RDB Implementation project

Relational Schema:

STUDENT (mNumber,fname,lname,category,room_status)

DEPARTMENT (dNumber, advisorName, advisorContactInfo)

TERM (semester, year)

ROOM (place_num, suit_num, rName)

suite_num is a foreign key to SUITE

rName is a foreign key to RESIDENCE

SUITE (suite_num,rName,number_of_rooms)

rName is a foreign key to RESIDENCE

RESIDENCE (rName,uNumber)

uNumber is a foreign key to STAFF

STAFF (uNumber,rName,lname,job_tittle,f_name)

rName is a foreign key to RESIDENCE

LEASE (mNumber, semester,student_year,place_num,lease_num)

mNumber is a foreign key to STUDENT

(semester,student_year) is a foreign key to TERM

place_num is a foreign key to ROOM

ENROLLSIN (mNumber,semester,student_year,dNumber,year_num)

mNumber is a foreign key to STUDENT

(semester,student_year) is a foreign key to TERM

dNumber is a foreign key to DEPARTMENT

Implementation of schema:

```
CREATE SCHEMA `college`;

USE college;

CREATE TABLE student
(
mNumber varchar(9) primary key,
fname varchar(20),
lname varchar(20),
category varchar(1),
room_status varchar(20)

);

INSERT INTO student
(mNumber,fname,lname,category,room_status)
VALUES
('m00000001','peter','ham','g','waiting'),
('m00000002','sam','wiley','u','waiting'),
('m00000003','mike','stark','g','placed'),
('m00000004','mike','sway','u','waiting'),
('m00000005','reek','boston','u','waiting'),
('m00000006','john','wiley','u','waiting'),
('m00000007','sansa','stark','g','placed'),
('m00000008','alice','jaime','g','placed'),
('m00000009','smiley','ryan','g','placed'),
('m00000010','alice','qwen','g','waiting');

CREATE TABLE EnrollsIn
(
mNumber varchar(9) ,
semester varchar(20),
student_year int(4),
dNumber varchar(9),
year_num int(2),
primary key(mNumber,semester,student_year,dNumber)
);

INSERT INTO EnrollsIn
(mNumber,semester,student_year,dNumber,year_num)
VALUES
('m00000001','fall',2014,'d1',5),
('m00000001','spring',2014,'d1',4),
('m00000002','fall',2015,'d2',5),
('m00000003','summer',2015,'d3',5),
('m00000004','fall',2014,'d1',5),
('m00000005','fall',2015,'d1',5),
('m00000005','spring',2015,'d1',1),
('m00000005','summer',2014,'d1',2),
('m00000006','fall',2015,'d4',5);

CREATE TABLE lease
```

```
(
mNumber varchar(9) ,
semester varchar(20),
student_year int(4),
place_num varchar(4),
lease_num int(3),
primary key(mNumber,semester,student_year,place_num,lease_num)
);

INSERT INTO lease
(mNumber, semester,student_year,place_num,lease_num)
VALUES
('m00000001','fall',2014,'p1',5),
('m00000002','fall',2015,'p2',5),
('m00000003','summer',2015,'p3',5),
('m00000004','fall',2015,'p4',5),
('m00000005','fall',2015,'p5',5),
('m00000006','fall',2015,'p6',5);


CREATE TABLE room
(
place_num varchar(4),
suit_num varchar(3),
rName varchar(20),
primary key(place_num)
);

INSERT INTO room
(place_num, suit_num, rName)
VALUES
('p1','s1','southhall'),
('p2','s2','northhall'),
('p3','s3','southhall'),
('p4','s4','southhall'),
('p5','s5','westhall'),
('p6','s7','westhall'),
('p7','s6','centerhall');

CREATE TABLE suite
(
suite_num varchar(4),
rName varchar(20),
number_of_rooms int(1),
primary key(suite_num)
);

INSERT INTO suite
(suite_num,rName,number_of_rooms)
VALUES
('s1','southhall',5),
('s2','northhall',5),
('s3','southhall',5),
('s4','southhall',5),
```

```
('s5','westhall',5),
('s6','southhall',3),
('s7','westhall',5);

CREATE TABLE residence
(
rName varchar(20) primary key,
uNumber int(5)
);

INSERT INTO residence
(rName,uNumber)
VALUES
('southhall',110),
('northhall',111),
('westhall',112),
('easthall',113),
('centerhall',114);

CREATE TABLE staff
(
uNumber int(5) primary key,
rName varchar(20) ,
job_tittle varchar(20),
f_name varchar(20)
);

INSERT INTO staff
(uNumber,rName,lname,job_tittle,f_name)
VALUES
(101,'southhall','sam','manager','peter'),
(102,'northhall','sten','receptionist','sam'),
(103,'southhall','morre','manager','mike'),
(104,'southhall','madrid','manager','john'),
(105,'westhall','trop','manager','reek'),
(106,'westhall','sabarestein','manager','john'),
(112,'westhall','amigo','manager','john'),
(111,'northhall','ford','manager','john'),
(110,'southhall','brein','manager','grace'),
(114,'southhall','von','manager','marsha');
```

