

"I have done this assignment completely on my own. I have not copied it, nor have I given my solution to anyone else. I understand that if I am involved in plagiarism or cheating I will have to sign an official form that I have cheated and that this form will be stored in my official university record. I also understand that I will receive a grade of 0 for the involved assignment and my grade will be reduced by one level (e.g., from A to A- or from B+ to B) for my first offense, and that I will receive a grade of "F" for the course for any additional offense of any kind."

```
SQL> start query1
SQL> SELECT s.B#,s.first_name || ' ' || s.last_name Full_Name FROM Students s
WHERE s.GPA > 3.5 AND s.deptname = 'CS';
```

B#	FULL_NAME
B003	Tracy Wang
B007	Becky Lee
B010	Sata Patel
B011	Art Chang

```
SQL> start query2
SQL> column "birth date" format a10
SQL>
SQL> SELECT s.B#,s.first_name,s.last_name,s.bdate "birth date"
2  FROM Students s
3  WHERE EXISTS(SELECT * FROM TAs t WHERE s.B# = t.B#) AND deptname = 'CS';
```

B#	FIRST_NAME	LAST_NAME	birth date
B005	Jack	Smith	18-OCT-91
B010	Sata	Patel	12-OCT-90
B011	Art	Chang	08-JUN-89

```
SQL>
SQL> start query3
SQL> SELECT c.classid,c.dept_code || '' || c.course# course_id, s.first_name ||
' ' || s.last_name Full_Name
2  FROM Students s, TAs t, Classes c WHERE t.ta_level = 'PhD'
3  AND s.B# = t.B# AND t.B# = c.TA_B#;
```

CLASS	COURSE_ID
	FULL_NAME
c0006	CS532
	Art Chang
c0002	Math314
	Tara Ramesh

```
SQL> start query4
SQL> SELECT s.B#,s.first_name,s.last_name,s.gpa
2  FROM Students s WHERE s.B# IN(SELECT B# FROM Enrollments e WHERE
3  e.classid IN(SELECT classid FROM classes c WHERE dept_code='CS')) AND
4  s.B# IN(SELECT B# FROM Enrollments e WHERE e.classid IN(SELECT classid
5  FROM classes c WHERE dept_code='Math'));
```

B#	FIRST_NAME	LAST_NAME	GPA
B001	Anne	Broder	3.17

```

SQL>
SQL>
SQL>
SQL> start query51
SQL> SELECT s.B#,s.first_name,s.last_name FROM Students s WHERE
2 EXISTS (SELECT
3 * FROM Enrollments e WHERE e.B# = s.B# AND e.B# NOT IN(SELECT B# FROM
4 Enrollments WHERE lgrade = 'A'));

```

B#	FIRST_NAME	LAST_NAME
B002	Terry	Buttler
B004	Barbara	Callan
B005	Jack	Smith

```

SQL>
SQL> start query52
SQL> SELECT s.B#,s.first_name,s.last_name FROM Students s WHERE s.B#
2 IN(SELECT B# FROM Enrollments
3 WHERE B# NOT IN(SELECT B# FROM Enrollments WHERE lgrade = 'A'));

```

B#	FIRST_NAME	LAST_NAME
B002	Terry	Buttler
B004	Barbara	Callan
B005	Jack	Smith

```

SQL>
SQL>
SQL>
SQL> start query6
SQL> SELECT s.B#,s.first_name,s.last_name FROM Students s WHERE
2 s.B# IN(SELECT e.B# FROM Enrollments e WHERE e.B#
3 NOT IN(SELECT el.B# FROM
4 Enrollments el
5 WHERE el.lgrade
6 IN('A-','B+','B','B-','C+','C','C-','D+','D','D-','I','null')));

```

B#	FIRST_NAME	LAST_NAME
B007	Becky	Lee
B006	Terry	Zillman

```

SQL>
SQL> start query7
SQL> SELECT c.classid,co.dept_code,co.course#,c.limit - c.class_size
seats_available
2 FROM Courses co, Classes c WHERE co.course# < 500 AND c.semester = 'Spring'
3 AND c.year=2017 AND co.dept_code = c.dept_code AND co.course# = c.course#;

```

CLASS	DEPT	COURSE#	SEATS_AVAILABLE
c0005	CS	240	1
c0001	CS	432	1
c0007	Math	221	0

```

SQL> start query8
SQL> SELECT s.B#,SUM(cc.credits) Total_credits FROM Students s,Course_credit cc
WHERE

