**로고학습일지**

**kt ds University 자바 기반의 데이터 사이언티스트 양성과정**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 학습일시 | 2018. 08. 03 (금) | 장소 | kt ds University B관 201호 | **시 간** | 09:00~18:00 |
| 학습범위 | UI/UX | | | | |
| 작 성 자 |  | | | **강 사** | 장민창 강사 |

|  |  |
| --- | --- |
| 학습안건 | 서브쿼리 |

|  |  |
| --- | --- |
| 학습내용 | 내용 |

★ **서브쿼리**

**= 어떤 결과와 컬럼의 값을 비교해서 값을 보고 싶을 때**

문제를 역순으로 가져오면 편하다!

서브쿼리는 여러 컬럼을 가져옴

/\*

FIRST\_NAME이 Steven인 사원과 같은 부서에서 일을 하는

모든 사원들의 정보를 조회

\*/

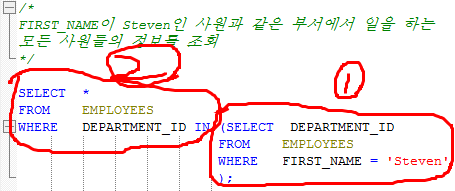
SELECT \*

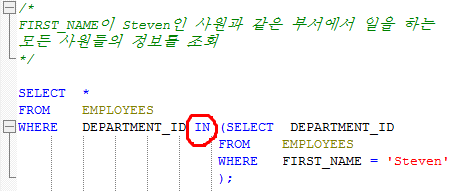
FROM EMPLOYEES

WHERE DEPARTMENT\_ID IN (SELECT DEPARTMENT\_ID

FROM EMPLOYEES

WHERE FIRST\_NAME = 'Steven'

 );



DEPARTMENT\_ID **가**

**50,90번**

**= 이 아니라 IN**

/\*

FIRST\_NAME이 Steven인 사원과 같은 부서에서 일을 하는

모든 사원들의 정보를 조회 (본인 제외)

\*/

SELECT \*

FROM EMPLOYEES

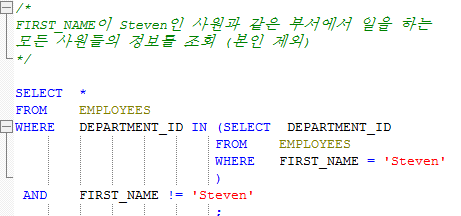
WHERE DEPARTMENT\_ID IN (SELECT DEPARTMENT\_ID

FROM EMPLOYEES

WHERE FIRST\_NAME = 'Steven'

)

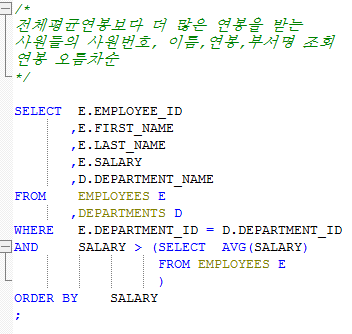
AND FIRST\_NAME != 'Steven'

 ;

/\*

전체평균연봉보다 더 많은 연봉을 받는

사원들의 사원번호, 이름,연봉,부서명 조회

연봉 오름차순

\*/

SELECT E.EMPLOYEE\_ID

,E.FIRST\_NAME

,E.LAST\_NAME

,E.SALARY

,D.DEPARTMENT\_NAME

FROM EMPLOYEES E

,DEPARTMENTS D

WHERE E.DEPARTMENT\_ID = D.DEPARTMENT\_ID

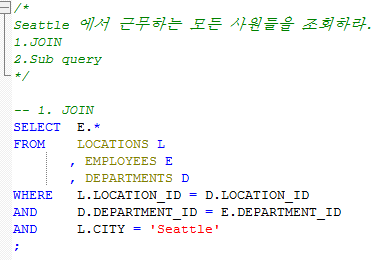
AND SALARY > (SELECT AVG(SALARY)

FROM EMPLOYEES E

)

ORDER BY SALARY

;

/\*

Seattle 에서 근무하는 모든 사원들을 조회하라.

