_authors (

book\_id INT not null,

author\_name varchar not null,

primary key(author\_name),

foreign key(book\_id) references lib.book(book\_id)

);

create table if not exists lib.publisher (

publisher\_name varchar not null,

address varchar,

phone text,

primary key (publisher\_name)

);

create table if not exists lib.library\_branch (

branch\_id int not null,

branch\_name varchar,

address varchar,

primary key (branch\_id)

);

create table if not exists lib.book\_copies (

book\_id int not null,

branch\_id int not null,

no\_of\_copies int,

foreign key (book\_id) references lib.book(book\_id),

foreign key (branch\_id) references lib.library\_branch(branch\_id)

);

create table if not exists lib.borrower (

card\_no int not null,

borrower\_name varchar,

address varchar,

phone text,

primary key (card\_no)

);

create table if not exists lib.book\_loans (

book\_id int not null,

branch\_id int not null,

card\_no int not null,

date\_out date not null,

due\_date date not null,

foreign key (book\_id) references lib.book(book\_id),

foreign key (branch\_id) references lib.library\_branch(branch\_id),

foreign key (card\_no) references lib.borrower(card\_no)

)

**6.10**

Specify the following queries in SQL on the COMPANY relational database schema shown in Figure 5.5. Show the result of each query if it is applied to the COMPANY database in Figure 5.6. You will need to create the INSERT statements to match the data in figure 5.5 (page 191 & 192)

1. Retrieve the names of all employees in department 5 who earns more than 3000 and works on ProductZ project.

select e.fname, e.lname

from employee as e

join department as d

on e.dno = d.dnumber

join project as j

on d.dnumber = j.dnum

where e.salary > 3000

and e.dno = 5

and j.Pname = 'Product Z'

1. List the names of all employees who are from Houston, Texas and works under manager 333445555.

select e.fname, e.lname

from employee as e

join department as d

on e.dno = d.dnumber

where d.mgr\_ssn = 333445555

and e.address like '%Houston, Texas'

1. Find the names of all employees who are working in the project Computerization.

select e.fname, e.lname

from employee as e

join department as d

on e.dno = d.dnumber

join project as j

on d.dnumber = j.dnum

where j.Pname = 'Computerization'

Please submit your DDL (schema and tables), queries, and query results.

**6.12**

Specify the following queries in SQL on the database schema of Figure 1.2. (page 38)

1. Retrieve the course names of all the courses that comes under the department of ‘cs’ (computer science).

select course\_name

from course

where department = 'CS'

1. Retrieve the names of all courses along with the name of the instructor taught during the fall of 2008.

select c.course\_name, s.instructor

from course as c

join section as s

on c.course\_number = s.course\_number

where s.semester = 'Fall'

and s.year = '08'

1. For each section taught by Professor Anderson, retrieve the course number, semester, year, and number of students who took the section.

select s.course\_number, s.semester, s.year, count(\*)

from section as s

join grade\_report g

on s.section\_identifier = g.section\_identifier

join student as st

on g.student\_number = st.student\_number

group by s.course\_number, s.semester, s.year

1. Retrieve the name and transcript of each junior student (Class = 1) majoring in mathematics (MATH). A transcript includes course name, course number, credit hours, semester, year, and grade for each course completed by the student.

select

st.student\_number

, st.name,c.course\_name

, c.course\_number

, c.credit\_hours

, s.semester

, s.year

, g.grade

from student st

join grade\_report g

on st.student\_number = g.student\_number

join section s

on g.section\_identifier = s.section\_identifier

join course c

on s.course\_number = c.course\_number

where st.class = 1

and st.major = 'MATH'

You MUST WRITE THE DDL and INSERT statements to create this schema and tables. Please submit your queries AND results. The DDL is needed for the final question.

**6.13**

Write SQL update statements to do the following on the database schema shown in Figure 1.2.

1. Insert a new course, <’Financial Accounting’, ‘fac4390’,5,’BUSINESS’>

Insert into course (course\_name,course\_number,credit\_hours,department)

VALUES (‘FInancial Accounting','fac4390'

, 5, 'BUSINESS'

1. Insert a new section, <145, ‘fac4390’, ‘Fall’, ‘17’, ‘Hanif’>

INSERT INTO section (section\_identifier,course\_number, semester,year, instructor)

values (145,'fac4390','Fall','17','Hanif')

Insert a new student, <’Robin’, 34, 2, ‘BUSINESS’>.

INSERT INTO student (name,student\_number,class,major)

values ('Robin',34,2,'BUSINESS')

1. Update the record for the student whose student number is 17 and change his class from 1 to 3.

UPDATE student

SET class = 3

WHERE student\_number = 17

You only need to submit the SQL for creating the INSERT and UPDATE statements.