Relational Schema

STUDENT(mnumber, fname, lname, category,status)

DEPARTMENT(dnumber, advisor_name, advisor_contact)

TERM(semester, year)

ROOM(place_num, suite_num, rname)
suite_num is a foreign key to SUITE
rname is a foreign key to RESIDENCE_HALL

SUITE(suite_num, rname)
rname is a foreign key to RESIDENCE_HALL

RESIDENCE_HALL(rname, unumber)
unumber is a foreign key to STAFF

STAFF(unumber, fname, lname, rname, office_num, jobtitle)
rname is a foreign key to RESIDENCE_HALL

LEASES(lease_num, mnumber, semester, year, place_num ,rent)
mnumber is a foreign key to STUDENT
semester is a foreign key to TERM
year is a foreign key to TERM
place_num is a foreign key to ROOM

ENROLLS_IN(mnumber, semester, year, dnumber, year_num)
mnumber is a foreign key to STUDENT
semester is a foreign key to TERM
year is a foreign key to TERM
dnumber is a foreign key to DEPARTMENT

SQL Database Code:

```
CREATE SCHEMA project2;
USE project2;


CREATE TABLE STUDENT (
  mnumber VARCHAR(5) PRIMARY KEY,
  fname VARCHAR(30),
  lname VARCHAR(30),
  category VARCHAR(1),
  status varchar(10)
);

INSERT INTO STUDENT
(mnumber, fname, lname, category,status)
VALUES
('M001','Will', 'Smith', 'U','placed'),
('M002','James', 'Franco', 'U','placed'),
('M003','Robert', 'Davis', 'G','placed'),
('M004','John', 'Hickey', 'U','placed'),
('M005','Tom', 'Cruise', 'U','waiting'),
('M006','Barak', 'Obama', 'G','placed'),
('M007','Hillary', 'Clinton', 'U','placed'),
('M008','Ron', 'Krosky', 'U','placed'),
('M009','George', 'Bush', 'G','waiting'),
('M010','Chelsea', 'King', 'G','waiting'),
('M011','John', 'Cena', 'U','waiting'),
('M012','Amy', 'Jackson', 'G','waiting'),
('M013','Bruce', 'Wills', 'U','waiting'),
```

```
('M014','Andres', 'Plancatre', 'U','waiting');

CREATE TABLE DEPARTMENT (
  dnumber VARCHAR(5) PRIMARY KEY,
  advisor_name VARCHAR(30),
  advisor_contact VARCHAR(30)
);

INSERT INTO DEPARTMENT
(dnumber, advisor_name, advisor_contact)
VALUES
('D01', 'Santa Ono', '5133199621'),
('D02', 'Julie Muenchen', '5135569621'),
('D03', 'Fred beyette', '5135567433'),
('D04', 'Paul talaga', '5135561111'),
('D05', 'Rui Dai', '5135561212');

CREATE TABLE TERM (
  semester VARCHAR(6),
  year int,
  PRIMARY KEY (semester, year)
);

INSERT INTO TERM
(semester, year)
VALUES
('FALL', 1999),
('SPRING', 1999),
('FALL', 2000),
('SPRING', 2000),
('FALL', 2001),
```

('SPRING', 2001),

('FALL', 2002),

('SPRING', 2002),

('FALL', 2003),

('SPRING', 2003),

('FALL', 2004),

('SPRING', 2004),

('FALL', 2005),

('SPRING', 2005),

('FALL', 2006),

('SPRING', 2006),

('FALL', 2007),

('SPRING', 2007),

('FALL', 2008),

('SPRING', 2008),

('FALL', 2009),

('SPRING', 2009),

('FALL', 2010),

('SPRING', 2010),

('FALL', 2011),

('SPRING', 2011),

('FALL', 2012),

('SPRING', 2012),

('FALL', 2013),

('SPRING', 2013),

('FALL', 2014),

('SPRING', 2014),

('FALL', 2015),

('SPRING', 2015);

