Relational Algebra for DBMS assignment 2:

Submitted by: Pilot Khadka

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4(a). Find the names of all instructors in the History department.

⇨ $\Pi_{names}(\sigma_{dept\_name="History"}(instructor))$

4(b). Find the instructor ID and department name of all instructors associated with a department with budget of greater than $75,000

⇨ $\Pi_{ID,dept\_name}(\sigma_{salary>95{,}000}(instructor))$

4(c). Find the names of all instructors in the Comp. Sci. department together with the course titles of all the courses that the instructors teach

⇨ $\Pi_{name,title}(\sigma_{dept\_name="Computer\ Science"}(instructor \bowtie teaches \bowtie course))$

4(d). Find the names of all students who have taken the course title of "Introduction to Computer Science".

⇨ $\Pi_{name}(\sigma_{title="Introduction\ to\ Computer\ Science"}(student \bowtie takes \bowtie course))$

4(e). For each department, find the maximum salary of instructors in that department. You may assume that every department has at least one instructor.

⇨

4(f). Find the lowest, across all departments, of the per-department maximum salary computed by the preceding query.

⇨

4(g). Find the ID and names of all students who do not have an advisor.

⇨ $\Pi_{student.s\_id,student.name}(\sigma_{student.s\_id=NULL}(\sigma_{s\_id}(student) - \sigma_{s\_id}(advisor))$