

CSE 344 Section 3 Worksheet

```
CREATE TABLE Class (  
    dept VARCHAR(50),  
    number INT,  
    title VARCHAR(50),  
    PRIMARY KEY (dept, number));  
  
CREATE TABLE Instructor (  
    username VARCHAR(50) PRIMARY KEY,  
    fname VARCHAR(50),  
    lname VARCHAR(50),  
    started_on CHAR(10));  
  
CREATE TABLE Teaches(  
    username VARCHAR(50) REFERENCES Instructor,  
    dept VARCHAR(50),  
    number INT,  
    FOREIGN KEY (dept, number) REFERENCES Class);
```

1. Return the first and last name of all instructors who are teaching at least one class.
2. For each instructor, return their username and the number of classes they teach.
3. Return the first and last name of the newest instructor(s) (who started on the latest date). Assume `Instructor.started_on` uses YYYY-MM-DD format. If there are multiple instructors, list all of them.

Item(iid, category, price)

4. Write a logical query plan (i.e., draw a tree) that is equivalent to the SQL query below:

```
SELECT I.category, COUNT(*)
  FROM Item I
 WHERE I.price > 10
 GROUP BY I.category;
```

5. Write a SQL query that is equivalent to the logical query plan below:

```
      ΠI1.category, I1.price
      |
      σI1.price ≥ I2_max
      |
      γI1.category, I1.price, max(I2.price)→I2_max
      |
      ⋈I1.category=I2.category
     /      \
Item I1   Item I2
```