Library Database

Queries Requirements

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Library Database Requirements

Requirement 1. Show all create statements and system reply. Show "SELECT * from USER_CATALOG" and system reply.

SQL> create table Branch
  2 (Bname varchar2(6),
  3 Baddress varchar2(20),
  4 CONSTRAINT pk PRIMARY KEY (Bname));

Table created.

SQL> create table Customer
  2 (PersId varchar2(3),
  3 lname varchar2(12),
  4 fname varchar2(6),
  5 balance_due number(6,2),
  6 cust_type varchar2(7),
  7 Bname varchar2(6),
  8 Spons_id varchar2(3),
  9 CONSTRAINT pk2 PRIMARY KEY (PersId),
 10 CONSTRAINT fk1 FOREIGN KEY (Bname) REFERENCES Branch,
 11 CONSTRAINT fk2 FOREIGN KEY (Spons_id) REFERENCES Customer);

Table created.

SQL> create table Book
  2 (Lit_Id varchar2(4),
  3 Btitle varchar2(15),
  4 Year number(5),
  5 CONSTRAINT pk3 PRIMARY KEY (Lit_Id));

Table created.

SQL> create table Book_copy
  2 (Lit_Id varchar2(4),
  3 CopyNum number(3),
  4 Book_type varchar2(8),
  5 PersId varchar2(3),
  6 date_out date,
  7 date_due date,
  8 time_due number(4),
  9 PersIdF varchar2(3),
 10 hdate date,
 11 Bnamep varchar2(6),
 12 Bnamec varchar2(6),

```
13  CONSTRAINT pk4 PRIMARY KEY (CopyNum, Lit_Id),
14  CONSTRAINT fk3 FOREIGN KEY (Lit_Id) REFERENCES Book,
15  CONSTRAINT fk4 FOREIGN KEY (PersId) REFERENCES Customer,
16  CONSTRAINT fk5 FOREIGN KEY (PersIdF) REFERENCES Customer,
17  CONSTRAINT fk6 FOREIGN KEY (Bnamep) REFERENCES Branch,
18  CONSTRAINT fk7 FOREIGN KEY (Bnamec) REFERENCES Branch);
```

Table created.

```
SQL> create table Book_Topic
  2  (Topic varchar2(20),
  3  Lit_Id varchar2(4),
  4  CONSTRAINT pk5 PRIMARY KEY (Topic, Lit_Id));
```

Table created.

```
SQL> create table Book_Author
  2  (Author varchar2(12),
  3  Lit_Id varchar2(4),
  4  CONSTRAINT ud UNIQUE (Author, Lit_Id));
```

Table created.

```
SQL> create table Request
  2  (Lit_Id varchar2(4),
  3  PersId varchar2(3),
  4  Bname varchar2(6),
  5  Rdate date,
  6  RTime number(4),
  7  CONSTRAINT pk6 PRIMARY KEY (Lit_Id, PersId),
  8  CONSTRAINT fk10 FOREIGN KEY (Lit_Id) REFERENCES Book,
  9  CONSTRAINT fk11 FOREIGN KEY (PersId) REFERENCES Customer,
 10  CONSTRAINT fk12 FOREIGN KEY (Bname) REFERENCES Branch);
```

Table created.

```
SQL> create table Lecture
  2  (Ldate date,
  3  Ltime number(4),
  4  Speaker_ID varchar2(3),
  5  Lit_Id varchar2(4),
  6  Bname varchar2(6),
  7  CONSTRAINT pk7 PRIMARY KEY (Speaker_ID, Lit_Id, Bname),
  8  CONSTRAINT fk13 FOREIGN KEY (Speaker_ID) REFERENCES Customer,
  9  CONSTRAINT fk14 FOREIGN KEY (Lit_Id) REFERENCES Book,
 10  CONSTRAINT fk15 FOREIGN KEY (Bname) REFERENCES Branch);

Table created.

SQL> select * from user_catalog;

TABLE_NAME                 TABLE_TYPE
------------------------------ -----------
BRANCH                     TABLE
CUSTOMER                   TABLE
BOOK                 TABLE
BOOK_COPY                  TABLE
BOOK_TOPIC                 TABLE
BOOK_AUTHOR                  TABLE
REQUEST                 TABLE
LECTURE                 TABLE

8 rows selected.
```

Requirement 2. Populate tables with data.

SQL> insert into Branch (Bname, Baddress)
  2 values ('Mbeach', '10 Main');

1 row created.