CREATE TABLE ENROLLS_IN (

```
  mnumber VARCHAR(5),
  semester VARCHAR(6),
  year int,
  dnumber VARCHAR(5),
  year_num int,
  PRIMARY KEY (mnumber, semester, year, dnumber)
);

INSERT INTO ENROLLS_IN
(mnumber, semester, year, dnumber, year_num)
VALUES
('M001', 'FALL', 2003, 'D01', 1),
('M001', 'SPRING', 2004, 'D01', 1),
('M002', 'FALL', 2003, 'D02', 2),
('M002', 'SPRING', 2004, 'D02', 2),
('M003', 'FALL', 2003, 'D03', 5),
('M003', 'SPRING', 2004, 'D03', 5),
('M004', 'FALL', 2003, 'D04', 4),
('M004', 'SPRING', 2004, 'D04', 4),
('M005', 'FALL', 2003, 'D05', 1),
('M005', 'SPRING', 2000, 'D05', 1),
('M006', 'FALL', 2003, 'D01', 5),
('M006', 'SPRING', 2004, 'D01', 5),
('M007', 'FALL', 2003, 'D02', 5),
('M007', 'SPRING', 2004, 'D02', 5),
('M008', 'FALL', 2003, 'D03', 4),
('M008', 'SPRING', 2004, 'D03', 4),
('M009', 'FALL', 2003, 'D04', 5),
('M009', 'SPRING', 2004, 'D04', 5),
('M010', 'FALL', 2003, 'D05', 5),
('M010', 'SPRING', 2004, 'D05', 5),
```

('M011', 'FALL', 2003, 'D01', 3),

('M011', 'SPRING', 2004, 'D01', 3),

('M012', 'FALL', 2003, 'D02', 5),

('M012', 'SPRING', 2004, 'D02', 5),

('M013', 'FALL', 2003, 'D03', 5),

('M013', 'SPRING', 2004, 'D03',5),

('M014', 'FALL', 2003, 'D04', 2),

('M014', 'SPRING', 2004, 'D04', 2),

('M015', 'FALL', 2003, 'D05', 5),

('M015', 'SPRING', 2004, 'D05', 5),

('M016', 'FALL', 2003, 'D01', 5),

('M016', 'SPRING', 2004, 'D01', 5);

CREATE TABLE LEASES (

lease_num VARCHAR(5) PRIMARY KEY,

mnumber VARCHAR(5),

semester VARCHAR(10),

year int,

place_num VARCHAR(5),

rent float

);

INSERT INTO LEASES

(lease_num, mnumber, semester, year, place_num,rent)

VALUES

('L001','M001', 'FALL', 2003, 'P042', 500.00),

('L002','M002', 'FALL', 2003, 'P002', 500.00),

('L003','M006', 'FALL', 2003, 'P003', 500.00),

('L004','M007', 'FALL', 2003, 'P004', 500.00),

```
('L005','M005', 'FALL', 2003, 'P005', 500.00),
('L006','M009', 'FALL', 2003, 'P011', 500.00),
('L007','M008', 'FALL', 2003, 'P007', 500.00),
('L008','M004', 'FALL', 2003, 'P008', 500.00),
('L009','M003', 'FALL', 2003, 'P009', 500.00),
('L010','M010', 'FALL', 2003, 'P011', 500.00),
('L011','M014', 'FALL', 2003, 'P012', 500.00),
('L012','M015', 'FALL', 2003, 'P001', 500.00),
('L013','M016', 'FALL', 2003, 'P006', 500.00),
('L014','M012', 'FALL', 2003, 'P018', 500.00),
('L015','M013', 'FALL', 2003, 'P040', 500.00),
('L016','M011', 'FALL', 2003, 'P041', 500.00),
('L017','M001', 'SPRING', 2004, 'P013', 500.00),
('L018','M002', 'SPRING', 2004, 'P002', 500.00),
('L019','M006', 'SPRING', 2004, 'P003', 500.00),
('L020','M007', 'SPRING', 2004, 'P004', 500.00),
('L021','M005', 'SPRING', 2004, 'P005', 500.00),
('L023','M008', 'SPRING', 2004, 'P007', 500.00),
('L024','M004', 'SPRING', 2004, 'P008', 500.00),
('L025','M003', 'SPRING', 2004, 'P043', 500.00),
('L027','M003', 'FALL', 2015, 'P039', 500.00),
('L028','M005', 'FALL', 2015, 'P001', 500.00),
('L029','M007', 'FALL', 2015, 'P006', 500.00),
('L030','M002', 'FALL', 2015, 'P010', 500.00),
('L031','M004', 'FALL', 2015, 'P006', 500.00),
('L032','M013', 'FALL', 2015, 'P018', 500.00);

CREATE TABLE RESIDENCE_HALL (
  rname VARCHAR(30) PRIMARY KEY,
  unumber VARCHAR(5)
);
```

```
INSERT INTO RESIDENCE_HALL
(rname, unumber)
VALUES
('Rhodes', 'U001'),
('Turner', 'U002'),
('Baldwin', 'U004'),
('Gettler', 'U010'),
('ERC', 'U005'),
('Langsam','U003');


CREATE TABLE ROOM (
  place_num VARCHAR(6) PRIMARY KEY,
  suite_num VARCHAR(6),
  rname VARCHAR(30)
);


INSERT INTO ROOM
(place_num, suite_num, rname)
VALUES
('P001', 'S01', 'Rhodes'),
('P002', 'S01', 'Rhodes'),
('P003', 'S01', 'Rhodes'),
('P004', 'S01', 'Rhodes'),
('P005', 'S01', 'Rhodes'),
('P006', 'S02', 'Turner'),
('P007', 'S02', 'Turner'),
('P008', 'S02', 'Turner'),
```

