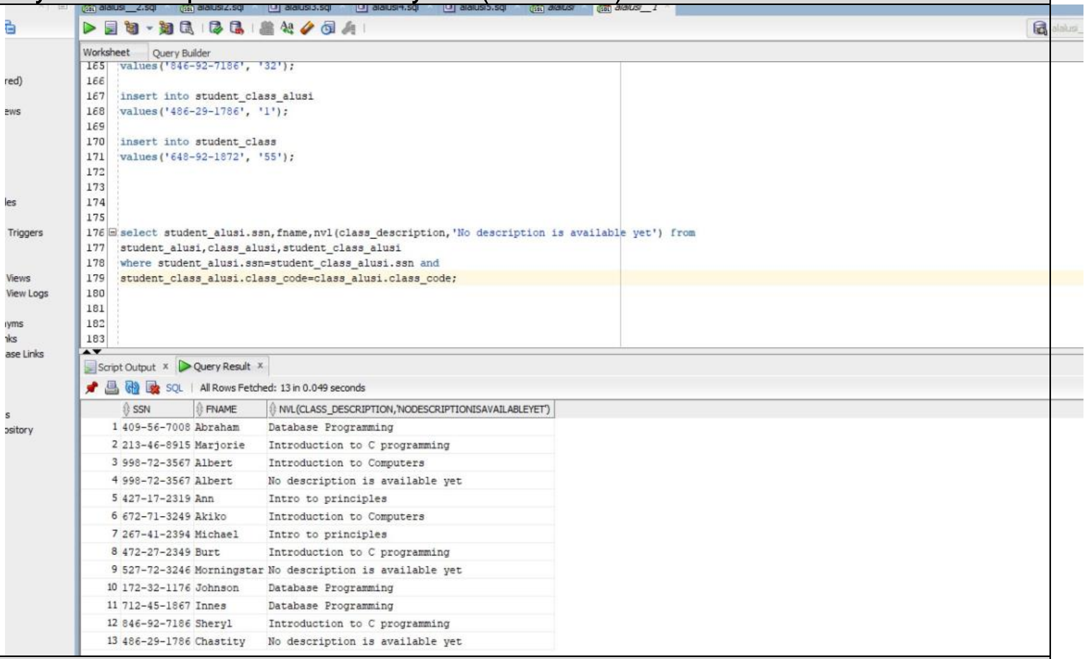
Follow the same formatting guidelines as the previous homework assignment.

Copy and paste the contents of student.txt (Same as the previous lab) into your SQLPlus session. Rename the tables such that they are all prefixed with the first five letters of your lastname such as sabze_student. Make sure that the tables (student, classes and student_class) are all renamed properly before you continue.

Use only a single SQL statement for each of the following questions

1	Give a listing of all the ssns,first names and the class descriptions of all the classes the students are taking. If there are no class _descriptions display 'No description is available yet'. (USE NVL)
	

```
values('846-92-7186', '32');

insert into student_class_alusi
values('486-29-1786', '1');

insert into student_class
values('648-92-1872', '55');




select student_alusi.ssn,fname,nvl(class_description,'No description is available yet') from
student_alusi,class_alusi,student_class_alusi
where student_alusi.ssn=student_class_alusi.ssn and
student_class_alusi.class_code=class_alusi.class_code;
```