1.JOIN

2.Sub query

\*/

-- 1. JOIN

SELECT E.\*

FROM LOCATIONS L

, EMPLOYEES E

, DEPARTMENTS D

WHERE L.LOCATION\_ID = D.LOCATION\_ID

AND D.DEPARTMENT\_ID = E.DEPARTMENT\_ID

AND L.CITY = 'Seattle'

;

--2. Sub query

SELECT \*

FROM EMPLOYEES

WHERE DEPARTMENT\_ID IN(

SELECT DEPARTMENT\_ID

FROM DEPARTMENTS

WHERE LOCATION\_ID =(

SELECT LOCATION\_ID

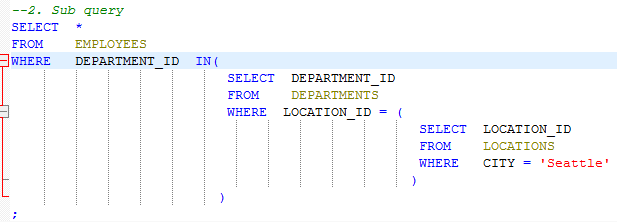
FROM LOCATIONS

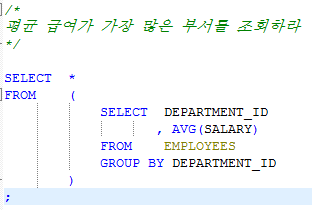
WHERE CITY = 'Seattle'

)

)

;





★ **인라인 뷰(인라인 테이블)**

**= 어떤 결과와 컬럼의 값을**

/\*

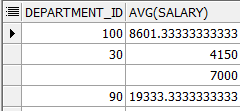
평균 급여가 가장 많은 부서를 조회하라

\*/

SELECT \*

FROM (

SELECT DEPARTMENT\_ID

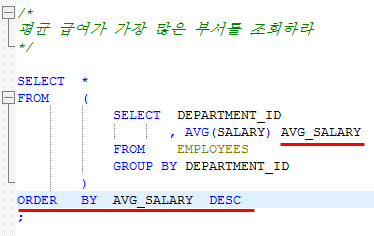
 , AVG(SALARY)

FROM EMPLOYEES

GROUP BY DEPARTMENT\_ID

)

;



SELECT \*

FROM (

SELECT DEPARTMENT\_ID

, AVG(SALARY) AVG\_SALARY

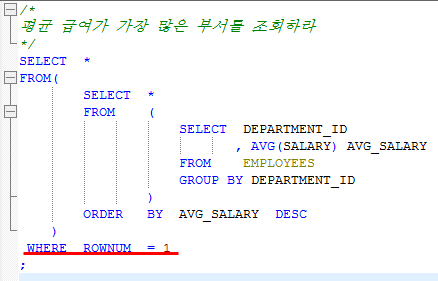
FROM EMPLOYEES

GROUP BY DEPARTMENT\_ID

)

ORDER BY AVG\_SALARY DESC

**이미 집계가 된 것으로 정렬하기 때문에 속도가 빠름**



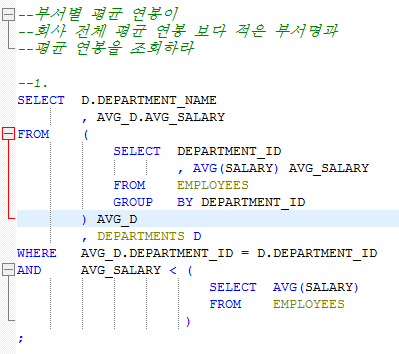
**WHERE ROWNUM = 1**

**을 사용하기 위해 인라인뷰를 한번 더 사용함.**



1.2.3번 같은 결과이나

1번이 가장 느림



-- 부서별 평균 연봉이 회사 전체 평균연봉보다

-- 적은 부서명과 평균연봉을 조회하라.

