

REPORT



과목 :	데이터베이스이론및실습
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학번 :	201920479
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-- 9-1) 사원 이름이 JONES인 사원의 급여 출력하기

```
SELECT SAL FROM EMP WHERE ENAME = 'JONES';
```

	SAL
1	2975

-- 9-2) 급여가 2975보다 높은 사원 정보 출력하기

```
SELECT * FROM EMP WHERE SAL > 2975;
```

SQL 인출된 모든 행: 3(0.034초)								
	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7788	SCOTT	ANALYST	7566	1982/12/09	3000	(null)	20
2	7839	KING	PRESIDENT	(null)	1981/11/17	5000	(null)	10
3	7902	FORD	ANALYST	7566	1981/12/03	3000	(null)	20

-- 9-3) 서브쿼리로 JONES의 급여보다 높은 급여를 받는 사원 정보 출력하기

```
SELECT * FROM EMP WHERE SAL > (SELECT SAL FROM EMP WHERE ENAME = 'JONES');
```

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7788	SCOTT	ANALYST	7566	1982/12/09	3000	(null)	20
2	7839	KING	PRESIDENT	(null)	1981/11/17	5000	(null)	10
3	7902	FORD	ANALYST	7566	1981/12/03	3000	(null)	20

-- 9-4) 서브쿼리의 결과 값이 날짜형인 경우

```
SELECT * FROM EMP WHERE HIREDATE < (SELECT HIREDATE FROM EMP WHERE ENAME = 'SCOTT');
```

SQL 인출된 모든 행: 12(0.027초)								
	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7369	SMITH	CLERK	7902	1980/12/17	800	(null)	20
2	7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30
3	7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30
4	7566	JONES	MANAGER	7839	1981/04/02	2975	(null)	20
5	7654	MARTIN	SALESMAN	7698	1981/09/28	1250	1400	30
6	7698	BLAKE	MANAGER	7839	1981/05/01	2850	(null)	30
7	7782	CLARK	MANAGER	7839	1981/06/09	2450	(null)	10
8	7839	KING	PRESIDENT	(null)	1981/11/17	5000	(null)	10
9	7844	TURNER	SALESMAN	7698	1981/09/08	1500	0	30
10	7900	JAMES	CLERK	7698	1981/12/03	950	(null)	30
11	7902	FORD	ANALYST	7566	1981/12/03	3000	(null)	20
12	7934	MILLER	CLERK	7782	1982/01/23	1300	(null)	10





-- 9-5) 서브쿼리 안에서 함수를 사용한 경우

```
SELECT E.EMPNO, E.ENAME, E.JOB, E.SAL, D.DEPTNO, D.DNAME, D.LOC FROM EMP E, DEPT D
WHERE E.DEPTNO = D.DEPTNO AND E.DEPTNO = 20 AND E.SAL > (SELECT AVG(SAL) FROM EMP);
```

	EMPNO	ENAME	JOB	SAL	DEPTNO	DNAME	LOC
1	7566	JONES	MANAGER	2975	20	RESEARCH	DALLAS
2	7788	SCOTT	ANALYST	3000	20	RESEARCH	DALLAS
3	7902	FORD	ANALYST	3000	20	RESEARCH	DALLAS

-- 9-6) IN 연산자 사용하기





```
SELECT * FROM EMP WHERE DEPTNO IN (20, 30);
```

    SQL | 인출된 모든 행: 11(0.082초)

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7369	SMITH	CLERK	7902	1980/12/17	800	(null)	20
2	7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30
3	7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30
4	7566	JONES	MANAGER	7839	1981/04/02	2975	(null)	20
5	7654	MARTIN	SALESMAN	7698	1981/09/28	1250	1400	30
6	7698	BLAKE	MANAGER	7839	1981/05/01	2850	(null)	30
7	7788	SCOTT	ANALYST	7566	1982/12/09	3000	(null)	20
8	7844	TURNER	SALESMAN	7698	1981/09/08	1500	0	30
9	7876	ADAMS	CLERK	7788	1983/01/12	1100	(null)	20
10	7900	JAMES	CLERK	7698	1981/12/03	950	(null)	30
11	7902	FORD	ANALYST	7566	1981/12/03	3000	(null)	20

-- 9-7) 각 부서별 최고 급여와 동일한 급여를 받는 사원 정보 출력하기

```
SELECT * FROM EMP WHERE SAL IN (SELECT MAX(SAL) FROM EMP GROUP BY DEPTNO);
```

    SQL | 인출된 모든 행: 4(0.05초)

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7698	BLAKE	MANAGER	7839	1981/05/01	2850	(null)	30
2	7788	SCOTT	ANALYST	7566	1982/12/09	3000	(null)	20
3	7839	KING	PRESIDENT	(null)	1981/11/17	5000	(null)	10
4	7902	FORD	ANALYST	7566	1981/12/03	3000	(null)	20





