

CS1555 Recitation 6

Objective:

1. To practice top-k and ranking queries in PostgreSQL.
 2. To practice Views
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PART 1:

Before we start:

- Download and run the below to build the database:
 - `Recitation_6_PostgreSQL.sql`
 - `Recitation_6_Oracle.sql`

1. List the student IDs and names of the 2 students with the lowest GPA.
2. Rank the students (student ID and name) based on their GPA. Can we do something simpler?

PART 2:

Before we start:

- Download and run the below to build the database:
 - Recitation_6_PostgreSQL.sql
 - Recitation_6_Oracle.sql

1. Create a view called student_courses that lists the SIDs, student names, number of courses in the Course_taken table.

2. Create a materialized view called mv_student_courses that lists the SIDs, student names, number of courses in the Course_taken table.

3. Execute the following commands. Compare the query results and time used of the two select statements.

```
insert into course_taken (course_no, sid, term, grade)
values ('CS1555', '129', 'Fall 19', null);
commit;
```

```
--REFRESH MATERIALIZED VIEW mv_student_courses;
select * from mv_student_courses;
select * from student_courses;
commit;
```

- The result from the materialized view is incorrect because the materialized view was not refreshed after the insert statement.
- The result from the view is correct because what a normal view does is rewriting the query. It does not store a snapshot of the query result like the materialized view.
- The running time of the materialized view is shorter, because it does not need to rewrite the query and run the rewritten query on the original Course_taken table.

4. Reset the database by running the `Recitation_6_PostgreSQL.sql` and recreate the views. Comment back the line beginning with “REFRESH” in the above commands and execute the commands. Compare the query results of the two select statements.

- The user can request a refresh of the materialized view by running the command:
 - `refresh materialized view <view_name>;`
- The result from the materialized view is correct this time, because we refreshed the materialized view before the select statement.