CS 327E Class 7

March 11, 2019
<table>
<thead>
<tr>
<th>Domain</th>
<th>Dataset1 Examples</th>
<th>Dataset2 Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>Airline on-time performance (source: Bureau of Transportation Statistics)</td>
<td>Storm events (source: NOAA)</td>
</tr>
<tr>
<td>Housing</td>
<td>Short-term rentals in various cities (source: Airbnb)</td>
<td>Long-term rentals nationwide (source: Zillow)</td>
</tr>
<tr>
<td>Political Campaigns</td>
<td>Federal campaign finance (source: Federal Election Commission)</td>
<td>State campaign finance (source: TX Ethics Commission)</td>
</tr>
<tr>
<td>Movies</td>
<td>Hollywood movies, directors, actors (source: IMDB)</td>
<td>Bollywood movies, actors and songs (source: Cinemalytics)</td>
</tr>
<tr>
<td>Music</td>
<td>Artists and songs (source: MusicBrainz)</td>
<td>Artists, labels, recordings on vinyl and other formats (source: Discog)</td>
</tr>
</tbody>
</table>
1) Which is **not** an aggregate function?

A. SUM()
B. COUNT(*)
C. AVG()
D. MIN()
E. None of the above
2) Consider the **Women_Basketball_Players** table shown below. What is the output from Q1 when run on this table?

Q1: SELECT COUNT(*) FROM Women_Basketball_Players

<table>
<thead>
<tr>
<th>player_id</th>
<th>player_name</th>
<th>height</th>
<th>position</th>
<th>points</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Jatarie White</td>
<td>6-4</td>
<td>Center</td>
<td>24</td>
</tr>
<tr>
<td>5</td>
<td>Jordan Hosey</td>
<td>6-1</td>
<td>Forward</td>
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<td>21</td>
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<tr>
<td>14</td>
<td>Olamide Aborowa</td>
<td>6-3</td>
<td>Forward</td>
<td>11</td>
</tr>
<tr>
<td>20</td>
<td>Brianna Tayler</td>
<td>5-9</td>
<td>Guard</td>
<td>19</td>
</tr>
<tr>
<td>30</td>
<td>Khaleann Caron-Goudreau</td>
<td>6-4</td>
<td>Forward</td>
<td>11</td>
</tr>
<tr>
<td>12</td>
<td>Jada Underwood</td>
<td>6-0</td>
<td>Forward</td>
<td>19</td>
</tr>
</tbody>
</table>

A. 7  
B. 4  
C. 3  
D. 0  
E. NULL
3) Consider the `Women_Basketball_Players` table shown below. What is the output from Q2 when run on this table?

Q2: SELECT MIN(points) FROM Women_Basketball_Players

<table>
<thead>
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<td>6-0</td>
<td>Forward</td>
<td>19</td>
</tr>
</tbody>
</table>

A. 0
B. 11
C. 22
D. 24
E. NULL
4) Consider the Women_Basketball_Players table shown below. What is the output from Q3 when run on this table?

**Q3:** SELECT MAX(points) FROM Women_Basketball_Players

<table>
<thead>
<tr>
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</tr>
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</table>

A. 0  
B. 11  
C. 22  
D. 24  
E. NULL
5) Consider the **Women_Basketball_Players** table shown below. What is the output from Q4 when run on this table?

Q4: SELECT SUM(points) FROM Women_Basketball_Players
WHERE position = 'Center' OR position = 'Guard'

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A. 10  
B. 34  
C. 19  
D. 43  
E. NULL
Syntax of Global Aggregate Queries

SELECT <aggregate function>
FROM <single table>
JOIN <single table> ON <join condition>
WHERE <boolean condition>
Syntax of Aggregate Queries with Groups

SELECT <unaggregated field>, <aggregate function>
FROM <single table>
JOIN <single table> ON <join condition>
WHERE <boolean conditions>
GROUP BY <unaggregated field>
ORDER BY <list of fields to sort on>
Syntax of Aggregate Queries with Groups

```sql
SELECT <unaggregated field>, <aggregate function>
FROM <single table>
JOIN <single table> ON <join condition>
WHERE <boolean condition>
GROUP BY <unaggregated field>
HAVING <boolean condition>
ORDER BY <fields to sort on>
```
How `COUNT()` works

1) SELECT COUNT(*)
   FROM Employee

2) SELECT COUNT(emp_dep)
   FROM Employee

3) SELECT COUNT(DISTINCT emp_dept)
   FROM Employee
First Question

How many students are taking each class?

Student(sid, fname, lname, dob)
Class(cno, cname, credits)
Teacher(tid, fname, lname, dept)
Takes(sid, cno, grade)
Teaches(tid, cno)
Second Question

*For each class with at least two students, how many students are taking such a class?*

Student($\text{sid}$, $\text{fname}$, $\text{lname}$, dob)
Class($\text{cno}$, $\text{cname}$, credits)
Teacher($\text{tid}$, $\text{fname}$, $\text{lname}$, dept)
Takes($\text{sid}$, $\text{cno}$, grade)
Teaches($\text{tid}$, $\text{cno}$)
iClicker Question

For each class with at least two students, how many students are taking such a class?

Does this query require a **HAVING** clause?

A. Yes
B. No
Third Question

For each student who is 19-years old or older and is earning at least 3 class credits, how many total class credits are such students earning?

Student(sid, fname, lname, dob)
Class(cno, cname, credits)
Teacher(tid, fname, lname, dept)
Takes(sid, cno, grade)
Teaches(tid, cno)
iClicker Question

For each student who is 19-years old or above and is earning at least 3 class credits, how many total class credits are such students earning?

Student(sid, fname, lname, dob)  
Class(cno, cname, credits)  
Teacher(tid, fname, lname, dept)  
Takes(sid, cno, grade)  
Teaches(tid, cno)

Does this query require a WHERE clause?  
A. Yes  
B. No
Fourth Question

Who takes exactly 3 classes?

Show the answer as a sorted list of sids.

Student(sid, fname, lname, dob)
Class(cno, cname, credits)
Teacher(tid, fname, lname, dept)
Takes(sid, cno, grade)
Teaches(tid, cno)
iClicker Question

Who takes exactly 3 classes?

Show the answer as a sorted list of sids.

Does this query contain an aggregate function in the SELECT clause?
A. Yes  B. No

Student(sid, fname, lname, dob)
Class(cno, cname, credits)
Teacher(tid, fname, lname, dept)
Takes(sid, cno, grade)
Teaches(tid, cno)
Database Views and Data Studio Demo

git clone https://github.com/cs327e-spring2019/snippets.git
Milestone 7