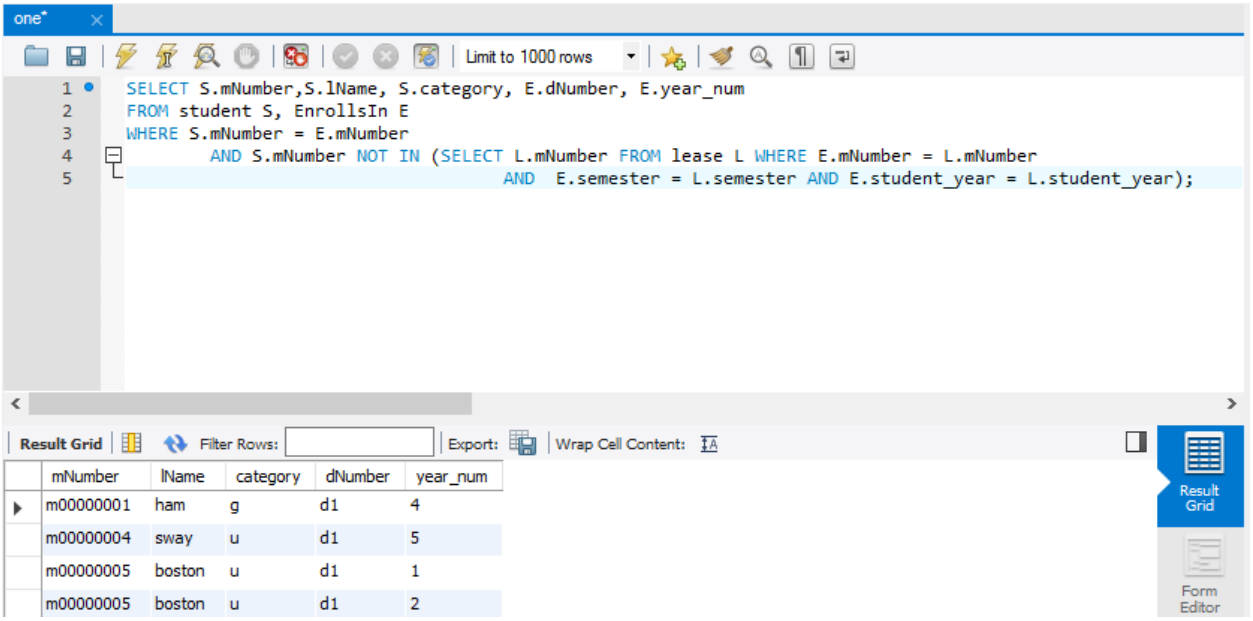
Queries:

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.

SELECT DISTINCT(s.mNumber),lname,dNumber,year_num

FROM student s,EnrollsIn e

WHERE s.mNumber=e.mNumber AND room_status='waiting';

