Feb22.md

Feb22 Assignment - Roshan Poudel

1. Write a query that shows the five subjects that currently have the most students.

```
select subject, sum(num_students) as tot_students
from class_schedule
group by 1
order by tot_students desc
limit 5;
```

Output:

```
+---------+--------------+
| subject | tot_students |
+---------+--------------+
| PSYC    |          500 |
| POLS    |          430 |
| HIST    |          428 |
| ENGL    |          388 |
| ECON    |          369 |
+---------+--------------+
```

2. Write a query that displays the five classes with the most students across all sections. Include the number of sections of the class.

```
select subject, number, count(section), sum(num_students) as tot_students fro
group by 1, 2
order by tot_students desc
limit 5;
```

```
+---------+--------+----------------+--------------+
| subject | number | count(section) | tot_students |
+---------+--------+----------------+--------------+
| STAT    |    204 |              5 |          128 |
| ENGL    |    101 |             12 |          127 |
| ECON    |    120 |              4 |           99 |
| BUSI    |    215 |              1 |           94 |
```

```
| BIOL    |    130 |               4 |              79 |
+---------+--------+----------------+----------------+
```

3. Write a query that finds all the professors who are teaching classes in more than one
   subject. I'm one of them. HINT: you'll probably want to use the word distinct as part
   of your query.

```
select professor, count(distinct subject)
from class_schedule
group by professor
having count(distinct subject) > 1;
```

```
+----------------+------------------------+
| professor      | count(distinct subject) |
+----------------+------------------------+
| A Duffee       |                      2 |
| A Martini      |                      2 |
| C Ray          |                      2 |
| C Uhuegbu      |                      3 |
| C World        |                      2 |
| D Drinen       |                      2 |
| D Haskell      |                      2 |
| E Kikis        |                      2 |
| E Wilder       |                      2 |
| E Zinn         |                      2 |
| G Mazza        |                      2 |
| M Brookfield   |                      2 |
| M Irvin        |                      2 |
| M Knoll        |                      3 |
| M Preslar      |                      2 |
| M Rai          |                      2 |
| P Iriarte Diaz |                      2 |
| P Lawson       |                      2 |
| P Schneider    |                      2 |
| S Berquist     |                      2 |
| S Gannon       |                      2 |
| S McCarter     |                      2 |
| S ORourke      |                      2 |
| S Raulston     |                      3 |
| S Weygandt     |                      2 |
| Staff          |                      2 |
| W Prunty       |                      2 |
| Y Tan          |                      2 |
+----------------+------------------------+
```

4. If you include all MATH/STAT/CS classes, what rooms are used most often by these subjects?

```sql
select room, count(room) as classes_in_this_room
from class_schedule
where subject in ('MATH', 'STAT', 'CSCI')
group by room
order by classes_in_this_room desc;
```

```
+-----------------------------------+----------------------+
| room                              | classes_in_this_room |
+-----------------------------------+----------------------+
| J. Albert Woods Laboratories 121  |                    8 |
| J. Albert Woods Laboratories 136  |                    4 |
| J. Albert Woods Laboratories 134  |                    4 |
| J. Albert Woods Laboratories 123  |                    3 |
| J. Albert Woods Laboratories 113  |                    3 |
| J. Albert Woods Laboratories 216  |                    1 |
+-----------------------------------+----------------------+
```

5. Find the five most popular time slots (in terms of number of classes)

```sql
select meeting_days, meeting_start_time, meeting_end_time, count(title) as nu
from class_schedule
group by 1, 2, 3
order by num_classes desc limit 5;
```

```
+--------------+--------------------+------------------+-------------+
| meeting_days | meeting_start_time | meeting_end_time | num_classes |
+--------------+--------------------+------------------+-------------+
| TR           | 1100               | 1215             |          35 |
| TR           | 930                | 1045             |          32 |
| MWF          | 1100               | 1150             |          31 |
| MWF          | 900                | 950              |          28 |
| MW           | 1400               | 1515             |          26 |
+--------------+--------------------+------------------+-------------+
```

6. Make it look like this:

```sql
select concat(meeting_days, ' ', meeting_start_time, '-', meeting_end_time) a
from class_schedule
group by meeting_days, meeting_start_time, meeting_end_time
order by num_classes desc limit 5;
```

```
+----------------+-------------+
| time_slot      | num_classes |
+----------------+-------------+
```

```
| TR 1100-1215  |          35 |
| TR 930-1045   |          32 |
| MWF 1100-1150 |          31 |
| MWF 900-950   |          28 |
| MWF 1000-1050 |          26 |
+---------------+-------------+
```

7. (This question is optional. It involves the GROUP_CONCAT function, which we haven't talked about yet. Give it a try if you want, or not.) List each professor who teaches a HIST class, and then list all the classes that prof teaches.

```
select professor, GROUP_CONCAT(number SEPARATOR ' and ')
from class_schedule
where subject='HIST'
group by professor;
+--------------+------------------------------------------------+
| professor    | GROUP_CONCAT(number SEPARATOR ' and ') |
+--------------+------------------------------------------------+
| A Donaldson  | 232 and 318                                    |
| A Maginn     | 328                                            |
| A Mansker    | 352 and 380 and 271                            |
| C Cooper     | 211 and 212 and 128                            |
| C McEvoy     | 224 and 381                                    |
| J Willis     | 327 and 322                                    |
| K Whitmer    | 122 and 335                                    |
| M Brookfield | 133 and 202                                    |
| M Mitchell   | 206 and 234                                    |
| N Roberts    | 319 and 297                                    |
| R Levine     | 421 and 215 and 283                            |
| S Ridyard    | 302 and 304 and 111                            |
| S Weygandt   | 383                                            |
| T Momon      | 343                                            |
+--------------+------------------------------------------------+
```

8. (This is challenging. Do your best.) Generate this summary of enrollment by class level:

```
select if(number < 200, '100-level', if(number < 300, '200-level', if(number
from class_schedule
group by level;
+-----------+-------------+-------------------+
| level     | num_classes | sum(num_students) |
+-----------+-------------+-------------------+
| 100-level |          96 |              1898 |
| 200-level |         115 |              2179 |
```

```
| 300-level |          126 |             1711 |
| 400-level |           36 |              284 |
+-----------+--------------+------------------+
```