

CSE 414 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.

- 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)`

- 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;
```

- 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
```