SQL> insert into Customer (PersId, lname, fname, balance_due, cust_type, Bname, Spons_id)
  2 values ('001', 'Ireton', 'Ron', null, 'Friend', 'Mbeach', null);

1 row created.

SQL> insert into Book (Lit_Id, Btitle)
  2 values ('1001', 'E-Business');

1 row created.

SQL> insert into Book_copy (Lit_Id, CopyNum, Book_type, PersId, date_out, time_due, PersIdF, hdate, Bnamep, Bnamec)
  2 values ('1001', 1, 'regular', null, null, null, null, null, 'Mbeach', 'LJolla');

1 row created.

SQL> insert into Book_Topic (Topic, Lit_Id)
  2 values ('internet', '1001');

1 row created.

SQL> insert into Book_Author (Author, Lit_Id)
  2 values ('Peters', '1001');

1 row created.

SQL> insert into Request (Lit_Id, PersId, Bname, Rdate, RTime)
  2 values ('1002', '007', 'U_City', '20-Mar-2008', null);

1 row created.

SQL> insert into Lecture (LDate, Ltime, Speaker_ID, Lit_Id, Bname)
  2 values ('31-May-2008', '1600', '003', '1004', 'LJolla');

1 row created.

Requirement 3. List the following data:

Branch: all attributes
CUSTOMER: all attributes, order by last name, first name
        Please edit as needed to avoid wrap-around
BOOK: all attributes, order by Btitle
BOOK_Copy: all attributes in order shown in Requirement 1; order by
         Lit_Id, CopyNum. Please editas needed to avoid wrap-around
Book_Author: all attributes, order by Lit_Id
BOOK_Topic: all attributes; order by Lit_Id
LECTURE: all attributes as shown in Requirement 1, order by Lit_Id
REQUEST: all attributes as shown in Requirement 1; order by Lit_Id

SQL> select * from Branch;

```
BNAME  BADDRESS
------ --------------------
Mbeach 10 Main
U_City 250 Draper
LJolla 25 Garnet
```

SQL> select * from Customer ORDER BY lname, fname;

```
PER LNAME       FNAME  BALANCE_DUE CUST_TY BNAME  SPO
--- ------------ ------ ----------- ------- ------ ---
011 Castro       Andy            Child   U_City 009
009 Celine       Rachel      5.5 Friend  U_City
003 Clooney      Marie      5.25 Friend  U_City
002 Ireton       Bil         2.6 Child   Mbeach 001
001 Ireton       Ron             Friend  Mbeach
008 Midler       Darren        3 R       LJolla
006 Midler       Greg       1.25 Friend  LJolla
007 Midler       Will       1.75 Friend  LJolla
004 Rivers       Jenny       4.5 Child   U_City 003
010 RodGreg      Tina         10 Child   U_City 009
005 Tatum        Dina        3.1 Child   U_City 003
```

11 rows selected.

```
SQL> select * from Book ORDER BY Btitle;

LIT_ BTITLE           YEAR
---- --------------- ----------
1007 0-0 Analysis
1008 C# for All
1002 CRM Basics
1011 Dating Clients
1004 Dirt Road
1001 E-Business
1009 Easy Calculus
1003 Easy Java
1006 Free Downloads
1005 Java Cooking
1012 Justine
1010 Managers

12 rows selected.
```

```
SQL> select Lit_Id, CopyNum,
  2  Book_type, PersId, date_out,
  3  date_due, time_due, PersIdF,
  4  hdate, Bnamep, Bnamec
  5  from Book_copy ORDER BY Lit_Id, CopyNum;
```

