SQL Optimization

#1

Use ‘regexp_like’ to replace ‘LIKE’ clauses

```
SELECT *
FROM
    table1
WHERE
    lower(item_name) LIKE '%samsung%' OR
    lower(item_name) LIKE '%xiaomi%' OR
    lower(item_name) LIKE '%iphone%' OR
    lower(item_name) LIKE '%huawei%'
    --and so on
```

```
SELECT *
FROM
    table1
WHERE
    REGEXP_LIKE(lower(item_name),
'samsung|xiaomi|iphone|huawei')
```

#2

Use 'regexp_extract' to replace 'Case-when Like'

```
SELECT
CASE
    WHEN concat(' ',item_name,' ') LIKE '%acer%' then 'Acer'
    WHEN concat(' ',item_name,' ') LIKE '%advance%' then 'Advance'
    WHEN concat(' ',item_name,' ') LIKE '%alfalink%' then 'Alfalink'
…
AS brand
FROM item_list
```

```
SELECT
     regexp_extract(item_name,'(asus|lenovo|hp|acer|dell|zyrex|...)')
AS  brand
FROM item_list
```

#3

Convert long list of IN clause into a temporary table

```
SELECT *
FROM Table1 as t1
WHERE
    itemid in (3363134,
5189076, …, 4062349)
```

```
SELECT *
FROM Table1 as t1
JOIN (
    SELECT
        itemid
    FROM (
        SELECT
            split('3363134, 5189076, …,', ', ')
                as bar
    )
    CROSS JOIN
        UNNEST(bar) AS t(itemid)
) AS Table2 as t2
ON
    t1.itemid = t2.itemid
```

#4

Always order your JOINs from largest tables to smallest tables

```
SELECT
  *
FROM
  small_table
JOIN
  large_table
ON small_table.id = large_table.id
```

```
SELECT
  *
FROM
  large_table
JOIN
  small_table
ON small_table.id = large_table.id
```

#5

Use simple equi-joins

Two tables with date string e.g., '2020-09-01', but one of the tables only has columns for year, month, day values

```
SELECT *
FROM
  table1 a
JOIN
  table2 b
ON a.date = CONCAT(b.year, '-',
b.month, '-', b.day)
```

```
SELECT *
FROM
  table1 a
JOIN (
  select
    name, CONCAT(b.year, '-', b.month, '-', b.day) as date
  from
    table2 b
) new
ON a.date = new.date
```

#6

Always "GROUP BY" by the attribute/column with the largest number of unique entities/values

✗

```
select
  main_category,
  sub_category,
  itemid,
  sum(price)
from
  table1
group by
  main_category, sub_category, itemid
```

✓

```
select
  main_category,
  sub_category,
  itemid,
  sum(price)
from
  table1
group by
  itemid, sub_category, main_category
```

#7

Avoid subqueries in WHERE clause

```
select
  sum(price)
from
  table1
where
  itemid in (
    select itemid
    from table2
)
```

```
with t2 as (
  select itemid
  from table2
)

select
  sum(price)
from
  table1 as t1
join
  t2
on t1.itemid = t2.itemid
```

#8

Use Max instead of Rank

```sql
SELECT *
from (
    select
        userid,
        rank() over (order by prdate desc) as rank
    from table1
)
where ranking = 1
```

```sql
SELECT userid, max(prdate)
from table1
group by 1
```

#9
Other Tips

- Use approx_distinct() instead of count(distinct) for very large datasets
- Use approx_percentile(metric, 0.5) for median
- Avoid UNIONs where possible
- Use WITH statements vs. nested subqueries