Databases Relational Algebra Ex

February 2023

1 Task 1

a) $\Pi_{SID}(\sigma_{Class=1 \vee Class=2} Courses \bowtie Gradebook \bowtie Students)$
b) $\Pi_{SID}(\sigma_{Class=1} Courses \bowtie Gradebook \bowtie \sigma_{Sureanme=Valdez} Students)$
c) $\Pi_{SID}((\sigma_{Class=1} Courses) \cup (\sigma_{Class=2} Courses) \bowtie Gradebook \bowtie Students)$
d) $\Pi_{SID,CID} Gradebook \div \Pi_{CID} Courses$
e) $\Pi_{SID,CID} Gradebook \div \Pi_{CID} \sigma_{Class=3} Courses$
f)
$\rho(R1, (\rho_{SID \to SID1}(Students \bowtie Grradebook)))$
$\rho(R2, (\rho_{SID \to SID2}(Students \bowtie Grradebook)))$
$\Pi_{SID1,SID2}(R1 \bowtie_{R1.Grade > R2.Grade} R2)$
g) $\Pi_{CID}(Gradebook \bowtie \rho_{SID1 \to SID} \Pi_{SID1}((\sigma_{SID1,SID2}(\rho_{SID \to SID1} \Pi_{SID,CID} Gradebook \bowtie_{SID1=SID2}$
$\rho_{SID \to SID2} \Pi_{SID} Students)) \cap (\rho_{SID \to SID1} \Pi_{SID} Students \bowtie_{SID1 \neq SID2} \rho_{SID \to SID2} \Pi_{SID} Students)))$

2 Task 2

a) Warren
b) Warren
c) —
d) —