LIT_	COPYNUM	BOOK_TYP	PER	DATE_OUT	DATE_DUE	TIME_DUE	PER	HDATE	BNAMEP	BNAMEC
1001	1	regular							Mbeach	LJolla
1001	2	regular	001	02-FEB-08						Mbeach
1001	3	regular					009	15-APR-08	U_City	U_City
1002	1	regular	010	30-JAN-08						Mbeach
1002	2	regular	001	01-FEB-08						U_City
1002	3	refernce							LJolla	LJolla
1003	1	regular					007	29-JAN-08	Mbeach	LJolla
1003	2	regular	009	04-FEB-08						Mbeach
1003	3	regular	011	11-FEB-08						LJolla
1004	1	regular	009	09-JAN-08						U_City
1004	2	regular	001	19-FEB-08						Mbeach
1005	1	regular	006	29-JAN-08						Mbeach
1005	2	regular	001	07-MAR-08						LJolla
1005	3	regular							Mbeach	LJolla
1006	1	regular	001	26-JAN-08						Mbeach
1006	2	regular							Mbeach	Mbeach
1006	3	refernce	005	25-MAR-08		1600			U_City	U_City
1007	1	regular	009	09-JAN-08						LJolla
1007	2	refernce	008	25-MAR-08		1800			Mbeach	Mbeach
1008	1	regular					001	20-APR-08	Mbeach	Mbeach
1008	2	regular	003	10-FEB-08						Mbeach
1008	3	regular					006	15-APR-08	U_City	U_City
1009	1	regular	003	20-FEB-08						Mbeach
1010	1	regular	009	12-FEB-08						U_City
1010	2	regular					003	15-APR-08	LJolla	U_City
1011	1	regular					003	20-APR-08	Mbeach	LJolla
1011	2	regular	008	16-FEB-08						Mbeach
1012	1	regular	009	13-FEB-08						U_City

28 rows selected.

SQL> select * from Book_Author ORDER BY Lit_Id;

```
AUTHOR       LIT_
------------ ----
Peters       1001
Evans        1001
Johnson      1001
Sevens       1002
Freud        1002
Johnson      1002
Celine       1003
Simpson      1003
             1004
Chow         1005
Shaw         1005
Lopez        1006
Chou         1007
Lopez        1007
Garcia       1008
             1009
Borges       1010
Lamour       1010
LaMar        1011
Borges       1011
DeSade       1012
```

21 rows selected.

SQL> select * from Book_Author ORDER BY Lit_Id;

```
SQL> select * from Book_Topic ORDER BY Lit_Id;

TOPIC              LIT_
-------------------- ----
marketing          1001
internet           1001
business           1002
marketing          1002
philosophy         1002
internet           1002
software           1003
mathematics        1003
business           1003
business           1004
tourism            1004
art            1004
tourism            1005
computer           1005
cooking            1005
internet           1006
marketing          1006
computer           1007
software           1007
object         1007
computer           1008
internet           1008
programming        1008
mathematics        1009
love           1009
business           1009
economics          1010
business           1010
marketing          1011
business           1011
psychology         1011
love           1012
autobiography      1012

33 rows selected.
```

```
SQL> select LDate, Ltime,
  2  Speaker_ID, Lit_ID,
  3  Bname from Lecture ORDER BY Lit_Id;

LDATE         LTIME SPE LIT_ BNAME
--------- ---------- --- ---- ------
12-JUN-08      1400 006 1002 LJolla
31-MAY-08      1600 003 1004 LJolla
31-MAR-08      1600 003 1004 Mbeach
01-MAR-08      1100 007 1009 Mbeach
18-MAY-08      1500 007 1011 U_City




SQL> select Lit_Id, PersId,
  2  Bname, Rdate, RTime
  3  from Request ORDER BY Lit_Id;

LIT_ PER BNAME  RDATE       RTIME
---- --- ------ --------- ----------
1002 007 U_City 20-MAR-08
1004 006 Mbeach 29-JAN-08
1007 003 LJolla 22-MAR-08
1007 001 LJolla 24-MAR-08
1011 009 U_City 25-MAR-08
1012 003 LJolla 18-MAR-08
1012 006 LJolla 25-MAR-08

7 rows selected.
```

Requirement 5.

a)Try to insert a row into BOOK_COPY with CopyNum null. Show the SQL query and the system reply. Explain what happened in one sentence or two in your own words.

   b) Try to insert a row in BOOK_COPY that duplicates the primary key value of an existing row. Show the SQL query and the system reply. Explain what happened in one sentence or two in your own words.

   c) Try to insert a row in BOOK_COPY with a Lit_Id that does not exist in BOOK. Show the SQL query and the system reply. Explain what happened in one sentence or two in your own words.

   d) Try to delete one row from the table Book. Show the SQL query and the system reply. Explain what happened in one sentence or two in your own words.

SQL> insert into Book_copy
  2 values ('1001', null, 'regular', '001',
  3 '15-MAR-2008', null, null, null, null,
  4 'Mbeach', null);
values ('1001', null, 'regular', '001',
          *
ERROR at line 2:
ORA-01400: cannot insert NULL into
("MASC0771"."BOOK_COPY"."COPYNUM")

This is a violation of the Entity Integrity Constraint since the combination of Lit_Id and CopyNum is the primary key of the table. The value entered for CopyNum cannot be null.