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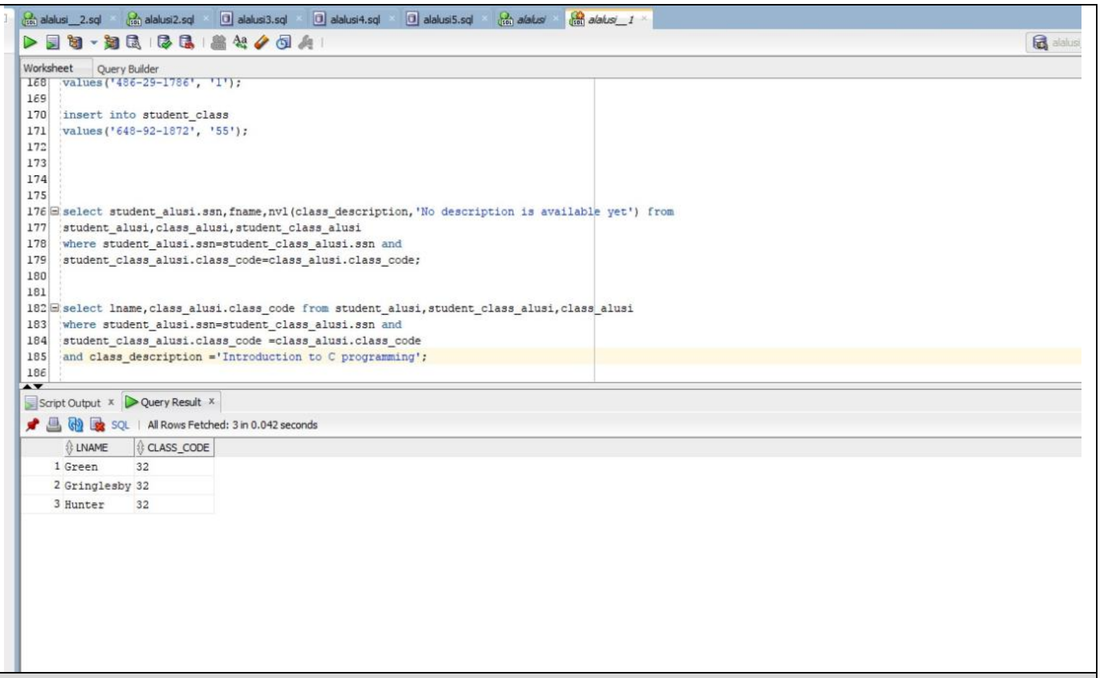
```
    SSN         FNAME       NVL(CLASS_DESCRIPTION,'NODESCRIPTIONISAVAILABLEYET')
 1  409-56-7008 Abraham     Database Programming
 2  213-46-8915 Marjorie    Introduction to C programming
 3  998-72-3567 Albert      Introduction to Computers
 4  998-72-3567 Albert      No description is available yet
 5  427-17-2319 Ann         Intro to principles
 6  672-71-3249 Akiko       Introduction to Computers
 7  267-41-2394 Michael     Intro to principles
 8  472-27-2349 Burt        Introduction to C programming
 9  527-72-3246 Morningstar No description is available yet
10  172-32-1176 Johnson     Database Programming
11  712-45-1867 Innes       Database Programming
12  846-92-7186 Sheryl      Introduction to C programming
13  486-29-1786 Chastity    No description is available yet
```

2	Give a listing of only the lname and the class_code for students who are taking 'Introduction to C programming'. (Inner join)



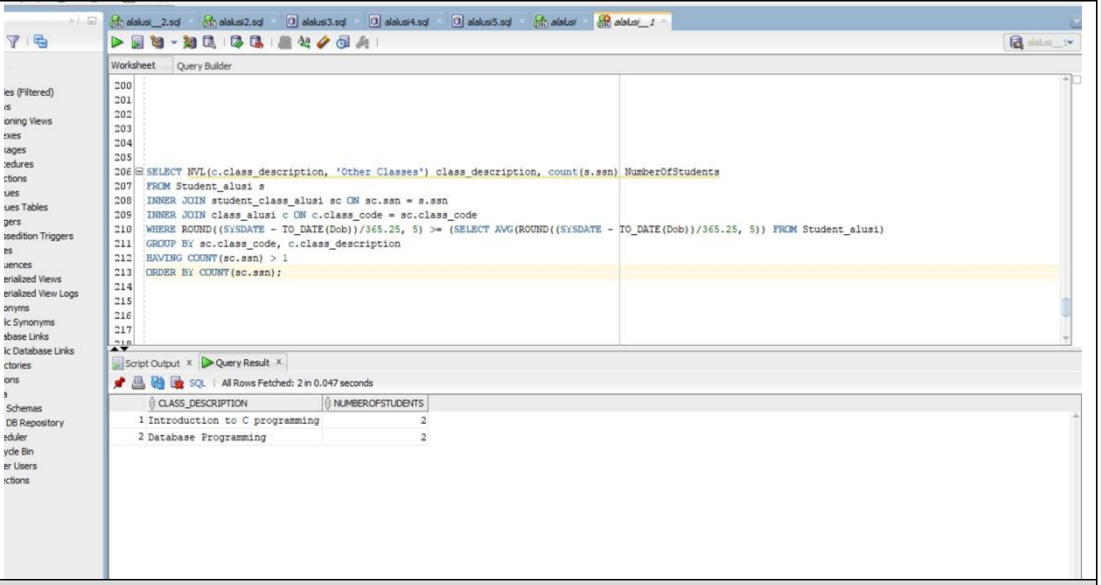
```sql
values('486-29-1786', '1');

insert into student_class
values('648-92-1872', '55');




select student_alusi.ssn,fname,nvl(class_description,'No description is available yet') from
student_alusi,class_alusi,student_class_alusi
where student_alusi.ssn=student_class_alusi.ssn and
student_class_alusi.class_code=class_alusi.class_code;


select lname,class_alusi.class_code from student_alusi,student_class_alusi,class_alusi
where student_alusi.ssn=student_class_alusi.ssn and
student_class_alusi.class_code =class_alusi.class_code
and class_description ='Introduction to C programming';
```