```

```
3 EXISTS(SELECT * FROM Classes c WHERE e.classid = c.classid AND cc.course# =  
c.course#)) GROUP BY s.B#;
```

```
B#    TOTAL_CREDITS
```

B#	TOTAL_CREDITS
B003	8
B007	4
B004	8
B002	4
B005	3
B006	3
B001	15

7 rows selected.

```
SQL> start query9
```

```
SQL>
```

```
SQL> SELECT co.dept_code,co.course# FROM Courses co  
2 WHERE EXISTS(SELECT * FROM Classes c WHERE co.dept_code = c.dept_code AND  
co.course# = c.course#  
3 GROUP BY c.dept_code,c.course#  
4 HAVING COUNT(*) = (SELECT MAX(COUNT(*)) FROM Classes GROUP BY  
dept_code,course#));
```

```
DEPT      COURSE#
```

DEPT	COURSE#
CS	432
Math	314

```
SQL>
```

```
SQL>
```

```
SQL>
```

```
SQL> start query10
```

```
SQL> SELECT s.B#,s.first_name,s.last_name,COUNT(c.classid) Total_Classes  
2 FROM Students s  
3 INNER JOIN Enrollments E ON e.B# = s.B#  
4 INNER JOIN Classes c ON c.classid = e.classid  
5 GROUP BY s.B#,s.first_name,s.last_name  
6 HAVING COUNT(c.classid) >=2;
```

```
B#    FIRST_NAME      LAST_NAME      TOTAL_CLASSES
```

B#	FIRST_NAME	LAST_NAME	TOTAL_CLASSES
B001	Anne	Broder	6
B003	Tracy	Wang	3
B004	Barbara	Callan	2

```
SQL>
```

```
SQL> start query11
```

```
SQL>
```

```
SQL> select c.classid, c.dept_code, c.course#  
2 from classes c,  
3 (select cl.classid, count(*) as tot1 from  
4 (select * from students where status = 'junior') l,  
5 classes cl, enrollments e  
6 where e.classid = cl.classid and e.b# = l.b#  
7 group by cl.classid)temp1,  
8 (select count(*) as tot2 from students s where s.status = 'junior') temp2  
9 where c.classid = temp1.classid and temp1.tot1 = temp2.tot2;
```

```
CLASS DEPT      COURSE#
```

CLASS	DEPT	COURSE#
c0004	CS	432
c0005	CS	240

```

SQL>
SQL>
SQL>
SQL> start query12
SQL>
SQL> SELECT s.B#,s.first_name,s.last_name FROM Students s
  2 WHERE NOT EXISTS(SELECT * FROM Classes c WHERE c.year = '2017'
  3 AND c.dept_code = 'CS' AND c.semester = 'Spring'
  4 AND NOT EXISTS(SELECT * FROM Enrollments e WHERE s.B# = e.B# AND e.classid
=
  5 c.classid));

```

B#	FIRST_NAME	LAST_NAME
B001	Anne	Broder

```

SQL>
SQL> start query13
SQL> SELECT s.B#,s.first_name,s.last_name
  2 FROM Students s WHERE EXISTS(SELECT * FROM Enrollments e WHERE e.B#
  3 s.B# AND EXISTS(SELECT * FROM Classes c WHERE c.classid = e.classid AND
  4 s.deptname <> c.dept_code));

```

B#	FIRST_NAME	LAST_NAME
B001	Anne	Broder
B004	Barbara	Callan
B006	Terry	Zillman
B007	Becky	Lee

```

SQL>
SQL> start query14
SQL>
SQL> SELECT DISTINCT s.B#,s.first_name,s.last_name
  2 FROM Students s
  3 INNER JOIN Enrollments e
  4 ON s.B# = e.B#
  5 WHERE s.B# NOT IN(SELECT en.B# FROM Enrollments en WHERE en.classid
IN(SELECT cl.classid FROM Classes cl WHERE s.deptname <> cl.dept_code));

```

B#	FIRST_NAME	LAST_NAME
B005	Jack	Smith
B002	Terry	Buttler
B003	Tracy	Wang

```

SQL>
SQL>
SQL>
SQL>
SQL> start query15
SQL> SELECT c.dept_code,c.course#,c.title,nvl(e.lgrade,'grade missing') grade
  2 FROM Courses c, Classes cl, Enrollments e
  3 WHERE e.B# = 'B003' AND c.dept_code = cl.dept_code AND c.course# =
cl.course#
  4 AND cl.classid = e.classid;