SELECT D.DEPARTMENT\_NAME

, AVG\_D.AVG\_SALARY

FROM (

SELECT DEPARTMENT\_ID

, AVG(SALARY) AVG\_SALARY

FROM EMPLOYEES

GROUP BY DEPARTMENT\_ID

) AVG\_D

, DEPARTMENTS D

WHERE AVG\_D.DEPARTMENT\_ID = D.DEPARTMENT\_ID

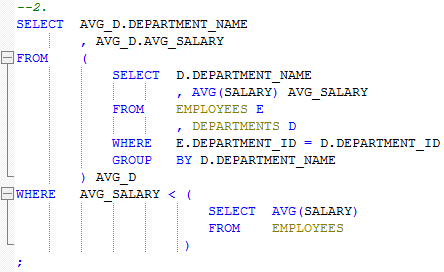
AND AVG\_SALARY < (

SELECT AVG(SALARY)

FROM EMPLOYEES

)

;



-- 부서별 평균 연봉이 회사 전체 평균연봉보다

-- 적은 부서명과 평균연봉을 조회하라.

SELECT AVG\_D.DEPARTMENT\_NAME

, AVG\_D.AVG\_SALARY

FROM (

SELECT D.DEPARTMENT\_NAME

, AVG(SALARY) AVG\_SALARY

FROM EMPLOYEES E

, DEPARTMENTS D

WHERE E.DEPARTMENT\_ID = D.DEPARTMENT\_ID

GROUP BY D.DEPARTMENT\_NAME

) AVG\_D

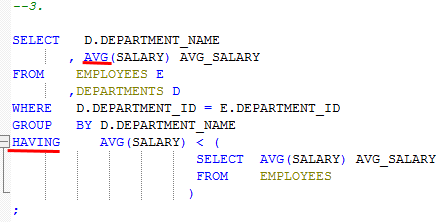
WHERE AVG\_SALARY < (

SELECT AVG(SALARY)

FROM EMPLOYEES

)

;

-- 부서별 평균 연봉이 회사 전체 평균연봉보다

-- 적은 부서명과 평균연봉을 조회하라.

SELECT D.DEPARTMENT\_NAME

, AVG(SALARY) AVG\_SALARY

FROM EMPLOYEES E

, DEPARTMENTS D

WHERE E.DEPARTMENT\_ID = D.DEPARTMENT\_ID

GROUP BY D.DEPARTMENT\_NAME

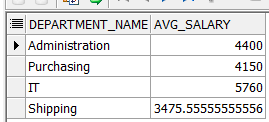
HAVING AVG(SALARY) < (

SELECT AVG(SALARY)

FROM EMPLOYEES

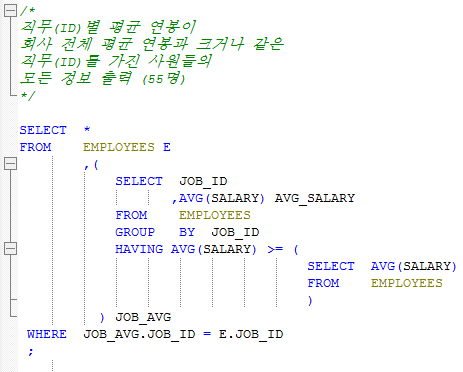
)

;



**HAVING = AVG(집계함수)**

**WHERE은 일반**

/\*

직무(ID)별 평균 연봉이

회사 전체 평균 연봉과 크거나 같은

직무(ID)를 가진 사원들의

모든 정보 출력 (55명)

\*/

SELECT \*

FROM EMPLOYEES E

,(

SELECT JOB\_ID

,AVG(SALARY) AVG\_SALARY

FROM EMPLOYEES

GROUP BY JOB\_ID

HAVING AVG(SALARY) >= (

SELECT AVG(SALARY)

