1 Relational Algebra

Implement full-outer join using only the basic relational algebra operations ($\sigma$, $\pi$, $\times$, $-$, $\cup$)

2 Equivalence Rules

Using the relational equivalencies for Selection, Projection, and Cartesian Products discussed in class, prove that

$$\pi_{A \cup B}(R \bowtie S) \equiv (\pi_A(R)) \bowtie C (\pi_B(S))$$

$A$ and $B$ are sets of attributes, and $C$ is a boolean condition. Be sure to state any assumptions or conditions under which your proof and/or the equivalence holds.