Lab 1
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1) * $\prod_{\text{ID, person\_name}} (\sigma_{\text{company\_name = 'BigBank"}} (\text{works}))$

* $\prod_{\text{ID, person\_name, city}} ((\text{employee}) \bowtie_{\text{employee.ID = works.ID} \wedge \text{company\_name = 'BigBank"}} (\text{works}))$

* $\prod_{\text{ID, person\_name, street, city}} ((\text{employee}) \bowtie_{\text{employee.ID = works.ID} \wedge \text{company\_name = "BigBank"} \wedge \text{salary > 10000\$}} (\text{works}))$

* $\prod_{\text{ID, person\_name}} (\sigma_{\text{works.company\_name = company.company\_name} \wedge \text{employee.city = company.city}} (\text{employee} \times \text{works} \times \text{company}))$

2) * $\prod_{\text{ID, person\_name}} (\sigma_{\text{company\_name} \neq \text{'BigBank"}} (\text{works}))$

* $\prod_{\text{ID, person\_name}} (\sigma_{\text{salary >}} (\text{works}))$

3) A deleting means that all the related data in dependent table should also be deleted. That is why we cannot delete a tuple (Comp. science, Tailor, 1000) from the department relation, because we have other student or instructor tuples, where in dept_name occurs Physics.
Inserting of a data to the table should occur when a related data already exists in the base table. So we cannot insert tuple (12345, somebody, LAW, 123459$), since we haven't a Law department.

4) In employee relation, a primary key is a person_name(or if exists, ID, because the name of a person can be repeated).
In works table, a primary key is also a person_name(or if exists, ID, because the name of a person (non unique) can be repeated).
In company relation, company_name is a primary key.