-- 9-8) 부서 번호 별로 최대 급여 출력하기

```
SELECT MAX(SAL) FROM EMP GROUP BY DEPTNO;
```

	MAX(SAL)
1	3000
2	2850
3	5000

-- 9-9) ANY 연산자 사용하기





```
SELECT * FROM EMP WHERE SAL = ANY(SELECT MAX(SAL) FROM EMP GROUP BY DEPTNO);
```

    SQL | 인출된 모든 행: 4(0.032초)

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7698	BLAKE	MANAGER	7839	1981/05/01	2850	(null)	30
2	7788	SCOTT	ANALYST	7566	1982/12/09	3000	(null)	20
3	7839	KING	PRESIDENT	(null)	1981/11/17	5000	(null)	10
4	7902	FORD	ANALYST	7566	1981/12/03	3000	(null)	20

-- 9-10) SOME 연산자 사용하기

```
SELECT * FROM EMP WHERE SAL = SOME(SELECT MAX(SAL) FROM EMP GROUP BY DEPTNO);
```

    SQL | 인출된 모든 행: 4(0.106초)

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7698	BLAKE	MANAGER	7839	1981/05/01	2850	(null)	30
2	7788	SCOTT	ANALYST	7566	1982/12/09	3000	(null)	20
3	7839	KING	PRESIDENT	(null)	1981/11/17	5000	(null)	10
4	7902	FORD	ANALYST	7566	1981/12/03	3000	(null)	20

-- 9-11) 30번 부서 직원들의 최대 급여보다 적은 급여를 받는 직원 정보 출력하기

```
SELECT * FROM EMP WHERE SAL < ANY(SELECT SAL FROM EMP WHERE DEPTNO = 30) ORDER BY  
SAL,EMPNO;
```

SQL | 인출된 모든 행: 9(0.023초)

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7369	SMITH	CLERK	7902	1980/12/17	800	(null)	20
2	7900	JAMES	CLERK	7698	1981/12/03	950	(null)	30
3	7876	ADAMS	CLERK	7788	1983/01/12	1100	(null)	20
4	7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30
5	7654	MARTIN	SALESMAN	7698	1981/09/28	1250	1400	30
6	7934	MILLER	CLERK	7782	1982/01/23	1300	(null)	10
7	7844	TURNER	SALESMAN	7698	1981/09/08	1500	0	30
8	7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30
9	7782	CLARK	MANAGER	7839	1981/06/09	2450	(null)	10

-- 9-12) 부서 번호가 30인 직원들의 급여 출력하기

SELECT SAL FROM EMP WHERE DEPTNO = 30;

SQL | 인출된 모든 행: 6(0.097초)

	SAL
1	1600
2	1250
3	1250
4	2850
5	1500
6	950

-- 9-13) 30번 부서 직원들의 최소 급여보다 많은 급여를 받는 직원 정보 출력하기

SELECT * FROM EMP WHERE SAL > ANY(SELECT SAL FROM EMP WHERE DEPTNO = 30);

SQL | 인출된 모든 행: 12(0.028초)

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7839	KING	PRESIDENT	(null)	1981/11/17	5000	(null)	10
2	7902	FORD	ANALYST	7566	1981/12/03	3000	(null)	20
3	7788	SCOTT	ANALYST	7566	1982/12/09	3000	(null)	20
4	7566	JONES	MANAGER	7839	1981/04/02	2975	(null)	20
5	7698	BLAKE	MANAGER	7839	1981/05/01	2850	(null)	30
6	7782	CLARK	MANAGER	7839	1981/06/09	2450	(null)	10
7	7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30
8	7844	TURNER	SALESMAN	7698	1981/09/08	1500	0	30
9	7934	MILLER	CLERK	7782	1982/01/23	1300	(null)	10
10	7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30
11	7654	MARTIN	SALESMAN	7698	1981/09/28	1250	1400	30
12	7876	ADAMS	CLERK	7788	1983/01/12	1100	(null)	20

-- 9-14) 부서 번호가 30번인 직원들의 최소 급여보다 더 적은 급여를 받는 직원 출력하기

```
SELECT * FROM EMP WHERE SAL < ALL(SELECT SAL FROM EMP WHERE DEPTNO = 30);
```

SQL | 인출된 모든 행: 1(0.022초)

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7369	SMITH	CLERK	7902	1980/12/17	800	(null)	20

-- 9-15) 부서 번호가 30번인 직원들의 최대 급여보다 더 많은 급여를 받는 직원 출력하기

```
SELECT * FROM EMP WHERE SAL > ALL(SELECT SAL FROM EMP WHERE DEPTNO = 30);
```

SQL | 인출된 모든 행: 4(0.023초)

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7566	JONES	MANAGER	7839	1981/04/02	2975	(null)	20
2	7788	SCOTT	ANALYST	7566	1982/12/09	3000	(null)	20
3	7902	FORD	ANALYST	7566	1981/12/03	3000	(null)	20
4	7839	KING	PRESIDENT	(null)	1981/11/17	5000	(null)	10

-- 9-16) 서브쿼리 결과 값이 존재하는 경우

```
SELECT * FROM EMP WHERE EXISTS (SELECT DNAME FROM DEPT WHERE DEPTNO = 10);
```

