DS 100: Principles and Techniques of Data Science **Date: February 23, 2018**

Discussion #5

Name:

Writing SQL Queries

Given the tables,

```
Clowns(cid integer, cname text, booth text)
Balloons(bid integer, bshape text, bcolor text)
Catalog(cid integer, bid integer, cost float)
```

Note: The Catalog table contains prices for Balloons sold by different Clowns standing at certain booths in a fair.

1. How may we query for the top 3 most expensive shapes sold by Whompers LeFou?

2. How many different colors are available at each booth?

3. What is the average cost of a red balloon at booths that offer more than 3 red shapes per clown? Note that each clown at the booth does not necessarily have to be selling more than 3 shapes.

4. The following relational schema represents a large database describing Olympic medalists.

```
medalist(name, country, birthday);
games(year, city, country);
medals(name, year, category, medaltype);
```

Which of the following queries returns the total number of medals broken down by type (gold, silver, and bronze) for each country in the `'vault'` competition. (Select all that apply.)

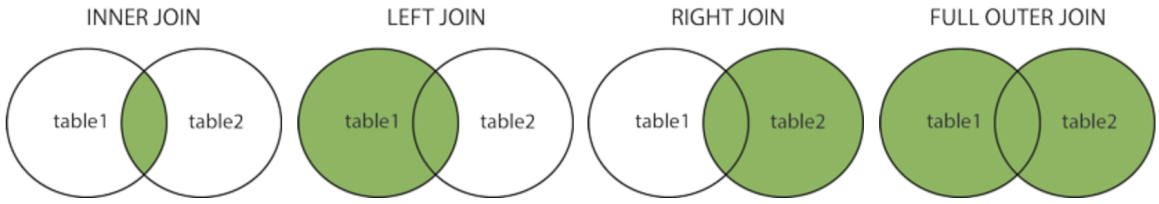
A.
```
SELECT  medalists.country,
        medals.medaltype,
        COUNT(*) AS medal_count
FROM medals, medalists
WHERE medalists.name = medals.name
AND medals.category = 'vault'
GROUP BY medalists.country, medals.medaltype
```

B.
```
SELECT  games.country,
    medals.medaltype,
    COUNT(medals.medaltype) AS medal_count
FROM medals, games
AND games.year = medals.year
HAVING medals.category = 'vault'
GROUP BY games.country, medals.medaltype
```

C.
```
SELECT  medalists.country,
        medals.medaltype,
        COUNT(*) AS medal_count
FROM medals, medalists
WHERE medalists.name = medals.name
GROUP BY medalists.country, medals.medaltype, medals.category
HAVING category = 'vault'
```

D.
```
FROM medals, games
SELECT games.country,
    medals.medaltype,
    COUNT(medals.medaltype) AS medal_count
AND games.year = medals.year
AND medals.category = 'vault'
GROUP BY games.country, medals.medaltype
```

SQL Joins



Note: You do not always have to use the JOIN keyword to join sql tables. The following are equivalent:

```
SELECT column1, column2
FROM table1, table2
WHERE table1.id = table2.id;

SELECT column1, column2
FROM table1 JOIN table2
ON table1.id = table2.id;
```

5. Describe which records are returned from each type of join.

SQL

6. Circle TRUE or FALSE.
   (a) True False SQL is a declarative language that specifies what to produce but not how to compute it.
   (b) True False The primary key of a relation is the column or set of columns that determine the values of the remaining column.
   (c) True False The schema of a table consists of the data stored in the table.
   (d) True False The WHERE and HAVING clause can be used interchangeably as they perform the same operation.