SQL> delete from Book
  2 WHERE Lit_Id = '1001';
delete from Book
*
ERROR at line 1:
ORA-02292: integrity constraint (MASC0771.FK3) violated - child record found

Another table references this table using the same information supplied by the primary key Lit_Id.

```
SQL> insert into Book_copy
  2  values ('1001', 1, 'regular', '001',
  3  '15-MAR-2008', null, null, null, null,
  4  'Mbeach', null);
insert into Book_copy
*
ERROR at line 1:
ORA-00001: unique constraint (MASC0771.PK4) violated
```

This is a violation of the Entity Integrity Constraint. The primary key of another row cannot be duplicated here.

```
SQL> insert into Book_copy
  2  values ('1013', 1, 'regular', '001',
  3  '15-MAR-2008', null, null, null, null,
  4  'Mbeach', null);
insert into Book_copy
*
ERROR at line 1:
ORA-02291: integrity constraint (MASC0771.FK3) violated - parent key not found
```

This is a violation of the Referential Integrity Constraint. The value for the foreign key Lit_Id must be found in the referenced table Book.

Requirement 6.

(a) List all BOOK_COPIes **that are currently not ckecked out, not borrowed, and not on hold**: bookid, CopyNum, date_out, time_due, hdate; order by Lit_Id, CopyNum; (b) list all book copies that are currently checked out (do not include book copies that are currently borrowed): bookid, CopyNum, date_out, time_due, hdate; order by Lit_Id, CopyNum

```
SQL> select Lit_Id, CopyNum,
  2  date_out, time_due, hdate
  3  from Book_Copy WHERE
  4  (date_out IS null AND hdate IS null)
  5  ORDER BY Lit_Id, CopyNum;
```

LIT_	COPYNUM	DATE_OUT	TIME_DUE	HDATE
1001	1			
1002	3			
1005	3			
1006	2			

```
SQL> select Lit_Id, CopyNum,
  2  date_out, time_due, hdate
  3  from Book_copy WHERE
  4  (date_out IS NOT null and time_due IS null)
  5  ORDER BY Lit_Id, CopyNum;

LIT_    COPYNUM DATE_OUT    TIME_DUE HDATE
---- ---------- --------- ---------- ---------
1001         2 02-FEB-08
1002         1 30-JAN-08
1002         2 01-FEB-08
1003         2 04-FEB-08
1003         3 11-FEB-08
1004         1 09-JAN-08
1004         2 19-FEB-08
1005         1 29-JAN-08
1005         2 07-MAR-08
1006         1 26-JAN-08
1007         1 09-JAN-08
1008         2 10-FEB-08
1009         1 20-FEB-08
1010         1 12-FEB-08
1011         2 16-FEB-08
1012         1 13-FEB-08

16 rows selected.
```

Requirement 7.

List all BOOK_copies that are **currently located** in a branch different from their
regular branch: Lit_Id, CopyNum, Bnamep, Bnamec; order by Lit_Id, CopyNum

SQL> select Lit_Id, CopyNum,
  2 Bnamep, Bnamec from Book_copy
  3 WHERE (Bnamep != Bnamec);

```
LIT_    COPYNUM BNAMEP BNAMEC
---- ---------- ------ ------
1001         1 Mbeach LJolla
1003         1 Mbeach LJolla
1005         3 Mbeach LJolla
1010         2 LJolla U_City
1011         1 Mbeach LJolla
```

Requirement 8.

List all BOOK_copies that are not **currently in** their regular branch: Lit_Id,
CopyNum, Bnamep, Bnamec; order by Lit_Id, CopyNum. This is different from
the previous Requirement: books may be in a different branch or they may be
checked out

SQL> select Lit_Id, CopyNum,
  2 Bnamep, Bnamec from Book_copy
  3 WHERE (Bnamep != Bnamec OR date_out IS NOT null);

```
LIT_    COPYNUM BNAMEP BNAMEC
---- ---------- ------ ------
1001          1 Mbeach LJolla
1001          2 Mbeach
1002          1 Mbeach
1002          2 U_City
1003          1 Mbeach LJolla
1003          2 Mbeach
1003          3 LJolla
1004          1 U_City
1004          2 Mbeach
1005          1 Mbeach
1005          2 LJolla
1005          3 Mbeach LJolla
1006          1 Mbeach
1006          3 U_City U_City
1007          1 LJolla
1007          2 Mbeach Mbeach
1008          2 Mbeach
1009          1 Mbeach
1010          1 U_City
1010          2 LJolla U_City
1011          1 Mbeach LJolla
1011          2 Mbeach
1012          1 U_City
```

23 rows selected.

