# Quiz

## 6-1-1.다음 문장은 어떤 정보를 조회하는지 설명해 보세요.

```
SELECT a.employee_id
      ,a.first_name || ' ' || a.last_name emp_name
      ,a.job_id
      ,a.salary
      ,( SELECT AVG(b.salary)
          FROM employees b
         WHERE a.job_id = b.job_id
         GROUP BY b.job_id
       ) avg_salary
FROM employees a;
```

## 정답 :

이 쿼리는 메인 쿼리에서는 사원의 일반정보와 급여를 조회하고 스칼라 서브쿼리를 사용해 employees 테이블에서 job_id 별 평균 급여를 구하는 쿼리입니다. 즉, 각 사원의 급여와 해당 사원의 job_id 별 평균 급여를 같이 조회하는 쿼리입니다.

# Quiz

## 6-1-2. 다음 쿼리를 LATERAL 키워드를 사용해 같은 결과를 조회하도록 변경해 보세요.

```
SELECT b.department_name, loc.street_address, loc.country_name
  FROM departments b
     ,( SELECT l.location_id, l.street_address, c.country_name
          FROM locations l,   countries c
         WHERE l.country_id = c.country_id ) loc
 WHERE b.location_id = loc.location_id;
```

## 정답 :

```
SELECT b.department_name, loc.street_address, loc.country_name
  FROM departments b
     ,LATERAL ( SELECT l.location_id, l.street_address, c.country_name
                  FROM locations l,   countries c
                 WHERE l.country_id = c.country_id
                   AND  b.location_id = l.location_id
                ) loc;
```

# Quiz

**6-1-3. 다음 문장을 IN 대신 EXISTS 연산자를 사용해 같은 결과를 조회하도록 변경해 보세요.**

```
SELECT employee_id,
       job_id, salary
  FROM employees
 WHERE (job_id, salary ) IN ( SELECT job_id, min_salary
                                FROM jobs);
```

**정답 :**

```
SELECT employee_id,   job_id, salary
  FROM employees a
 WHERE EXISTS ( SELECT 1
                  FROM jobs b
                 WHERE a.job_id = b.job_id
                   AND a.salary = b.min_salary  );
```

# Quiz

**6-1-4. 다음은 ANTI 조인 문장입니다. 이 문장은 employees 테이블에 할당되지 않은 부서정보를 조회하려는 문장인데, 실행하면 데이터가 조회되지 않습니다. 해당 부서정보를 조회하도록 이 쿼리를 수정해 보세요.**

```
SELECT *
  FROM departments
 WHERE department_id NOT IN  ( SELECT a.department_id
                                 FROM employees A
                               ) ;
```

정답 :

```
SELECT *
   FROM departments
  WHERE department_id NOT IN
                          ( SELECT department_id
                              FROM employees
                             WHERE department_id IS NOT NULL   ) ;
```

# Quiz

## 6-1-5. covid19 테이블을 사용해 월별, 대륙별, 국가별 감염수와 각 국가가 속한 대륙을 기준으로 감염수 비율을 구하는 쿼리를 작성하시오.

| MONTHS | CONTINENT | COUNTRY | NEW_CASES | CONTINENT_CASES | RATES |
|---|---|---|---|---|---|
| 2019-12 | Asia | China | 27 | 27 | 100 |
| 2020-01 | Asia | China | 9687 | 9766 | 99.19 |
| 2020-01 | Asia | Japan | 14 | 9766 | 0.14 |
| 2020-01 | Asia | Thailand | 14 | 9766 | 0.14 |
| 2020-01 | Asia | Singapore | 13 | 9766 | 0.13 |
| 2020-01 | Asia | Taiwan | 9 | 9766 | 0.09 |
| 2020-01 | Asia | Malaysia | 8 | 9766 | 0.08 |
| 2020-01 | Asia | South Korea | 7 | 9766 | 0.07 |
| 2020-01 | Asia | Vietnam | 5 | 9766 | 0.05 |
| 2020-01 | Asia | United Arab Emirates | 4 | 9766 | 0.04 |
| 2020-01 | Asia | Sri Lanka | 1 | 9766 | 0.01 |
| 2020-01 | Asia | Nepal | 1 | 9766 | 0.01 |
| 2020-01 | Asia | India | 1 | 9766 | 0.01 |
| 2020-01 | Asia | Cambodia | 1 | 9766 | 0.01 |
| 2020-01 | Asia | Philippines | 1 | 9766 | 0.01 |
| 2020-01 | Europe | France | 6 | 15 | 40 |
| 2020-01 | Europe | Germany | 5 | 15 | 33.33 |
| 2020-01 | Europe | Italy | 3 | 15 | 20 |
| 2020-01 | Europe | Finland | 1 | 15 | 6.67 |
| 2020-01 | North America | United States | 6 | 11 | 54.55 |
| 2020-01 | North America | Canada | 3 | 11 | 27.27 |
| 2020-01 | North America | Mexico | 2 | 11 | 18.18 |
| 2020-01 | Oceania | Australia | 7 | 7 | 100 |
| 2020-02 | Africa | Egypt | 1 | 3 | 33.33 |
| 2020-02 | Africa | Nigeria | 1 | 3 | 33.33 |
| 2020-02 | Africa | Algeria | 1 | 3 | 33.33 |
| 2020-02 | Asia | China | 69641 | 73473 | 94.78 |
| 2020-02 | Asia | South Korea | 2924 | 73473 | 3.98 |

```
SELECT a.months, a.continent, a.country, a.new_cases, b.continent_cases
      ,DECODE(b.continent_cases, 0, 0,
                  ROUND(a.new_cases / b.continent_cases * 100,2)) rates
  FROM ( SELECT country, continent
           ,TO_CHAR(dates, 'yyyy-mm') months
           ,SUM(new_cases) new_cases
       FROM COVID19
      GROUP BY TO_CHAR(dates, 'yyyy-mm'), country, continent
     ) a
    ,( SELECT continent
         ,TO_CHAR(dates, 'yyyy-mm') months
         ,SUM(new_cases) continent_cases
       FROM COVID19
      GROUP BY TO_CHAR(dates, 'yyyy-mm'), continent
     ) b
 WHERE a.months    = b.months
   AND a.continent = b.continent
   AND a.new_cases > 0
ORDER BY 1, 2, 4 DESC ;
```