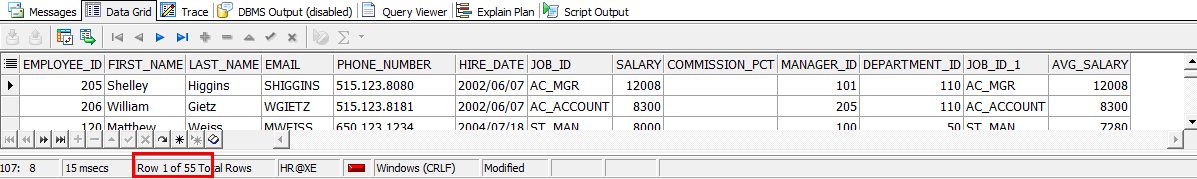
FROM EMPLOYEES

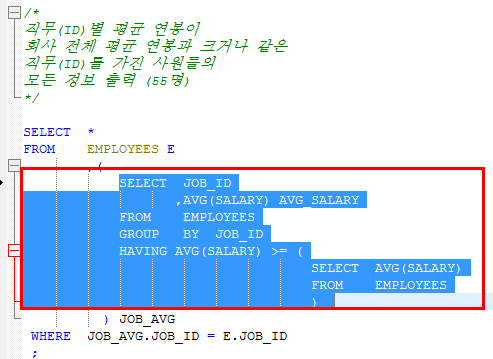
)

) JOB\_AVG

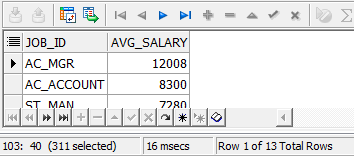
WHERE JOB\_AVG.JOB\_ID = E.JOB\_ID

;





**여기만 조회하면 13칼럼**



/\*

사원이 한명도 존재하지 않는 도시명을 조회(16건)

EMPLOYEES - DEPARTMENTS - LOCATIONS

1. 사원이 있는 부서의 LACATION\_ID 조회

2. LOCATIONS에서 사원이 있는 부서의 LOCATION\_ID 제외

\*/

--1.

SELECT CITY

FROM LOCATIONS

WHERE LOCATION\_ID NOT IN(

SELECT DISTINCT LOCATION\_ID

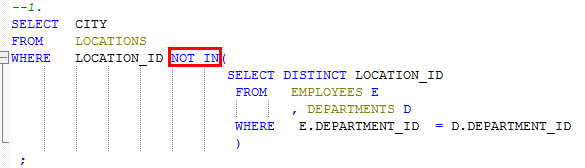
FROM EMPLOYEES E

, DEPARTMENTS D

WHERE E.DEPARTMENT\_ID = D.DEPARTMENT\_ID

)

;



--2.

SELECT CITY

FROM LOCATIONS

WHERE LOCATION\_ID IN (

SELECT LOCATION\_ID

FROM LOCATIONS

MINUS

SELECT DISTINCT LOCATION\_ID

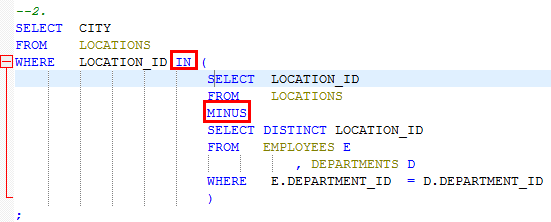
FROM EMPLOYEES E

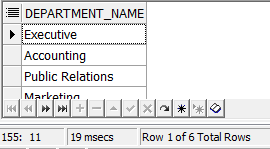
, DEPARTMENTS D

WHERE E.DEPARTMENT\_ID = D.DEPARTMENT\_ID

)

;



/\*

부서의 사원수가 5명 미만인 부서의

부서별 평균 연봉을 구해

평균 연봉이 가장 높은 부서의 부서명 조회

\*/

SELECT DEPARTMENT\_NAME

FROM (

SELECT D.DEPARTMENT\_NAME

, AVG(SALARY) AVG

FROM DEPARTMENTS D

, EMPLOYEES E

WHERE D.DEPARTMENT\_ID = E.DEPARTMENT\_ID

GROUP BY DEPARTMENT\_NAME

HAVING COUNT(1) < 5

)

ORDER BY AVG DESC

;

