COMP3311
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Assignment 3
Question 2-3

Q2

Only four intersections are required to derive the eight relations in $\Re^2$. They are the interior and boundary points for A and B in $\Re^2$. In matrix form:

$$\begin{pmatrix} A^o \cap B^o & A^o \cap \delta B \\ \delta A \cap B^o & \delta A \cap \delta B \end{pmatrix}$$

This is because $(A^o \cap B^-)$ and $(\delta A \cap B^-)$ are always the same value, $(A^- \cap B^o)$ and $(A^- \cap \delta B)$ are always the same value, and $(A^- \cap B^-)$ is always the same value for each of the eight relations. Hence, A^- and B^- can be removed from the set and the 4-intersection subset remains.

Q3

a) SELECT r.name
FROM road r, building b
WHERE cross(r.geometry, b.geometry) = 1
AND b.name = 'Computer Science and Engineering'

b) SELECT b.name
FROM helpPoint h, building b
WHERE contains(buffer(h.geometry, 1), b.geometry)
AND h.code = '001'

c) SELECT b.name
FROM building b, building b1
WHERE touch(b.geometry, b1.geometry)
GROUP BY b.name
HAVING count(b1.name) = 0

d) CREATE OR REPLACE VIEW DIST AS
SELECT h.code, distance(h.geometry, b.geometry) as "hDist"
FROM helpPoint h, building b
WHERE b.name = 'Computer Science and Engineering'

SELECT h.code
FROM (SELECT h.code, min(hDist) from DIST)