('P009', 'S03', 'Baldwin'),

('P010', 'S03', 'Baldwin'),

('P011', 'S04', 'Gettler'),

('P012', 'S04', 'Gettler'),

('P013', 'S04', 'Gettler'),

('P014', 'S04', 'Gettler'),

('P015', 'S05', 'Langsam'),

('P016', 'S04', 'Gettler'),

('P017', 'S05', 'Langsam'),

('P018', 'S05', 'Langsam'),

('P019', 'S05', 'Langsam'),

('P020', 'S05', 'Langsam'),

('P021', 'null', 'Rhodes'),

('P022', 'null', 'Rhodes'),

('P023', 'null', 'Rhodes'),

('P024', 'null', 'Rhodes'),

('P025', 'null', 'Rhodes'),

('P026', 'null', 'Baldwin'),

('P027', 'null', 'Baldwin'),

('P028', 'null', 'Baldwin'),

('P029', 'null', 'Baldwin'),

('P030', 'null', 'Baldwin'),

('P031', 'null', 'Baldwin'),

('P032', 'null','Gettler'),

('P033', 'null','Gettler'),

('P034', 'null','Gettler'),

('P035', 'null','Gettler'),

('P036', 'null','Gettler'),

('P037', 'null', 'ERC'),

('P038', 'null', 'ERC'),

('P039', 'S06', 'ERC'),

```
('P040', 'S06', 'ERC'),
('P041', 'S06', 'ERC'),
('P042', 'S06', 'ERC'),
('P043', 'S06', 'ERC');


CREATE TABLE SUITE (
  suite_num VARCHAR(6) PRIMARY KEY,
  rname VARCHAR(30)
);

INSERT INTO SUITE
(suite_num, rname)
VALUES
('S01', 'Rhodes'),
('S02', 'Turner'),
('S03', 'Baldwin'),
('S04', 'Gettler'),
('S05', 'Langsam'),
('S06', 'ERC');

CREATE TABLE STAFF (
  unumber VARCHAR(5) PRIMARY KEY,
  fname VARCHAR(30),
  lname VARCHAR(30),
  rname VARCHAR(30),
  officenum int,
  jobtitle VARCHAR(30)
);

INSERT INTO STAFF
```

```
(unumber, fname, lname, rname, officenum, jobtitle)
VALUES
('U001', 'Hillary', 'Will', 'Rhodes', 603, 'Manager'),
('U002', 'John', 'Smith', 'Turner', 604, 'Manager'),
('U003', 'Thomas', 'Edison', 'Langsam', 605, 'Manager'),
('U004', 'James', 'Bond', 'Baldwin', 606, 'Manager'),
('U005', 'Robert', 'Downey', 'ERC', 607, 'Manager'),
('U006', 'Tom', 'Smith', 'Rhodes', 608, 'Manager'),
('U007', 'Sarat', 'Chandra', 'Turner', 609, 'Administator'),
('U008', 'Vikas', 'Vanteru', 'Baldwin', 610, 'Incharge'),
('U009', 'Davy', 'Jones', 'ERC', 611, 'Manager'),
('U010', 'Jack', 'Sparrow', 'gettler', 612, 'Manager'),
('U011', 'Adrian', 'Steyn', 'gettler', 613, 'Manager'),
('U012', 'Bruce', 'Connor', 'Langsam', 614, 'Manager'),
('U013', 'Kyle', 'Reese', 'Baldwin', 615, 'Manager');
```

Queries and Results:

1. **List the last name, mNumber, category (G or U), department number, and year in department for all students who are waiting to be assigned to a residence hall.**