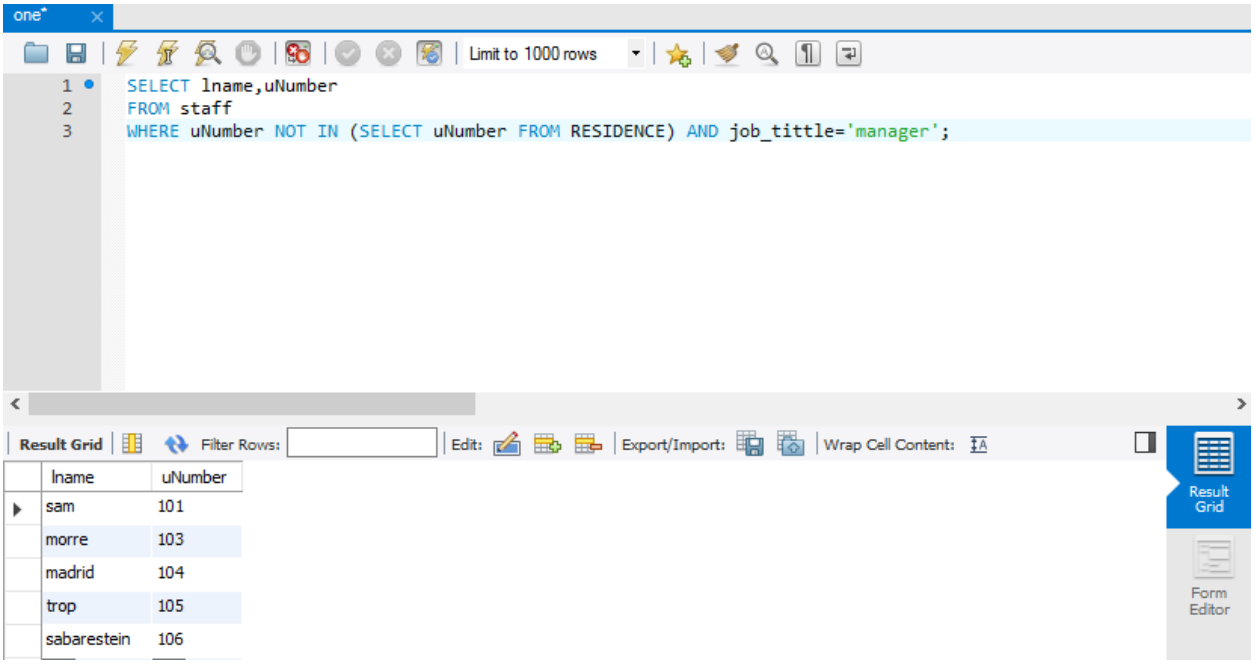


2. List all staff (last name and university number) who are not currently managing a residence hall but whose job title is hall manager.

SELECT lname, uNumber

FROM staff,

WHERE uNumber NOT IN (SELECT uNumber FROM RESIDENCE) AND job_tittle= 'manager';



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.