All Rows Fetched: 3 in 0.042 seconds

```
   LNAME      CLASS_CODE
 1 Green      32
 2 Gringlesby 32
 3 Hunter     32
```

3

Give a lising of all the class_descriptions and the number of students enrolled in each class for all students who are older than the average age where the total number of students for the class is more than 1 student. Order by the number of students. If there is no class description replace it with 'Other Classes'
(Note: Take it in steps. First do all those who are older than the average age, then do the group by, then add the having clause and then the order and then combine everything together)



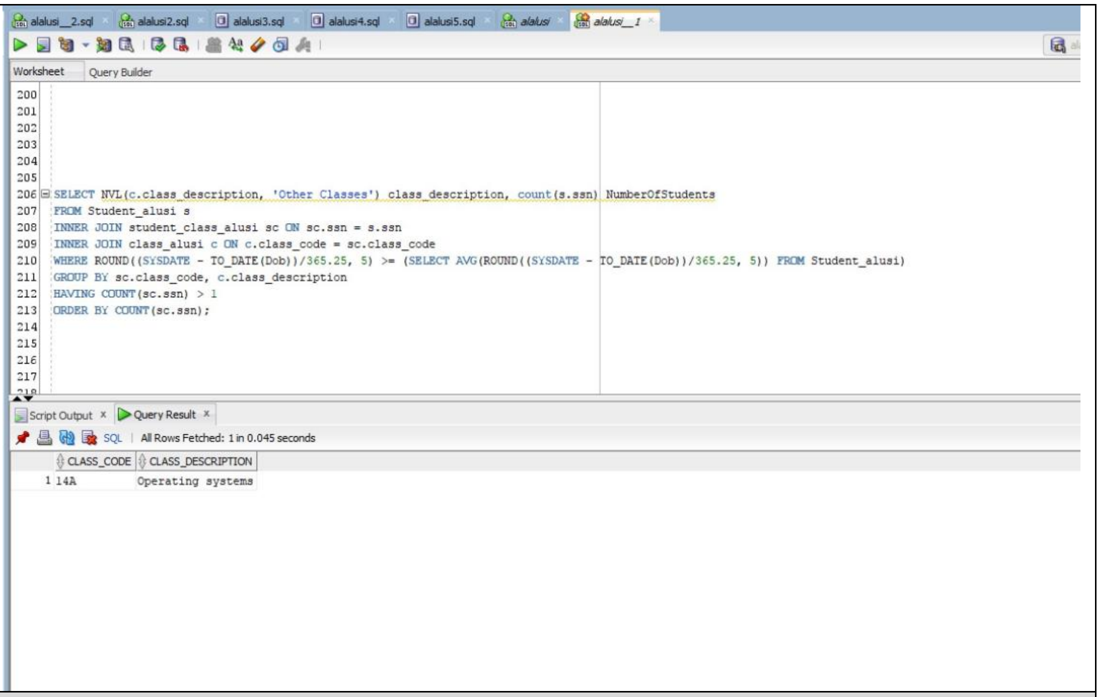
```sql
SELECT NVL(c.class_description, 'Other Classes') class_description, count(s.ssn) NumberOfStudents
FROM Student_alusi s
INNER JOIN student_class_alusi sc ON sc.ssn = s.ssn
INNER JOIN class_alusi c ON c.class_code = sc.class_code
WHERE ROUND((SYSDATE - TO_DATE(Dob))/365.25, 5) >= (SELECT AVG(ROUND((SYSDATE - TO_DATE(Dob))/365.25, 5)) FROM Student_alusi)
GROUP BY sc.class_code, c.class_description
HAVING COUNT(sc.ssn) > 1
ORDER BY COUNT(sc.ssn);
```