Requirement 9a.

List all Books for which a topic is internet, business, or marketing. Show Lit_Id, topic; order by topic, bookid. Show two equivalent queries (one of them using the "IN" keyword).

SQL> select Lit_Id, Topic from Book_Topic
  2 WHERE Topic IN ('internet', 'business', 'marketing')
  3 ORDER BY Topic, Lit_Id;

```
LIT_ TOPIC
---- --------------------
1002 business
1003 business
1004 business
1009 business
1010 business
1011 business
1001 internet
1002 internet
1006 internet
1008 internet
1001 marketing
1002 marketing
1006 marketing
1011 marketing
```

14 rows selected.

```
SQL> select Lit_Id, Topic from Book_Topic
  2  WHERE (Topic='internet' OR Topic='business' OR Topic='marketing')
  3  ORDER BY Topic, Lit_Id;

LIT_ TOPIC
---- --------------------
1002 business
1003 business
1004 business
1009 business
1010 business
1011 business
1001 internet
1002 internet
1006 internet
1008 internet
1001 marketing
1002 marketing
1006 marketing
1011 marketing

14 rows selected.
```

Requirement 9b.

(Try to) list books that are not about internet, without using join or nested subqueries. Explain why you can do it or cannot do it.

SQL> select * from Book_Topic WHERE Topic NOT IN 'internet';

```
TOPIC              LIT_
------------------- ----
art             1004
autobiography      1012
business        1002
business        1003
business        1004
business        1009
business        1010
business        1011
computer         1005
computer         1007
computer         1008
cooking          1005
economics        1010
love           1009
love           1012
marketing        1001
marketing        1002
marketing        1006
marketing        1011
mathematics        1003
mathematics        1009
object         1007
philosophy        1002
programming        1008
psychology        1011
software         1003
software         1007
tourism         1004
tourism         1005
```

29 rows selected.

I was able to select books that were not about the internet because Topic is an attribute of Book_Topic. Even though Topic is part of the primary key is is still selctable (or unselectable).

Requirement 10.

List all book copies that were checked out in March 2008: Lit_Id, CopyNum, date_out; order by Lit_Id, CopyNum

SQL> select Lit_Id, CopyNum, date_out
  2 from Book_copy
  3 WHERE (date_out >= '01-MAR-2008' AND date_out <= '31-MAR-2008')
  4 ORDER BY Lit_Id, CopyNum;

```
LIT_   COPYNUM DATE_OUT
---- ---------- ---------
1005        2 07-MAR-08
1006        3 25-MAR-08
1007        2 25-MAR-08
```

Requirement 11.

Using the BOOK_copy table, count the number of copies of each book, how many books are borrowed, how many book copies of each book are checked out or borrowed, how many books are checked out, how many are in hold, how many customers have checked out or borrowed copies. If a customer has several checkouts, he/she is counted once. Show Lit_Id, together with the four count values. Order by Lit_Id (use only one SQL query)

```
SQL> select Lit_Id, count(CopyNum) "# COPIES",
  2  count(time_due) "BORROW", count(date_out) "CO/BRW",
  3  count(date_out-time_due) "CHECK-OUT",
  4  count(hdate) "HELD", count(distinct PersId) "# CUST"
  5  from Book_copy
  6  GROUP BY Lit_Id
  7  ORDER BY Lit_Id;
```

LIT_	# COPIES	BORROW	CO/BRW	CHECK-OUT	HELD	# CUST
1001	3	0	1	0	1	1
1002	3	0	2	0	0	2
1003	3	0	2	0	1	2
1004	2	0	2	0	0	2
1005	3	0	2	0	0	2
1006	3	1	2	1	0	2
1007	2	1	2	1	0	2
1008	3	0	1	0	2	1
1009	1	0	1	0	0	1
1010	2	0	1	0	1	1
1011	2	0	1	0	1	1
1012	1	0	1	0	0	1

12 rows selected.

Requirement 12.