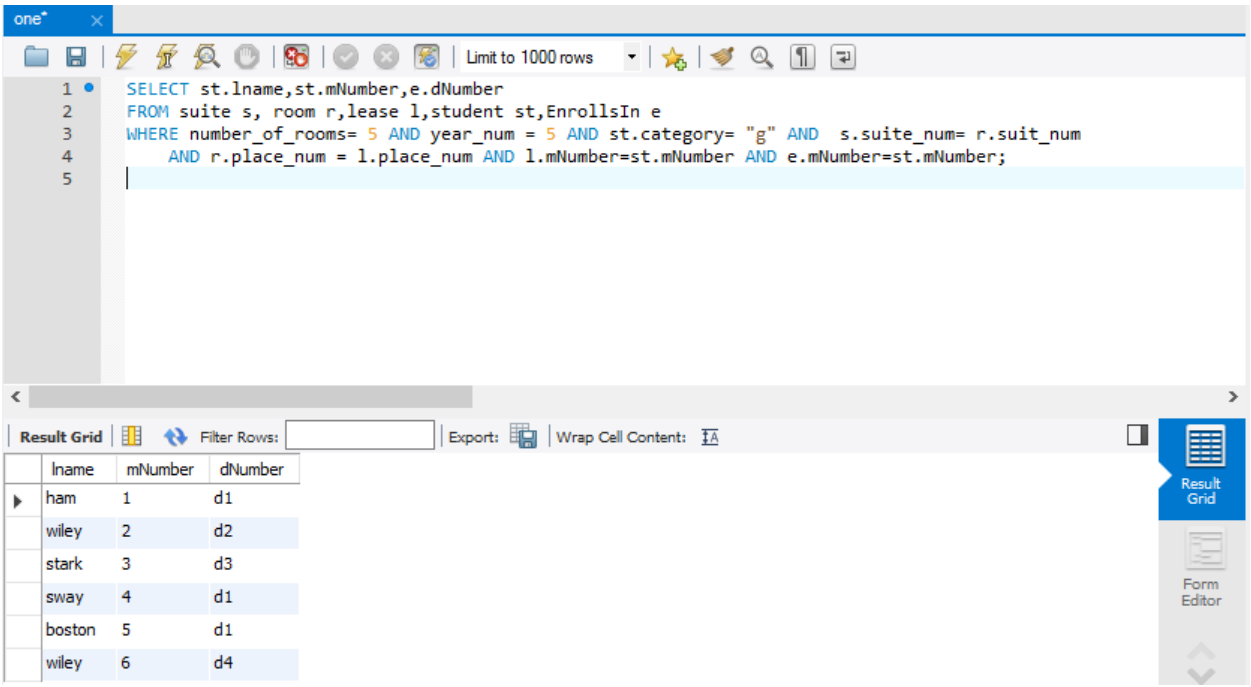
SELECT st.lname,st.mNumber,e.dNumber

FROM suite s, room r,lease l,student st,EnrollsIn e

WHERE number_of_rooms= 5 AND year_num = 5 AND st.category= "g" AND s.suite_num= r.suit_num

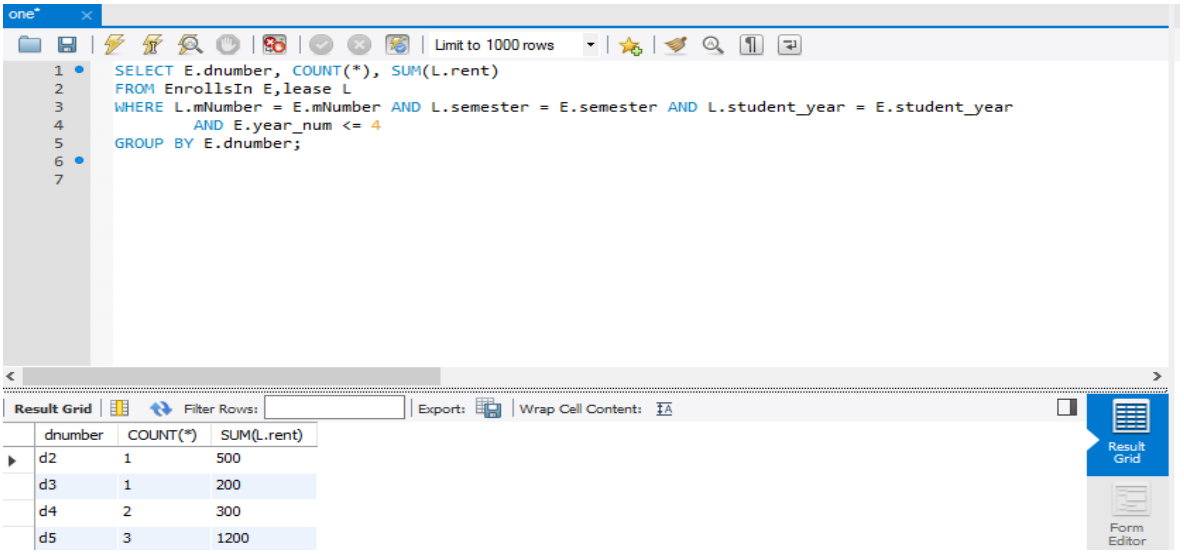
AND r.place_num = l.place_num

AND l.mNumber=st.mNumber AND e.mNumber=st.mNumber;



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.

SELECT e.dNumber,COUNT(*),SUM(L.rent)
FROM EnrollsIn E,lease L
WHERE L.mNumber= E.mNumber AND L.semester=E.semester AND L.student_year=E.student_year
AND E.year_num <=4
GROUPBY E.dNumber;