All Rows Fetched: 2 in 0.047 seconds

```
   CLASS_DESCRIPTION              NUMBEROFSTUDENTS
 1 Introduction to C programming                 2
 2 Database Programming                          2
```

4

Give a listing of all the classes for which no students are enrolled in (use in or not in clause) (subquery)

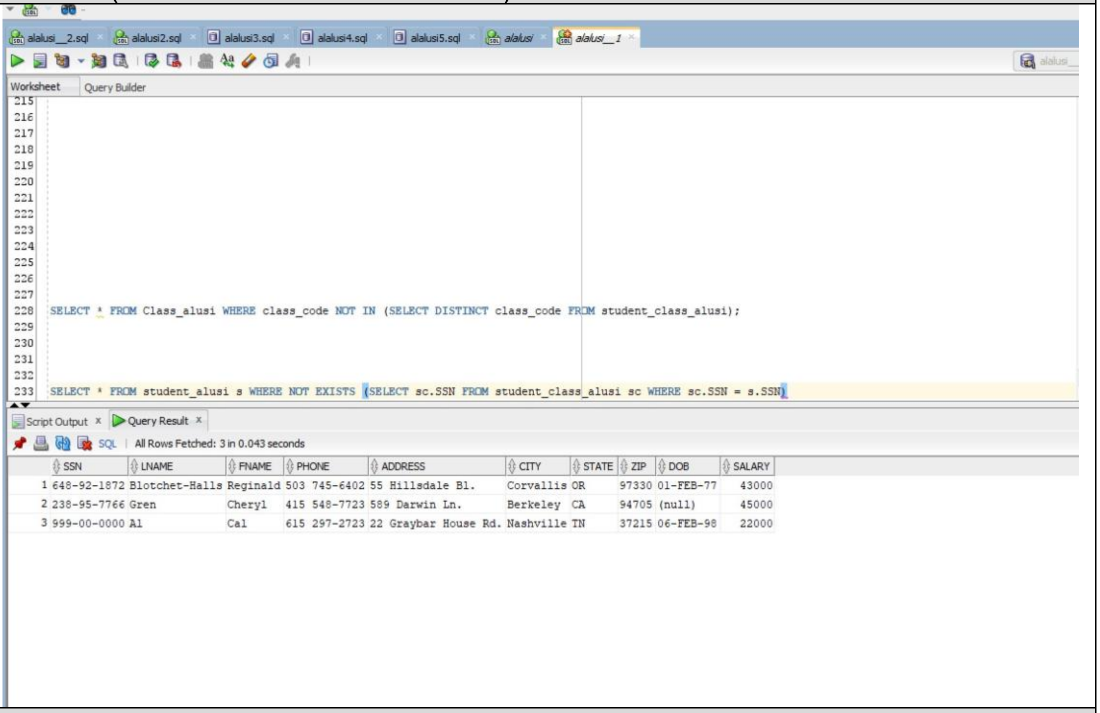


```
SELECT NVL(c.class_description, 'Other Classes') class_description, count(s.ssn) NumberOfStudents
FROM Student_alusi s
INNER JOIN student_class_alusi sc ON sc.ssn = s.ssn
INNER JOIN class_alusi c ON c.class_code = sc.class_code
WHERE ROUND((SYSDATE - TO_DATE(Dob))/365.25, 5) >= (SELECT AVG(ROUND((SYSDATE - TO_DATE(Dob))/365.25, 5)) FROM Student_alusi)
GROUP BY sc.class_code, c.class_description
HAVING COUNT(sc.ssn) > 1
ORDER BY COUNT(sc.ssn);
```