```

DEPT	COURSE#	TITLE	GRADE
CS	432	database systems	I
CS	432	database systems	A
CS	240	data structure	grade missing

```

SQL> SELECT c.dept_code,c.course#,c.title
  2  FROM Courses c, Classes cl
  3  WHERE c.title like '%systems%' and c.dept_code = cl.dept_code AND
  4  c.course# = cl.course# AND NOT EXISTS(SELECT * FROM Students s WHERE
  5  s.gpa = 4.0 and NOT EXISTS(SELECT * FROM Enrollments e WHERE e.B# = s.B#
  6  AND e.classid = cl.classid));

```

no rows selected

```
SQL> start query17
```

```
SQL>
```

```
SQL> column classid format a15
```

```
SQL> column lgrade format a15
```

```
SQL>
```

```

SQL> SELECT B#,classid ,lgrade ,DECODE(lgrade,'A',4,
  2                      'A-',3.7,
  3                      'B+',3.3,
  4                      'B',3,
  5                      'B-',2.7,
  6                      'C+',2.3,
  7                      'C',2,
  8                      'C-',1.7,
  9                      'D',1,
 10                     'I',0,
 11                     null,0)
12 "ngrade" FROM Enrollments
13 WHERE lgrade != 'I'
14 ORDER BY "ngrade" DESC;

```

B#	CLASSID	LGRADE	ngrade
B001	c0001	A	4
B006	c0006	A	4
B001	c0004	A	4
B007	c0007	A	4
B003	c0004	A	4
B004	c0005	B+	3.3
B005	c0006	B	3
B001	c0005	B	3
B001	c0003	B	3
B002	c0002	B	3
B001	c0006	B-	2.7

B#	CLASSID	LGRADE	ngrade
B001	c0002	C+	2.3
B004	c0004	C	2

13 rows selected.

```
SQL>
```

```
SQL> start query18
```

```

SQL> SELECT s.B#,s.first_name,s.last_name
  2  FROM Students s
  3  WHERE EXISTS(SELECT * FROM Enrollments e WHERE s.B# = e.B# AND
  4  e.classid IN(SELECT classid
  5  FROM Enrollments WHERE B# = 'B005' AND s.B# = e.B# ) AND
  6  EXISTS(SELECT * FROM Classes c WHERE e.classid = c.classid AND EXISTS(
  7  SELECT * FROM Courses co WHERE co.dept_code = c.dept_code AND co.course#
  8  = c.course#)));

```

B#	FIRST_NAME	LAST_NAME
----	------------	-----------

```

B001 Anne           Broder
B006 Terry          Zillman

SQL>
SQL>
SQL> start query181
SQL> SELECT B#,first_name,last_name
  2  FROM Students
  3 WHERE B# IN(SELECT B# FROM Enrollments WHERE
  4 classid IN(SELECT classid FROM Enrollments WHERE B# = 'B005') AND
  5 classid IN(SELECT classid FROM Classes WHERE dept_code IN(SELECT dept_code
FROM Courses) AND course# IN(SELECT course# FROM Courses)));
B#    FIRST_NAME      LAST_NAME
----  -----
B005   Jack          Smith
B006   Terry          Zillman
B001   Anne          Broder

SQL> start query19
SQL>
SQL> SELECT AVG(L.credits_sum)
  2  FROM (SELECT e.B#,SUM(Credits) credits_sum
  3  FROM Enrollments e
  4  INNER JOIN Classes cl
  5  ON e.classid = cl.classid
  6  INNER JOIN Courses c
  7  ON c.dept_code = cl.dept_code AND c.course# = cl.course#
  8  INNER JOIN Course_credit cc
  9  ON c.course# = cc.course#
 10 WHERE e.lgrade IS NOT null
 11 GROUP BY e.B#)L;
AVG(L.CREDITS_SUM)
-----
7.57142857

SQL> start query20
SQL>
SQL> SELECT L.dept_code deptname,AVG(L.credits_sum) average_total_credits
  2  FROM (SELECT e.B#,SUM(credits) credits_sum,c.dept_code
  3  FROM Enrollments e
  4  INNER JOIN Classes cl
  5  ON e.classid = cl.classid
  6  INNER JOIN Courses c
  7  ON c.course# = cl.course# AND c.dept_code = cl.dept_code
  8  INNER JOIN Course_credit cc
  9  ON c.course# = cc.course#
 10 WHERE e.lgrade IS NOT null
 11 GROUP BY e.B#,c.dept_code)L
 12 GROUP BY L.dept_code;
DEPT  AVERAGE_TOTAL_CREDITS
---  -----
CS            7.4
Math          5.333333333

SQL> spool off

```