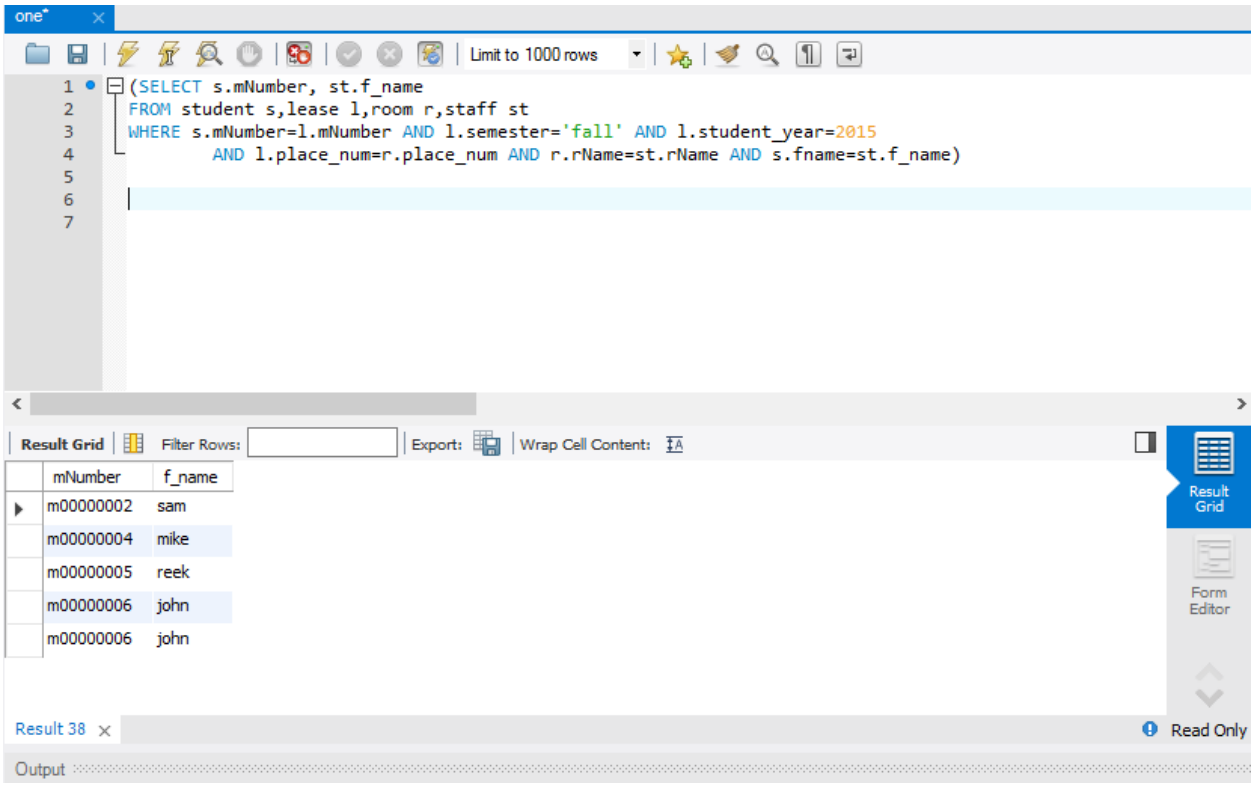
5. List students with the same first name as staff with offices in their current residence hall (Fall 2015).

SELECT s.mNumber, st.f_name

FROM student s,lease l,room r,staff st

WHERE s.mNumber=l.mNumber AND l.place_num=r.place_num AND r.rName=st.rName AND

s.fname=st.f_name;



Log:

Name	Time	Duration	Location	Activity	Topic of discussion	Action Item
Venkata Sai **Deepak**, **Pavan**	Oct 29 10 AM	15 min	CEAS Lounge		MySql workbench setup	Configure My Sql server and My sql workbench
Venkata Sai **Deepak**	Nov 2 12 PM	2 hours	CEAS Library info commons	Deducing Relational schema	Relational Schema	Proofread pavan's schema
Pavan	Nov 3 6 AM	1 hour 30 min	3305 Jefferson Aparment	Deducing Relational schema	Relational Schema	Proofread Deepak's schema
Venkata Sai **Deepak**, **Pavan**	Nov 3 3 PM	30 min	CEAS Lounge	Finalizing on relational schema and dividing the implementation	Relational schema	Deepak- Implement (STUDENT, ENROLLS IN,LEASE tables) Pavan implement- (ROOM, SUITE, RESIDENCE and STAFF tables)
Venkata Sai **Deepak**	Nov 5 3 pm	1 hour	3305 Jefferson Aparment	Writing DDL statements in my sql workbench for implementation	Implementing and populating of relational schema	
Pavan	Nov 5 6 pm	45 min	3305 Jefferson Aparment	Writing DDL statements in my sql workbench for implementation	Implementing and populating of relational schema	
Venkata Sai **Deepak**, **Pavan**	Nov 8 3 PM	4 hours	3305 Jefferson Aparment	Writing queries for the given questions	Querying the database	
Venkata Sai **Deepak**	Nov 9 11 AM	3 hours	3305 Jefferson Aparment	Preparing documentation		
Pavan	Nov 9 5 PM	20 min	ERC computer Lab	Proofreading and finalizing the document		