All Rows Fetched: 1 in 0.045 seconds

	CLASS_CODE	CLASS_DESCRIPTION
1	14A	Operating systems

5 Give a listing of all the students who are not enrolled in any classes (Note: Use Exists or not Exists)

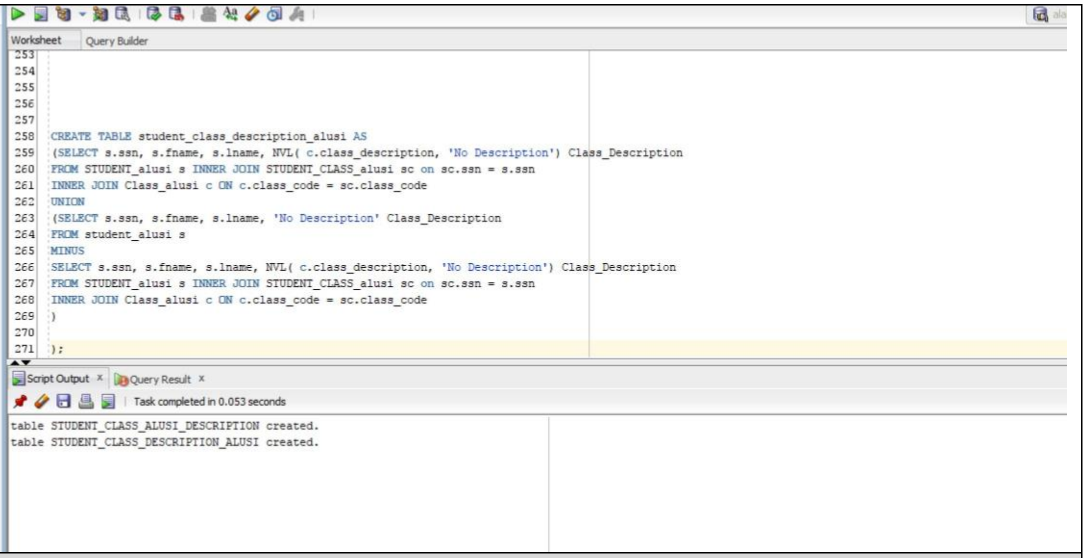


```
SELECT * FROM Class_alusi WHERE class_code NOT IN (SELECT DISTINCT class_code FROM student_class_alusi);



SELECT * FROM student_alusi s WHERE NOT EXISTS (SELECT sc.SSN FROM student_class_alusi sc WHERE sc.SSN = s.SSN)
```

All Rows Fetched: 3 in 0.043 seconds

	SSN	LNAME	FNAME	PHONE	ADDRESS	CITY	STATE	ZIP	DOB	SALARY
1	648-92-1872	Blotchet-Halls	Reginald	503 745-6402	55 Hillsdale Bl.	Corvallis	OR	97330	01-FEB-77	43000
2	238-95-7766	Gren	Cheryl	415 548-7723	589 Darwin Ln.	Berkeley	CA	94705	(null)	45000
3	999-00-0000	Al	Cal	615 297-2723	22 Graybar House Rd.	Nashville	TN	37215	06-FEB-98	22000