# Quiz

**6-1-6. covid19 테이블을 사용해 2020년 한국의 월별 검사수, 확진자수, 확진율을 구하는 쿼리를 작성하시오.**

| MONTHS | 검사수 | 확진자수 | 확진율 |
|---|---|---|---|
| 01 | 144 | 7 | 4.86 |
| 02 | 85144 | 2924 | 3.43 |
| 03 | 228952 | 6855 | 2.99 |
| 04 | 167487 | 979 | 0.58 |
| 05 | 228833 | 703 | 0.31 |
| 06 | 365429 | 1332 | 0.36 |
| 07 | 260256 | 1505 | 0.58 |
| 08 | 334347 | 5642 | 1.69 |
| 09 | 382650 | 3865 | 1.01 |
| 10 | 257653 | 2459 | 0.95 |

```
SELECT TO_CHAR(dates, 'MM') months,
       NVL(SUM(new_tests),0) 검사수,
       NVL(SUM(new_cases),0) 확진자수,
       ROUND(NVL(SUM(new_cases),0) / NVL(SUM(new_tests),0) * 100,2) 확진율
  FROM covid19
 WHERE ISO_CODE = 'KOR'
   AND TO_CHAR(dates, 'YYYY') = '2020'
 GROUP BY TO_CHAR(dates, 'MM')
 ORDER BY 1;
```

# Quiz

**6-2-1. Covid19 테이블에서 2020년 전체 가장 많은 확진자가 나온 상위 5개 국가를 구하는 쿼리를 작성하시오.**

```
SELECT *
  FROM ( SELECT country,
                NVL(SUM(new_cases),0) cases
           FROM covid19
          WHERE to_char(dates, 'YYYY') = '2020'
            AND country <> 'World'
          GROUP BY country
        )
   ORDER BY cases DESC
   FETCH FIRST 5 ROWS ONLY;
```

| | COUNTRY | CASES | DEATH_NUM |
|---|---|---|---|
| 1 | United States | 8858024 | 227700 |
| 2 | India | 8040203 | 120527 |
| 3 | Brazil | 5468270 | 158456 |
| 4 | Russia | 1563976 | 26935 |
| 5 | France | 1235132 | 35785 |

