

Assignment 2 L^AT_EX Document

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1 All Tables

department(dcode, dname)

student(sid, slastname, sfirstname, sex, age, dcode, yearofstudy)

instructor(iid, ilastname, ifirstname, idegree, dcode)

course(cid, dcode, cname)

courseSection(csid, cid, dcode, year, semester, section, iid)

studentCourse(sid, csid, grade)

prerequisites(cid, dcode, pcid, pdcode)

2 Queries

2.1 Number of female students

CORRECTION. SUM should be COUNT.

Find the number of female students in the 'Computer Science' department who are in their fourth year of study.

```
SELECT SUM(s.sid) AS num
FROM student s, department d
WHERE s.dcode = d.dcode AND
s.sex = 'F' AND
s.yearofstudy = 4 AND
d.dname = 'Computer Science'
```

2.2 Highest number of instructors

COR. MAX(SUM(i.iid)) bad syntax: can't nest aggregate functions.

Find the department with the highest number of instructors who do not have a PHD degree. If there is a tie, return all tied departments.

```

SELECT d.dname AS dname
FROM department d, instructor i
WHERE d.dcode = i.dcode AND
i.degree != 'PHD'
GROUP BY d.dname
HAVING MAX(SUM(i.iiid))

```

2.3 Best student

COR. Why is cs1.year = 5 and cs1.semester = 9? Same aggregate function nesting problem as previous.

For each department find the best student. A student's rank is determined by his or her average grade on all of the courses they have completed. Courses for the current semester should not be included. (Hint: The current semester occurs in the largest year/term value.) If there is a tie for first place, include all students in the tie.

```

CREATE VIEW completedSections AS
(SELECT cS.csid, cS.dcode
FROM courseSelection cS)
EXCEPT
(SELECT cS1.csid, cS1.dcode
FROM courseSelection cS1
WHERE cS1.year = 5 AND
cS1.semester = 9)

```

```

SELECT d.dname AS dept, s.sid AS sid, s.sfirstname AS sfirstname,
s.slastname AS slastname, AVG(SUM(sC.grade)) AS avgGrade
FROM department d, student s, studentCourse sC, completedSections cS
WHERE s.sid = sC.sid AND
sC.csid = cS.csid AND
cS.dcode = d.dcode
GROUP BY s.sid, d.dname
HAVING MAX(AVG(SUM(sC.grade)))

```

2.4 Courses in Computer Science

COR. Why GROUP BY? Other than that the query returns courses offered in the summer, not courses that are offered only in the summer.

Find all the courses in 'Computer Science' department that have been taught only in the summer semester. Do not report duplicates.

```
SELECT c.cname AS cname
FROM department d, courseSection cS, course c
WHERE cS.cid = c.cid AND
c.dcode = d.dcode AND
cS.semester = 5 AND
d.dname = 'Computer Science'
GROUP BY cS.csid
```