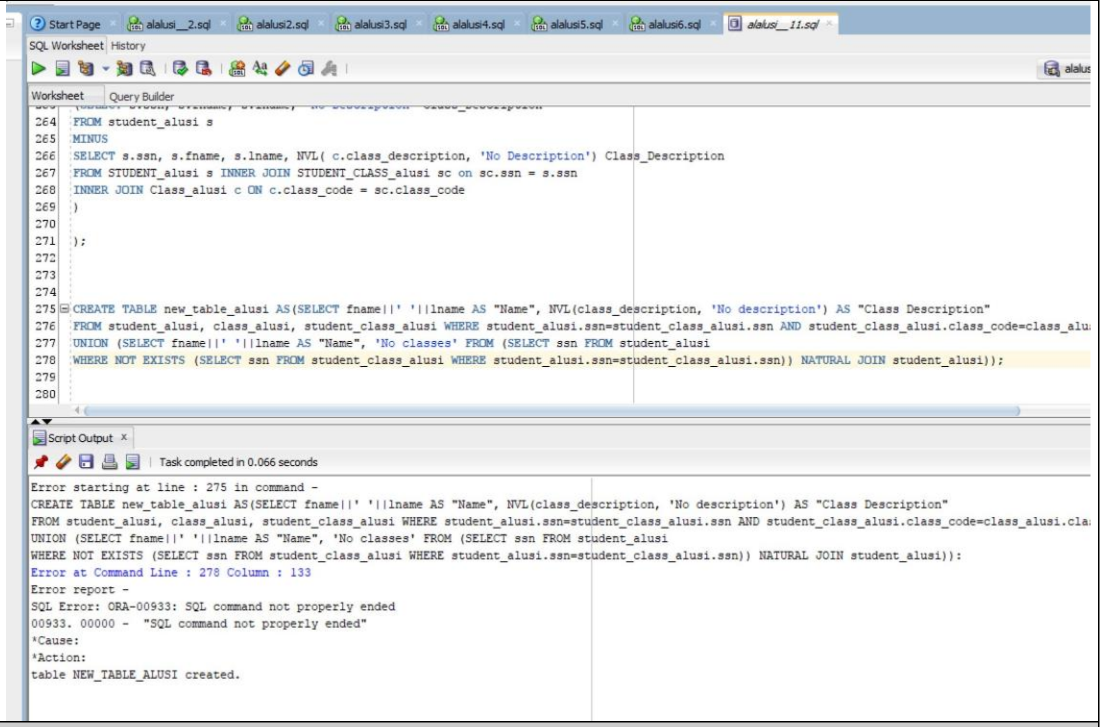
6 create a new table that contains the list of all the students
and class_descriptions. Include In this table the list of all
students who are not enrolled in any classes (display no classes). If there are no
class descriptions then display ‘no description’
(Use combination of inner join, union and minus)
(Note: minus will deal with the students who are not enrolled in any classes)



```
253
254
255
256
257
258 CREATE TABLE student_class_description_alusi AS
259 (SELECT s.ssn, s.fname, s.lname, NVL( c.class_description, 'No Description') Class_Description
260 FROM STUDENT_alusi s INNER JOIN STUDENT_CLASS_alusi sc on sc.ssn = s.ssn
261 INNER JOIN Class_alusi c ON c.class_code = sc.class_code
262 UNION
263 (SELECT s.ssn, s.fname, s.lname, 'No Description' Class_Description
264 FROM student_alusi s
265 MINUS
266 SELECT s.ssn, s.fname, s.lname, NVL( c.class_description, 'No Description') Class_Description
267 FROM STUDENT_alusi s INNER JOIN STUDENT_CLASS_alusi sc on sc.ssn = s.ssn
268 INNER JOIN Class_alusi c ON c.class_code = sc.class_code
269 )
270
271 );
```

```
table STUDENT_CLASS_ALUSI_DESCRIPTION created.
table STUDENT_CLASS_DESCRIPTION_ALUSI created.
```

