**Relational algebra calculator -> RelaX**

https://dbis-uibk.github.io/relax/landing

(see Relax\_Emp\_Dept.txt)

You can run SQL solutions in Oracle, and relational algebra solutions in Relax.

5. List the employees whose commission is not known (that is NULL).

SELECT ename, comm FROM emp WHERE comm IS NULL;

π ename, comm σ comm = null Emp

See the difference in NULL comparison.

7. Give the name and double salary of employees working on department 10.

SELECT ename, sal\*2 s2 FROM Emp WHERE deptno=10;

π ename, mul(sal,2) → s2 σ deptno = 10 Emp

See arithmetical operations: add(a,b), sub(a,b), mul(a,b), div(a,b), mod(a,b)

8. List the employees whose hiredate is greater than 1982.01.01.

π ename, hiredate σ hiredate > date('1982-01-01') Emp

Take care about date conversion in Relax!

11. List the employees whose name contains two letters 'L'.

π ename σ ename like '%L%L%' Emp

14. List the name and salary of employees ordered by salary in descending order and within that order, ordered by name in ascending order.

τ sal desc, ename asc π ename, sal Emp

16. List the employees whose manager is KING.

π sub.ename σ man.empno = sub.mgr and man.ename = 'KING'

( ρ sub Emp ⨯ ρ man Emp )

21. List the employees whose department's location is not DALLAS and not CHICAGO?

π ename, loc σ loc <> 'DALLAS' and loc <> 'CHICAGO' ( ρ e Emp ⨝ ρ d Dept )

24. List the employees who has a subordinate whose salary is greater than 2000.

π man.ename, sub.ename, sub.sal σ man.empno = sub.mgr and sub.sal > 2000

( ρ sub Emp ⨯ ρ man Emp )

25. List the employees who don't have a subordinate whose salary is greater than 2000.

π ename Emp -

π man.ename σ man.empno = sub.mgr and sub.sal > 2000 ( ρ sub Emp ⨯ ρ man Emp )

26. List the department names and locations where there is an employee with job ANALYST.

π loc σ job='ANALYST' (Emp ⨝ Dept)