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/* BuchananBrandonLab2.sql
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Programmer's Name: Brandon Buchanan
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Course: CSCI2020
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```
Section Number: 002
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Creation Date: 09/21/2011
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Date of Last Modification: 09/21/2011
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```
E-mail address: zbwb8@goldmail.etsu.edu  
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```

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Purpose -
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Lab 2 - Multi-Table Queries  
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```
Notes on specifications, special algorithms, and assumptions:
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```
Designed to work on the database created by the schooldb.sql
```

```
script
```

```
*/
```

```
/* 1. - Display the student ID of all undeclared majors. The query displays  
all student ID's that have nothing in the MAJOR column. */
```

```
select STUDENT.ID as UNDECLARED_MAJOR  
from STUDENT  
where STUDENT.MAJOR is null;
```

```
/* 2. - Display the full names of students who earned an A in any course  
during the 083 term. The query joins the two tables based on  
the student's ID. */
```

```
select distinct STUDENT.GIVEN_NAME, STUDENT.FAMILY_NAME  
from STUDENT join TAKES  
on STUDENT.ID = TAKES.STUDENT  
where TAKES.GRADE = 4 and TAKES.TERM = '083';
```

```
/* 3. - Display all required CSIT courses that student 12151049 has not yet  
taken. The query finds all required CSIT courses and finds all courses  
taken by student 12151049 and displays the difference of the two  
tables. (T1 - T2) */
```

```
select COURSE.ID  
from COURSE join MAJOR_REQS  
on COURSE.ID = MAJOR_REQS.COURSE  
where MAJOR_REQS.MAJOR = 'CSIT'  
minus  
select TAKES.COURSE  
from TAKES  
where TAKES.STUDENT = '12151048';
```

Why a join here?
MAJOR_REQS has
the information you need

not a string

```
/* 4. - List courses that have not been taken by any student. The query  
finds all offered courses and finds all taken courses and the  
difference is displayed. */
```

```
select COURSE.ID
  from COURSE
 minus
select distinct TAKES.COURSE
  from TAKES;
```

/* 5. - List full names of all students and their declared major's name. The query joins the two tables based on the students' major. */

```
select STUDENT.GIVEN_NAME, STUDENT.FAMILY_NAME, MAJOR.NAME
  from STUDENT join MAJOR
 on STUDENT.MAJOR = MAJOR.TITLE;
```

/* 6. - List students who have had Leia Skywalker as an instructor during a 2008 term, along with what class they took with Leia as the instructor. The query finds all courses taken by students, then adds the course, section, and term information. The query then joins the result of all courses taught by Leia Skywalker in 2008. */

```
select distinct STUDENT.GIVEN_NAME, STUDENT.FAMILY_NAME, TAKES.COURSE,
                TAKES.SECTION, TAKES.TERM
  from STUDENT join TAKES
 on STUDENT.ID = TAKES.STUDENT
 join SECTION
 on SECTION.COURSE = TAKES.COURSE
    and SECTION.CODE = TAKES.SECTION
    and SECTION.TERM = TAKES.TERM
 join INSTRUCTOR
 on INSTRUCTOR.ID = SECTION.INSTRUCTOR
 where INSTRUCTOR.GIVEN_NAME = 'Leia' and INSTRUCTOR.FAMILY_NAME = 'Skywalker'
    and SECTION.START_DATE > '31-dec-2007' and SECTION.END_DATE < '01-jan-2009';
```

good job

/* 7. - List the course ID of any instructor with the last name of Skywalker. The query finds all sections of any course where the instructor's last name is Skywalker. */

```
select distinct SECTION.COURSE
  from SECTION join INSTRUCTOR
 on SECTION.INSTRUCTOR = INSTRUCTOR.ID
 where INSTRUCTOR.FAMILY_NAME = 'Skywalker';
```

/* 8. - List the course ID of all common courses between CSCS and CSIT majors. The query shows the common data between the table of CSCS courses and the table of CSIT courses. */

```
select MAJOR_REQS.COURSE
  from MAJOR_REQS
 where MAJOR_REQS.MAJOR = 'CSCS'
```

```
intersect
select MAJOR_REQS.COURSE
from MAJOR_REQS
where MAJOR_REQS.MAJOR = 'CSIT';
```

```
/* 9. - List departments that do not have instructors assigned. The query
finds all departments and finds all instructors and displays only
those departments where no instructors have been placed. */
```

```
select DEPARTMENT.NAME
from DEPARTMENT
minus
select INSTRUCTOR.DEPARTMENT
from INSTRUCTOR;
```