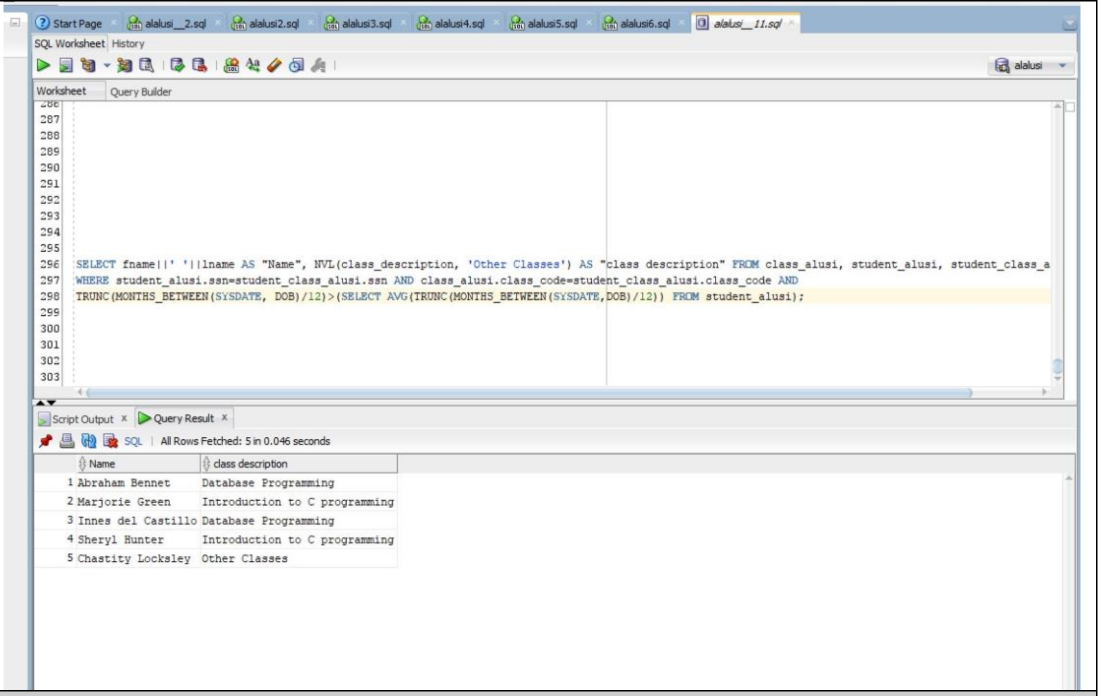
7 repeat question 6 using a combination of inner join, union and not exists
(Note: Not exists will deal with the students who are not enrolled in any classes)



```
264 FROM student_alusi s
265 MINUS
266 SELECT s.ssn, s.fname, s.lname, NVL( c.class_description, 'No Description') Class_Description
267 FROM STUDENT_alusi s INNER JOIN STUDENT_CLASS_alusi sc on sc.ssn = s.ssn
268 INNER JOIN Class_alusi c ON c.class_code = sc.class_code
269 )
270
271 );
272
273
274
275 CREATE TABLE new_table_alusi AS(SELECT fname||' '||lname AS "Name", NVL(class_description, 'No description') AS "Class Description"
276 FROM student_alusi, class_alusi, student_class_alusi WHERE student_alusi.ssn=student_class_alusi.ssn AND student_class_alusi.class_code=class_alu
277 UNION (SELECT fname||' '||lname AS "Name", 'No classes' FROM (SELECT ssn FROM student_alusi
278 WHERE NOT EXISTS (SELECT ssn FROM student_class_alusi WHERE student_alusi.ssn=student_class_alusi.ssn)) NATURAL JOIN student_alusi));
279
280
```

```
Error starting at line : 275 in command -
CREATE TABLE new_table_alusi AS(SELECT fname||' '||lname AS "Name", NVL(class_description, 'No description') AS "Class Description"
FROM student_alusi, class_alusi, student_class_alusi WHERE student_alusi.ssn=student_class_alusi.ssn AND student_class_alusi.class_code=class_alusi.cla
UNION (SELECT fname||' '||lname AS "Name", 'No classes' FROM (SELECT ssn FROM student_alusi
WHERE NOT EXISTS (SELECT ssn FROM student_class_alusi WHERE student_alusi.ssn=student_class_alusi.ssn)) NATURAL JOIN student_alusi)):
Error at Command Line : 278 Column : 133
Error report -
SQL Error: ORA-00933: SQL command not properly ended
00933. 00000 -  "SQL command not properly ended"
*Cause:
*Action:
table NEW_TABLE_ALUSI created.
```

8 **create a view.** We want to find out which courses are being taken by the different students for all those whose age is greater than the average age. Give a listing of the course descriptions and student names (Inner join)



```
SELECT fname||' '||lname AS "Name", NVL(class_description, 'Other Classes') AS "class description" FROM class_alusi, student_alusi, student_class_a
WHERE student_alusi.ssn=student_class_alusi.ssn AND class_alusi.class_code=student_class_alusi.class_code AND
TRUNC(MONTHS_BETWEEN(SYSDATE, DOB)/12)>(SELECT AVG(TRUNC(MONTHS_BETWEEN(SYSDATE,DOB)/12)) FROM student_alusi);
```

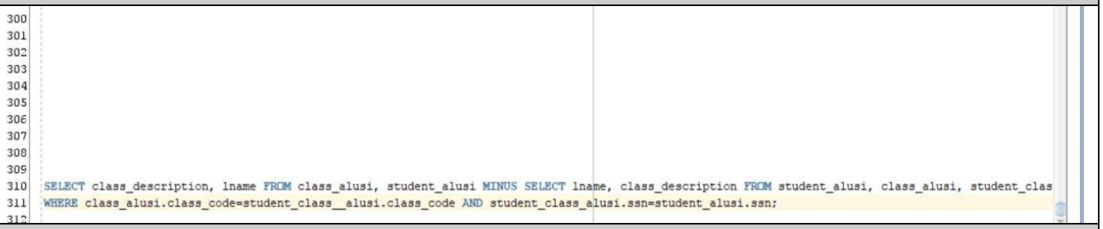
All Rows Fetched: 5 in 0.046 seconds

	Name	class description
1	Abraham Bennet	Database Programming
2	Marjorie Green	Introduction to C programming
3	Innes del Castillo	Database Programming
4	Sheryl Hunter	Introduction to C programming
5	Chastity Locksley	Other Classes

