

RELATIONAL ALGEBRA

SELECT:

$\sigma_{\langle \text{select condition} \rangle}(R)$

Ex.:

$\sigma_{\text{DNO} = 4}(\text{EMPLOYEE})$

$\sigma_{\text{SALARY} > 30000}(\text{EMPLOYEE})$

$\sigma_{(\text{SALARY} > 30000 \text{ AND } \text{DNO} = 4) \text{ OR } \text{DNO} = 5}(\text{EMPLOYEE})$

PROJECT:

$\pi_{\langle \text{attribute list} \rangle}(R)$

Ex.:

$\pi_{\text{SEX}, \text{SALARY}}(\text{EMPLOYEE})$

SEQUENCES:

Ex.:

$\pi_{\text{FNAME}, \text{LNAME}, \text{SALARY}}(\sigma_{\text{DNO} = 4}(\text{EMPLOYEE}))$

or

$\text{DEP5_EMPS} \leftarrow \sigma_{\text{DNO} = 4}(\text{EMPLOYEE})$

$\pi_{\text{FNAME}, \text{LNAME}, \text{SALARY}}(\text{DEP5_EMPS})$

UNION:

$\text{RESULT} \leftarrow \text{RESULT1} \cup \text{RESULT2}$

INTERSECTION:

$\text{RESULT} \leftarrow \text{RESULT1} \cap \text{RESULT2}$

$R \cap S \equiv (R \cup S) - ((R - S) \cup (S - R))$

SET DIFFERENCE:

$\text{RESULT} \leftarrow \text{RESULT1} - \text{RESULT2}$

CARTESIAN PRODUCT OR CROSS PRODUCT OR CROSS JOIN:

$R1 \times R2$

JOIN (a cartesian product with a condition):

$R1 \bowtie_{\langle \text{join condition} \rangle} R2$

$R1 \bowtie_{\langle \text{condition} \rangle} R2 = \sigma_{\langle \text{condition} \rangle}(R1 \times R2)$

COMPLETE SET: $\{\sigma, \pi, \cup, -, \times\}$