Assignment 4 – Relational Algebra
B461
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1. $\pi_{pid,name}(W \bowtie W.cname = C.cname \bowtie P.pid = W.pid(\sigma C.city =' Bloomington')) \bigcap$
   $\pi_{pid,name}(K_1 \bowtie P_1.pid = K_1.pid2 \bowtie K_1.pid1 = P_2.pid(\sigma P_1.city =' Chicago')$

2. $\pi_{skill}(J) - \pi_{skill}(S \bowtie S.pid = W.pid(\sigma W.cname =' Yahoo' \vee W.cname =' Netflix'))$

3. $\pi_{cname}(C) \cap \pi cname(S_1 \bowtie S_1.skill = S_2.skill \bowtie W_1.pid = S_1.pid \bowtie W_2.pid = S_2.pid \wedge$
   $W_1.cname = W_2.cname(\sigma S_1.pid \neq S_2.pid))$

4. $\pi_{pid,name}(P \bowtie W.cname =' Google' \bowtie P_2.pid = W.pid \bowtie P.pidK.pid1 \wedge P_2.pid = K.pid2)$
   $-\pi_{pid,name}(P_1 \bowtie K.pid1 = P_1.pid \bowtie K.pid2 = P_2.pid \bowtie W.pid = P_2.pid \wedge W.cname =' Amazon' \bowtie$
   $S.skill =' Programming'(\sigma P_2.pid = S.pid))$

5. $\pi_{pid,name}(P \bowtie P.pid = W.pid \wedge W.cname =' IBM') -$
   $\pi_{pid,name}(P_1 \bowtie P_1.pid = S_1.pid \bowtie P_1.pid = W_1.pid \bowtie W_1.cname =' IBM' \wedge W_2.cname =' IBM'$
   $\bowtie P_2.pid = W_2.pid \bowtie P_2.pid = S_2.pid(\sigma W_1.salary < W_2.salary)$

6. $\pi_{pid,name}(P) - \pi_{pid1,name}(K \bowtie K.pid2 = W.pid \bowtie P.pid = K.pid1(\sigma W.salary > 55000))$

7. $\pi_{cname}(C) - \pi_{cname}(W(\sigma W.salary \geq 55000))$

8. $\pi_{skill1,skill2}(P_1 \bowtie P_1.pid = S_1.pid \bowtie S_1.skill = J_1.skill \bowtie J_2.skill) \cap$
   $\pi_{skill1,skill2}(P_1 \bowtie P_1.pid \neq P_2.pid \bowtie S.pid = P_2.pid \bowtie J_1.skill = S.skill \bowtie J_2.skill = S.skill)$

9. $\sigma_{E_1}\left(\sigma_{\sigma_{(F)}=\pi_{()}(F)}\right) \cup \sigma_{E_2}\left(\sigma_{\sigma_{(F)}\neq\pi_{()}(F)}\right)$

10. $\sigma_A\left(\sigma_{\sigma_A=\pi_{()}(A)}\right)(A\_isEmpty :_{()} A)$