SQL | 인출된 모든 행: 14(0.107초)

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7369	SMITH	CLERK	7902	1980/12/17	800	(null)	20
2	7499	ALLEN	SALESMAN	7698	1981/02/20	1600	300	30
3	7521	WARD	SALESMAN	7698	1981/02/22	1250	500	30
4	7566	JONES	MANAGER	7839	1981/04/02	2975	(null)	20
5	7654	MARTIN	SALESMAN	7698	1981/09/28	1250	1400	30
6	7698	BLAKE	MANAGER	7839	1981/05/01	2850	(null)	30
7	7782	CLARK	MANAGER	7839	1981/06/09	2450	(null)	10
8	7788	SCOTT	ANALYST	7566	1982/12/09	3000	(null)	20
9	7839	KING	PRESIDENT	(null)	1981/11/17	5000	(null)	10
10	7844	TURNER	SALESMAN	7698	1981/09/08	1500	0	30
11	7876	ADAMS	CLERK	7788	1983/01/12	1100	(null)	20
12	7900	JAMES	CLERK	7698	1981/12/03	950	(null)	30





-- 9-17) 서브쿼리 결과 값이 존재하지 않는 경우

```
SELECT * FROM EMP WHERE EXISTS (SELECT DNAME FROM DEPT WHERE DEPTNO = 50);
```

EMPNO	ENAME	JOB	MGR	HIRED...	SAL	COMM	DEPTNO
-------	-------	-----	-----	----------	-----	------	--------

-- 9-18) 다중열 서브쿼리 사용하기

```
SELECT * FROM EMP WHERE (DEPTNO, SAL) IN (SELECT DEPTNO, MAX(SAL) FROM EMP GROUP BY DEPTNO);
```

    SQL | 인출된 모든 행: 4(0.064초)

	EM...	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7788	SCOTT	ANALYST	7566	1982/12/09	3000	(null)	20
2	7902	FORD	ANALYST	7566	1981/12/03	3000	(null)	20
3	7698	BLAKE	MANAGER	7839	1981/05/01	2850	(null)	30
4	7839	KING	PRESIDENT	(null)	1981/11/17	5000	(null)	10

-- 9-19) 인라인 뷰 사용하기

```
SELECT E10.EMPNO, E10.ENAME, E10.DEPTNO, D.DNAME, D.LOC FROM (SELECT * FROM EMP WHERE DEPTNO = 10) E10, (SELECT * FROM DEPT) D WHERE E10.DEPTNO = D.DEPTNO;
```

    SQL | 인출된 모든 행: 3(0.025초)

	EMPNO	ENAME	DEPTNO	DNAME	LOC
1	7782	CLARK	10	ACCOUNTING	NEW YORK
2	7839	KING	10	ACCOUNTING	NEW YORK
3	7934	MILLER	10	ACCOUNTING	NEW YORK

-- 9-20) WITH절 사용하기

WITH

E10 AS (SELECT * FROM EMP WHERE DEPTNO = 10),

D AS (SELECT * FROM DEPT)

SELECT E10.EMPNO, E10.ENAME, E10.DEPTNO, D.DNAME, D.LOC FROM E10, D

WHERE E10.DEPTNO = D.DEPTNO;



SQL | 인출된 모든 행: 3(0.029초)

	EMPNO	ENAME	DEPTNO	DNAME	LOC
1	7782	CLARK	10	ACCOUNTING	NEW YORK
2	7839	KING	10	ACCOUNTING	NEW YORK
3	7934	MILLER	10	ACCOUNTING	NEW YORK

-- 9-21) SELECT 절에 서브쿼리 사용하기

SELECT EMPNO, ENAME, JOB, SAL,

(SELECT GRADE FROM SALGRADE

WHERE E.SAL BETWEEN LOSAL AND HISAL) AS SALGRADE,

DEPTNO,

(SELECT DNAME FROM DEPT WHERE E.DEPTNO = DEPT.DEPTNO) AS DNAME

FROM EMP E;

SQL 인출된 모든 행: 14(0.094초)							
	EM...	ENAME	JOB	SAL	SALGRADE	DEPTNO	DNAME
1	7369	SMITH	CLERK	800	1	20	RESEARCH
2	7499	ALLEN	SALESMAN	1600	3	30	SALES
3	7521	WARD	SALESMAN	1250	2	30	SALES
4	7566	JONES	MANAGER	2975	4	20	RESEARCH
5	7654	MARTIN	SALESMAN	1250	2	30	SALES
6	7698	BLAKE	MANAGER	2850	4	30	SALES
7	7782	CLARK	MANAGER	2450	4	10	ACCOUNTING
8	7788	SCOTT	ANALYST	3000	4	20	RESEARCH
9	7839	KING	PRESIDENT	5000	5	10	ACCOUNTING
10	7844	TURNER	SALESMAN	1500	3	30	SALES
11	7876	ADAMS	CLERK	1100	1	20	RESEARCH
12	7900	JAMES	CLERK	950	1	30	SALES