/*Query1*/

SELECT distinct S.lname, S.mnumber, S.category, E.dnumber, E.year_num

FROM

STUDENT S,

ENROLLS_IN E

WHERE

S.mnumber = E.mnumber AND S.status='waiting';

```
1  /*Query1*/
2  SELECT distinct S.lname, S.mnumber, S.category, E.dnumber, E.year_num
3  FROM
4    STUDENT  S,
5    ENROLLS_IN  E
6  WHERE
7    S.mnumber = E.mnumber AND S.status='waiting'
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

lname	mnumber	category	dnumber	year_num
Cruise	M005	U	D05	1
Bush	M009	G	D04	5
King	M010	G	D05	5
Cena	M011	U	D01	3
Jackson	M012	G	D02	5
Wills	M013	U	D03	5
Plancatre	M014	U	D04	2

2. List all staff (last name and university number) who are not currently managing a residence hall but whose job title is hall manager.

/*Query2*/

SELECT S.lname, S.unumber

```
FROM
 STAFF S
WHERE
 jobtitle = 'Manager' AND
 S.unumber NOT IN (SELECT unumber FROM RESIDENCE_HALL);
```

```
1  /*Query2*/
2  SELECT S.lname, S.unumber
3  FROM
4    STAFF S
5  WHERE
6    jobtitle = 'Manager' AND
7    S.unumber NOT IN (SELECT unumber FROM RESIDENCE_HALL);
8
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

lname	unumber
Smith	U006
Jones	U009
Steyn	U011
Connor	U012
Reese	U013
NULL	NULL

3. List last names, mNumbers, and department numbers of graduate students (category G) who lived in a suite with 5 bedrooms in their 5th year in a department.

```
/*Query3*/
SELECT DISTINCT S.lname, S.mnumber, E.dnumber
FROM
 STUDENT  S,
 ENROLLS_IN  E,
```

```
  LEASES  L
WHERE
  S.mnumber = E.mnumber AND
  S.mnumber = L.mnumber AND
  S.category = 'G' AND
  E.year_num = 5 AND
  L.place_num IN (
    SELECT place_num
    FROM ROOM
    WHERE suite_num IN (
      SELECT suite_num
      FROM ROOM
      GROUP BY suite_num
      HAVING COUNT(suite_num) = 5));
```

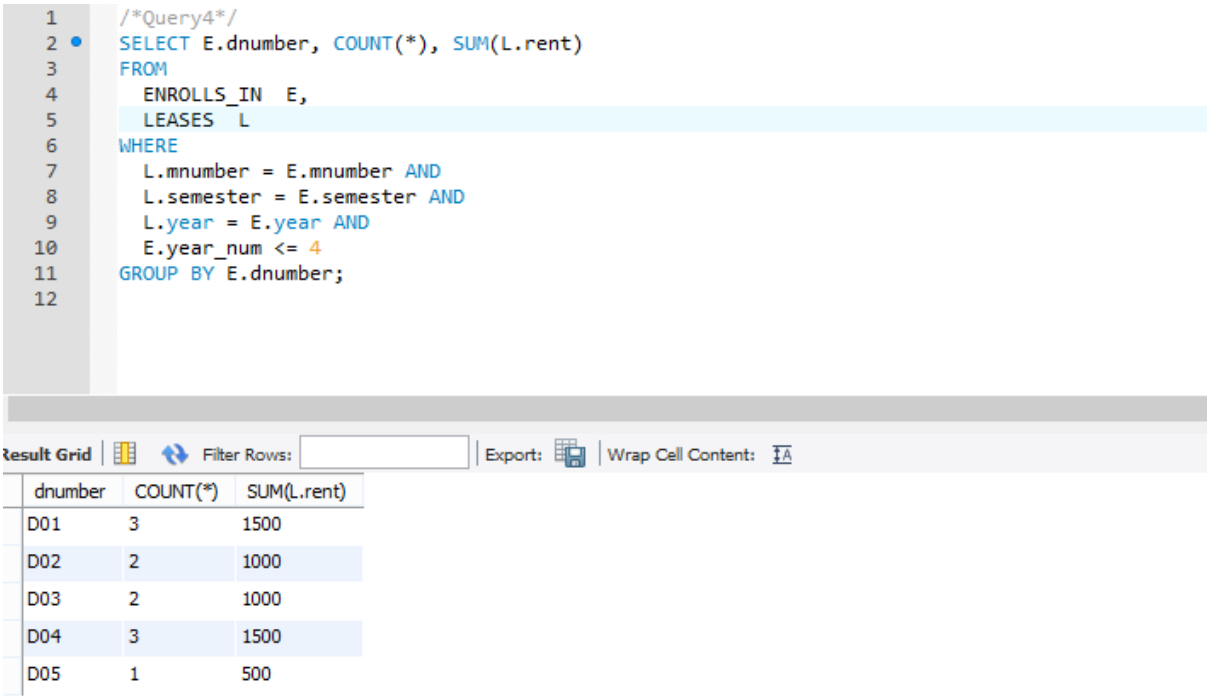
```
1  /*Query3*/
2  SELECT DISTINCT S.lname, S.mnumber, E.dnumber
3  FROM
4    STUDENT  S,
5    ENROLLS_IN  E,
6    LEASES  L
7  WHERE
8    S.mnumber = E.mnumber AND
9    S.mnumber = L.mnumber AND
10   S.category = 'G' AND
11   E.year_num = 5 AND
12   L.place_num IN (
13     SELECT place_num
14     FROM ROOM
15     WHERE suite_num IN (
16       SELECT suite_num
17       FROM ROOM
18       GROUP BY suite_num
19       HAVING COUNT(suite_num) = 5));
20
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

lname	mnumber	dnumber
Obama	M006	D01
Bush	M009	D04
King	M010	D05
Jackson	M012	D02
Davis	M003	D03

4. For students who have been in a residence hall for their first 4 years with the same department (e.g., for years 1, 2, 3, and 4), give the department number, total number of students and the total amount of rent paid.

