



1

---

---

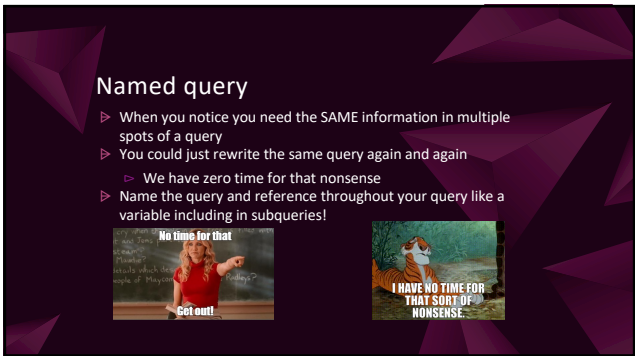
---

---

---

---

---



2

---

---

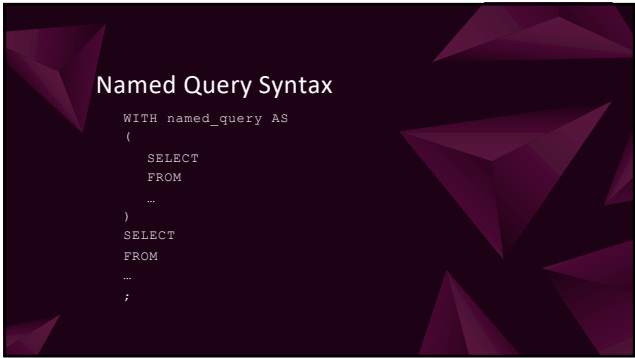
---

---

---

---

---



3

---

---

---

---

---

---

---

### Question

- ▶ We want to find all the students who live in cities with less than the average number of enrolled students

4

---

---

---

---

---

---

---

### Solution

- ▶ **Named Query**
  - ▶ We need to count the number of enrolled students by city
  - ▶ This requires joining student to enrollment
  - ▶ Then joining to zip to get the appropriate count
  - ▶ We use an correlated EXISTS subquery to only add enrolled students
- ▶ We need a subquery that will retrieve the cities from the stored query only if they have less than the average number of students per city (another subquery)
- ▶ Our outer query gets the distinct students by JOINING the student, enrollment, and zipcode tables again then limiting the results based on the subqueries that use the named query

5

---

---

---

---

---

---

---

### Solution SQL

#### Named Query

```
WITH count_by_city AS
1 SELECT
2     COUNT(*) AS number_enrolled,
3     zip.city -- The key for this table!
4 FROM
5     zipcode zip
6 JOIN
7     student stu
8 ON
9     stu.zip = zip.zip
10 JOIN
11     enrollment enr
12 ON
13     enr.student_id = stu.student_id
14 WHERE EXISTS
15 (
16     SELECT
17         "x"
18 FROM
19     student
20 WHERE
21     student_id = enr.student_id
22 )
23 GROUP BY
24     zip.city
```

#### Base Query

```
SELECT DISTINCT
1     stu.student_id
2 FROM
3     student stu
4 JOIN
5     enrollment enr
6 ON
7     enr.student_id = stu.student_id
8 JOIN
9     zipcode zip
10 ON
11     stu.zip = zip.zip
12 WHERE
13     zip.city IN
14 (
15     SELECT
16         zip.city
17 FROM
18     count_by_city cbc
19 WHERE
20     enr.number_enrolled <
21     (
22         SELECT
23             avg(count_by_city.number_enrolled)
24 FROM
25             count_by_city
26 )
27 )
28 ORDER BY
29     stu.student_id DESC
```

6

---

---

---

---

---

---

---