CSE 344 Section 2

1. Outer Joins

Given tables A and B,

a1	a2
1	7
2	5
3	3
4	6

A:

b1	b2
3	2
4	1
5	0
6	3

B:

Write down the output of each of the following queries:

SELECT * FROM A INNER JOIN B ON A.a1 = B.b1;

a1	a2	b1	b2

SELECT * FROM A LEFT OUTER JOIN B ON A.a1 = B.b1;

a1	a2	b1	b2

SELECT * FROM A RIGHT OUTER JOIN B ON A.a1 = B.b1;

a1	a2	b1	b2

SELECT * FROM A FULL OUTER JOIN B ON A.a1 = B.b1;

a1	a2	b1	b2

2. Grouping and Aggregation

```
CREATE TABLE Movies (                   CREATE TABLE Actors (
    id int ,                                id int ,
    name varchar (30),                      name varchar (30),
    budget int ,                            age int ,
    gross int ,                             PRIMARY KEY (id)
    rating int ,                        );
    year int ,
    PRIMARY KEY (id)                    CREATE TABLE ActsIn (
);                                          mid int ,
                                            aid int ,
                                            FOREIGN KEY (mid) REFERENCES Movies (id),
                                            FOREIGN KEY (aid) REFERENCES Actors (id)
                                        );
```

Write queries to answer the following:

(a) For each movie, find the number of actors who acted in it, ordered by descending number of actors. Make sure to include movies with no actors!

(b) What is the number of movies and the average rating of all the movies that the actor "Kit Harington" has appeared in?

(c) What is the age of the youngest actor who has appeared in a movie that grossed over $1,000,000,000?

The following relations track the classes taught by instructors at the UW.

```
CREATE TABLE Class (
    dept varchar (6) ,
    number int ,
    title varchar (75) ,
    PRIMARY KEY (dept , number)
);

CREATE TABLE Instructor (
    username varchar (8) ,
    fname varchar (50) ,
    lname varchar (50) ,
    PRIMARY KEY (username)
);

CREATE TABLE Teaches (
    username varchar (8) ,
    dept varchar (6) ,
    number int ,
    PRIMARY KEY (username , dept , number) ,
    FOREIGN KEY (username) REFERENCES Instructor (username) ,
    FOREIGN KEY (dept , number) REFERENCES Class (dept , number)
);
```

Write queries to answer the following:

(d) How many classes are taught by at least 1 instructor?

(e) Find the username, first name, and last name of the instructors who teach more than 1 class.

(f) What CSE courses do neither Dr.Suciu ('su') nor Dr.Balazinska ('bal') teach? Find the number, and title of the courses.

3. Subqueries

```
CREATE TABLE Company (              CREATE TABLE Product (
    cid int ,                            pname varchar (20) ,
    cname varchar (20) ,                 price int ,
    PRIMARY KEY cname                    cid int ,
)                                        PRIMARY KEY pname ,
                                         FOREIGN KEY cid REFERENCES Company( cid )
                                     );
```

Write queries to find the following information:

(a) Find all the companies that only sell products that cost over $200.

(b) Find all companies that do not sell any products.

(c) For each company, find the name of its most expensive product. If multiple products are tied for highest price, return all of them.

4. Leetcode example

```
CREATE TABLE Employee (
        Id int ,
        Salary int
);
```

Find the second highest salary from the Employee table.