```
/*Query4*/
SELECT E.dnumber, COUNT(*), SUM(L.rent)
FROM
  ENROLLS_IN  E,
  LEASES  L
WHERE
  L.mnumber = E.mnumber AND
  L.semester = E.semester AND
  L.year = E.year AND
  E.year_num <= 4
GROUP BY E.dnumber;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

dnumber	COUNT(*)	SUM(L.rent)
D01	3	1500
D02	2	1000
D03	2	1000
D04	3	1500
D05	1	500

5. List students with the same first name as staff with offices in their current residence hall (Fall 2015).

/*Query5*/

SELECT S.mnumber,S.fname,S.lname

FROM STUDENT S, STAFF ST, LEASES L,ROOM R

WHERE S.mnumber=L.mnumber AND

L.semester='Fall' AND

L.year=2015 AND

L.place_num=R.place_num AND

R.rname= ST.rname AND

S.fname=ST.fname

Group by mnumber;

```
1   /*Query5*/
2   SELECT S.mnumber,S.fname,S.lname
3   FROM STUDENT S, STAFF ST, LEASES L,ROOM R
4   WHERE   S.mnumber=L.mnumber AND
5           L.semester='Fall' AND
6           L.year=2015 AND
7           L.place_num=R.place_num AND
8           R.rname= ST.rname AND
9           S.fname=ST.fname
10  Group by mnumber
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

mnumber	fname	lname
M002	James	Franco
M003	Robert	Davis
M004	John	Hickey
M005	Tom	Cruise
M013	Bruce	Wills

Log of Team Meeting and solo work:

- Vikas Reddy Vanteru
- Sarat Chandra Lingamarla

Location	Duration	Time	Topic of Discussion	Action Items	Name
ERC Computer Lab	1 hour	10:00AM-11:00AM Saturday 31st October	Relational schema generation	Validating relational schema- Vikas and Sarat	Vikas and Sarat
Forum Apartments	2 hours	5:00 PM – 7:00PM Saturday 31st October	Populating Schema	Check if populated data is correct-Vikas	Vikas Reddy Vanteru
QC	1.5 hours	9:00PM-10:30PM Sunday 1st November	Populating Schema	Check if populated data is correct-Sarat	Sarat Chandra
Forum Apartments	3 hours	10:00 AM – 1:00PM Sunday 1st November	Populating Schema	Check if populated data is correct-Vikas	Vikas Reddy Vanteru
QC	2 hours	5:00PM-7:00PM Thursday 5th November	Populating Schema	Check if populated data is correct- Sarat	Sarat Chandra
ERC Computer Lab	3 hours	6:00PM-9:00PM Friday 6th November	Writing queries	Check if the queries results are correct- Vikas and Sarat	Vikas and Sarat
CEAS Lounge	1.5 hours	10:30AM-12:00PM Saturday 7th November	Documentation	Recheck everything- Vikas and Sarat	Vikas and Sarat
CEAS Lounge	1 hour	7:00PM-8:00PM Monday 9th November	Final Validation	None	Vikas and Sarat

Hours Spent:

Vikas Reddy Vanteru: 5 hours spent on solo work and 3.5 hours on team work

Sarat Chandra Lingamarla: 3.5 hours on Solo work and 3.5 hours on team work