# Quiz

## 6-2-2. Covid19 테이블에서 2020년 인구대비 사망률이 가장 많은 상위 20개 국가를 구하는 쿼리를 작성하시오.

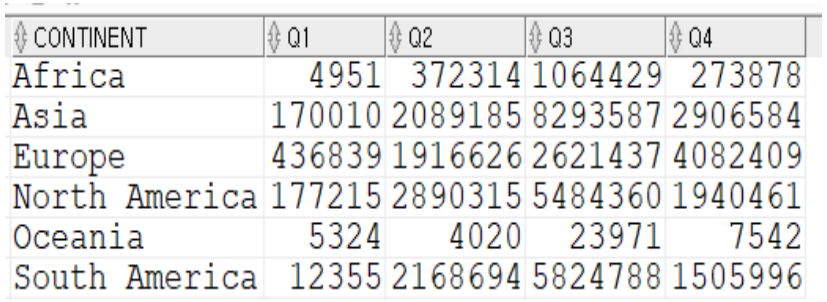
| | COUNTRY | POPU | DEATH | RATES |
|---|---|---|---|---|
| 1 | San Marino | 33938 | 42 | 0.12376 |
| 2 | Peru | 32971846 | 34315 | 0.10407 |
| 3 | Belgium | 11589616 | 11050 | 0.09534 |
| 4 | Andorra | 77265 | 72 | 0.09319 |
| 5 | Spain | 46754783 | 35466 | 0.07586 |
| 6 | Brazil | 212559409 | 158456 | 0.07455 |
| 7 | Bolivia | 11673029 | 8694 | 0.07448 |
| 8 | Chile | 19116209 | 14032 | 0.0734 |
| 9 | Ecuador | 17643060 | 12608 | 0.07146 |
| 10 | Mexico | 128932753 | 90309 | 0.07004 |
| 11 | United States | 331002647 | 227700 | 0.06879 |
| 12 | United Kingdom | 67886004 | 45675 | 0.06728 |
| 13 | Argentina | 45195777 | 30071 | 0.06653 |
| 14 | Italy | 60461828 | 37905 | 0.06269 |
| 15 | Panama | 4314768 | 2663 | 0.06172 |
| 16 | Colombia | 50882884 | 30753 | 0.06044 |
| 17 | Sweden | 10099270 | 5927 | 0.05869 |
| 18 | France | 65273512 | 35785 | 0.05482 |
| 19 | Sint Maarten (Dutch part) | 42882 | 22 | 0.0513 |
| 20 | Macedonia | 2083380 | 963 | 0.04622 |

```
SELECT *
  FROM ( SELECT country,
                NVL(MAX(population),0) popu,
                NVL(SUM(new_deaths),0) death,
                DECODE(NVL(MAX(population),0),0,0,ROUND(NVL(SUM(new_deaths),0)
/ NVL(MAX(population),0) * 100,5)) rates
           FROM covid19
          WHERE 1=1
            AND  TO_CHAR(dates, 'YYYY') = '2020'
        GROUP BY country
         )
 WHERE rates <> 0
 ORDER BY rates desc
 FETCH FIRST 20 ROWS ONLY;
```

# Quiz

## 6-3-1. Covid19 테이블에서 2020년 각 대륙별 확진자 수를 분기별로 다음과 같이 조회하는 쿼리를 작성하시오.



| CONTINENT | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|
| Africa | 4951 | 372314 | 1064429 | 273878 |
| Asia | 170010 | 2089185 | 8293587 | 2906584 |
| Europe | 436839 | 1916626 | 2621437 | 4082409 |
| North America | 177215 | 2890315 | 5484360 | 1940461 |
| Oceania | 5324 | 4020 | 23971 | 7542 |
| South America | 12355 | 2168694 | 5824788 | 1505996 |

```
SELECT continent,
      SUM(CASE WHEN quarter = '1' THEN cases else 0 end) Q1,
      SUM(CASE WHEN quarter = '2' THEN cases else 0 end) Q2,
      SUM(CASE WHEN quarter = '3' THEN cases else 0 end) Q3,
      SUM(CASE WHEN quarter = '4' THEN cases else 0 end) Q4
FROM ( SELECT TO_CHAR(dates, 'q') quarter,
            continent,
            NVL(SUM(new_cases),0) cases,
            NVL(SUM(new_deaths),0) death_num
        FROM covid19
       WHERE TO_CHAR(dates, 'YYYY') = '2020'
         AND continent IS NOT NULL
       GROUP BY TO_CHAR(dates, 'q'), continent
     )
 GROUP BY continent
 ORDER BY 1;
```

# Quiz

**6-3-2. products 테이블에는 mode_year라는 연식 컬럼이 있습니다. 다음과 같이 주문년도별 모델연식별 판매금액을 구하는 쿼리를 PIVOT 절을 사용해 작성해 보세요. (orders, order_items, products 테이블 조인)**

| SALE_YEAR | MODEL_2016 | MODEL_2017 | MODEL_2018 |
|---|---|---|---|
| 2016 | 2709484.47 | 0 | 0 |
| 2017 | 762372.57 | 3083142.45 | 0 |
| 2018 | 83220.3 | 481889.36 | 1458879.73 |

```
SELECT sale_year
     ,nvl(model_2016,0) as model_2016
     ,nvl(model_2017,0) as model_2017
     ,nvl(model_2018,0) as model_2018
 FROM ( SELECT TO_CHAR(a.order_date, 'YYYY') sale_year
            ,c.model_year
            ,NVL(SUM(b.list_price * quantity),0) amt
         FROM orders a
            ,order_items b
            ,products c
        WHERE 1=1
          AND a.order_id = b.order_id
          AND b.product_id = c.product_id
        GROUP BY TO_CHAR(a.order_date, 'YYYY')
              ,c.model_year
     ) PIVOT
     ( SUM(amt) for model_year in ('2016' AS model_2016,'2017' AS model_2017,
                                   '2018' AS model_2018)   )
 ORDER BY 1;
```