SQL Assignment

a) select fname, lname FROM
ACTOR WHERE actor_id in
(select c.actor_id from CAST c
JOIN MOVIE m
ON c.movie_id = m.id
WHERE m.name = "The last Emperor");

b) select fname, lname
FROM DIRECTOR d
JOIN MOVIE_DIRECTOR m
GROUP BY m
ORDER BY Count(m.movie_id) desc;

c) SELECT fname, lname
FROM ACTOR
WHERE actor_id in
(SELECT c.actor_id
FROM CAST c
JOIN MOVIE m
ON c.movie_id = m.id
WHERE m.year < 1960);

d) Update movie
set rating = rating + 1
where id in (
select m.movie_id
FROM MOVIE_DIRECTOR m
JOIN DIRECTOR d

ON m.director_id = d.id
WHERE d.fname = "Stephen"
AND d.lname = "Spielberg");

Canonical cover and extraneous attributes.

eg 1: Given $F = \{A \to C, AB \to C\}$
To check extraneous attributes for $\alpha \to B$ where $\alpha = A_1 A_2 \ldots A_n$, $n > 1$ then
$AB \to C$
Here, $A^+ = AC$,
since, this closure includes C, B is extraneous.

eg 2. Given $F = \{A \to C, AB \to CD\}$. Is C extraneous in $AB \to CD$?
→ We find α^+ using dependencies in F where
$F' = (F - \{\alpha \to B\}) \cup \{\alpha \to (B - A)\}$
$= \{\{A \to C, AB \to CD\} - \{AB \to CD\}\} \cup$
$\{AB \to (CD - AB)\}$
$= \{A \to C\} \cup \{AB \to D\}$

Here, α is AB, so we find $(AB)^+$ using F'
$(AB)^+ = ABCD$
Since, α^+ contains A, so, C is extraneous.
i.e. $(AB)^+$ contains C. Hence, C is extraneous in $AB \to CD$.