What is the average balance_due and total balance_due by customer cust_type (Child, Friend, Regular)? Show customer Cust_type, average balance_due, total balance due. Order by customer Cust_type. Please format the average results as per Koster, page 73.

```
SQL> column BalDue format 9999.99
SQL> select cust_type,
  2  avg(balance_due) "BalDue", sum(balance_due)
  3  from Customer
  4  GROUP BY cust_type
  5  ORDER BY cust_type;

CUST_TY   BalDue SUM(BALANCE_DUE)
------- -------- ----------------
Child     5.05          20.2
Friend    3.44          13.75
R         3.00           3
```

Requirement 13.

List books with their topics: book title, topic, order by topic, book title (join of two tables, if table book_topic was correctly designed)

```
SQL> select Book.Btitle, Book_Topic.Topic
  2  from Book, Book_Topic
  3  where Book.Lit_Id=Book_Topic.Lit_Id
  4  ORDER BY Topic, Btitle;

BTITLE          TOPIC
--------------- --------------------
Dirt Road       art
Justine         autobiography
CRM Basics      business
Dating Clients  business
Dirt Road       business
Easy Calculus   business
Easy Java       business
Managers        business
0-0 Analysis    computer
C# for All      computer
Java Cooking    computer
Java Cooking    cooking
Managers        economics
C# for All      internet
CRM Basics      internet
E-Business      internet
Free Downloads  internet
Easy Calculus   love
Justine         love
CRM Basics      marketing
Dating Clients  marketing
E-Business      marketing
Free Downloads  marketing
Easy Calculus   mathematics
Easy Java       mathematics
0-0 Analysis    object
CRM Basics      philosophy
C# for All      programming
Dating Clients  psychology
0-0 Analysis    software
Easy Java       software
Dirt Road       tourism
Java Cooking    tourism
33 rows selected.
```

Requirement 14.

List all customers with book copies checked out. Show: customer last name, first name, bookid, book title. Do not show copy number; order by book title, customer last name, first name. (3 tables must appear in this query).

SQL> select Book_copy.Lit_Id, Customer.lname, Customer.fname, Book.Btitle
  2 from Book_copy, Customer, Book
  3 where Book_copy.Lit_Id=Book.Lit_Id and
Book_copy.PersId=Customer.PersID
  4 and Book_copy.date_out IS NOT null
  5 ORDER BY Btitle, lname, fname;

```
LIT_ LNAME       FNAME  BTITLE
---- ------------ ------ ---------------
1007 Celine       Rachel 0-0 Analysis
1007 Midler       Darren 0-0 Analysis
1008 Clooney      Marie  C# for All
1002 Ireton       Ron    CRM Basics
1002 RodGreg      Tina   CRM Basics
1011 Midler       Darren Dating Clients
1004 Celine       Rachel Dirt Road
1004 Ireton       Ron    Dirt Road
1001 Ireton       Ron    E-Business
1009 Clooney      Marie  Easy Calculus
1003 Castro       Andy   Easy Java
1003 Celine       Rachel Easy Java
1006 Ireton       Ron    Free Downloads
1006 Tatum        Dina   Free Downloads
1005 Ireton       Ron    Java Cooking
1005 Midler       Greg   Java Cooking
1012 Celine       Rachel Justine
1010 Celine       Rachel Managers
```

18 rows selected.

Requirement 15.

For each lecture, list the book title, the speaker (last name, first name), the branch (Bname and address), the date, the time, order by date and time. (join of 3 tables)

SQL> select Lecture.Ldate, Lecture.Ltime, Book.Btitle, Customer.lname, Customer.fname,
  2 Branch.Bname, Branch.Baddress
  3 from Lecture, Book, Customer, Branch
  4 where Lecture.Speaker_ID=Customer.PersId and Lecture.Lit_Id=Book.Lit_Id
  5 and Lecture.Bname=Branch.Bname
  6 ORDER BY Ldate, Ltime;

```
LDATE          LTIME BTITLE         LNAME      FNAME  BNAME  BADDRESS
--------- ---------- --------------- ------------ ------ ------ --------------------
01-MAR-08      1100 Easy Calculus   Midler      Will   Mbeach 10 Main
31-MAR-08      1600 Dirt Road       Clooney     Marie  Mbeach 10 Main
18-MAY-08      1500 Dating Clients  Midler      Will   U_City 250 Draper
31-MAY-08      1600 Dirt Road       Clooney     Marie  LJolla 25 Garnet
12-JUN-08      1400 CRM Basics      Midler      Greg   LJolla 25 Garnet
```