9 We want to find out the courses that each student is not enrolled in.

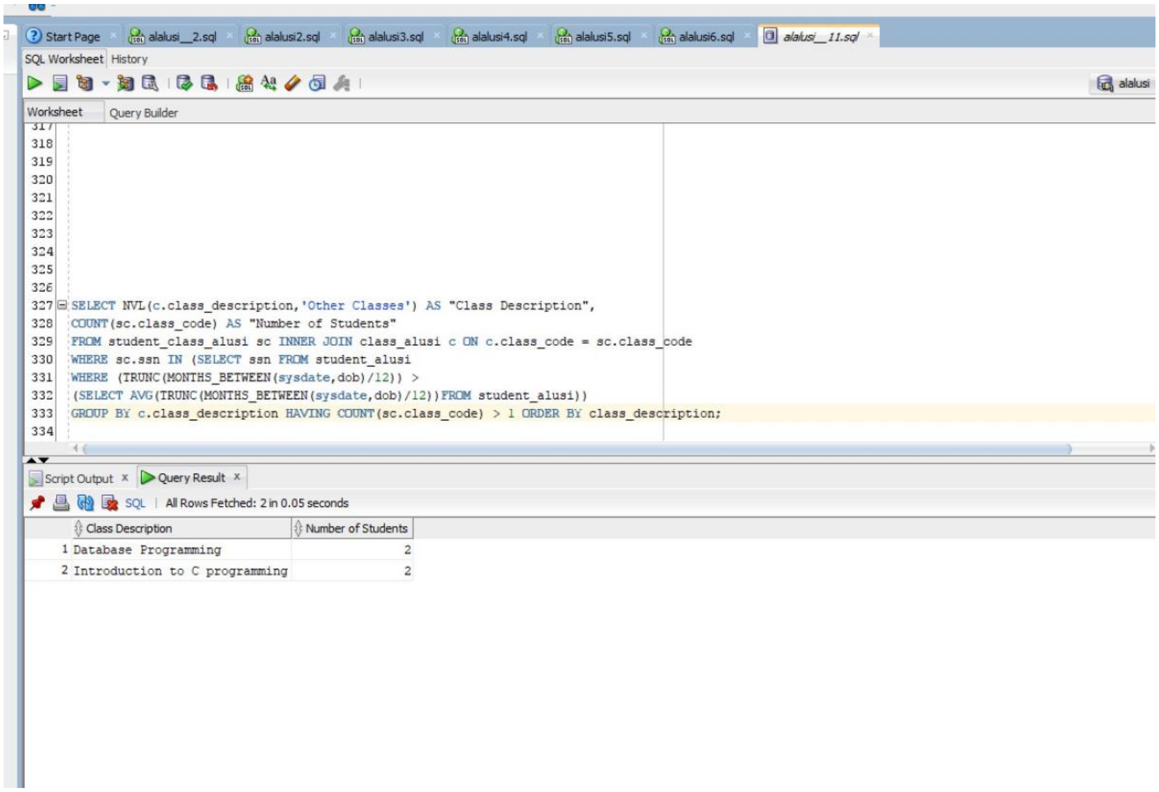
Give a listing of the course descriptions, and the students (lname) who are not taking that specific course

(Use a cartesian product and union it with a minus)



```
SELECT class_description, lname FROM class_alusi, student_alusi MINUS SELECT lname, class_description FROM student_alusi, class_alusi, student_clas
WHERE class_alusi.class_code=student_class__alusi.class_code AND student_class_alusi.ssn=student_alusi.ssn;
```

10 Use the system catalog tables to display the results to find out the following:(Note show me the SQL syntax along with your results) Only a single SQL statement for each question.



```sql
SELECT NVL(c.class_description,'Other Classes') AS "Class Description",
COUNT(sc.class_code) AS "Number of Students"
FROM student_class_alusi sc INNER JOIN class_alusi c ON c.class_code = sc.class_code
WHERE sc.ssn IN (SELECT ssn FROM student_alusi
WHERE (TRUNC(MONTHS_BETWEEN(sysdate,dob)/12)) >
(SELECT AVG(TRUNC(MONTHS_BETWEEN(sysdate,dob)/12))FROM student_alusi))
GROUP BY c.class_description HAVING COUNT(sc.class_code) > 1 ORDER BY class_description;
```

All Rows Fetched: 2 in 0.05 seconds

	Class Description	Number of Students
1	Database Programming	2
2	Introduction to C programming	2