Database Management System – cs422 DE

Lab 6 – Week 13

This Lab is based on Query Processing.

- Submit your *own work* on time. No credit will be given if the lab is submitted after the due date.
- Note that the completed lab should be submitted in .doc, .docx, .rtf, .pdf or .zip format only.

Solve the following Exercises from the course text book.

1. 23.17/21.17 (5th/4th edition)

Q 23.17. Using the Hotel schema given at the start of the Exercises at the end of Chapter 4, determine whether the following queries are semantically correct:

(a) SELECT r.type, r.price
FROM Room r, Hotel h
WHERE r.hotel_number = h.hotel_number AND h.hotel_name = 'Grosvenor Hotel' AND r.type > 100;

=>No semantically correct. Because the room type is String, and this is not compared to integer.

(b) SELECT g.guestNo, g.name
FROM Hotel h, Booking b, Guest g
WHERE h.hotelNo = b.hoteiNo AND h.hoteiName = 'Grosvenor Hotel';

=> If we see guest table there is no attribute with name so this is not correct.

(c) SELECT r.roomNo, h.hoteiNo
FROM Hotel h, Booking b, Room r
Exercises 677 WHERE h.hoteiNo = b.hoteiNo AND h.hoteiNo = 'H21 ' AND b.roomNo = r.roomNo
AND type 'S' AND b.hoteiNo = 'H22';

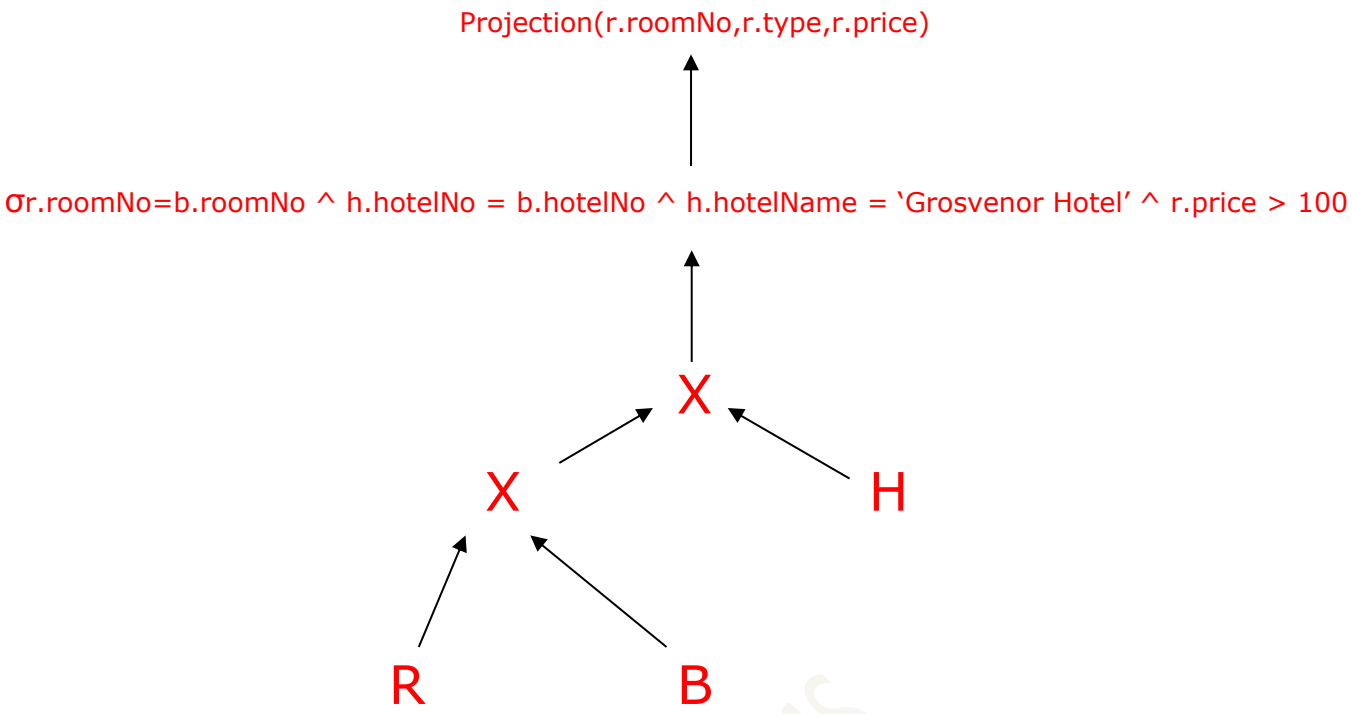
=> Hotel No can't be both H21 and H22. No this is semantically correct.

2. 23.18/21.18 (5th/4th edition)

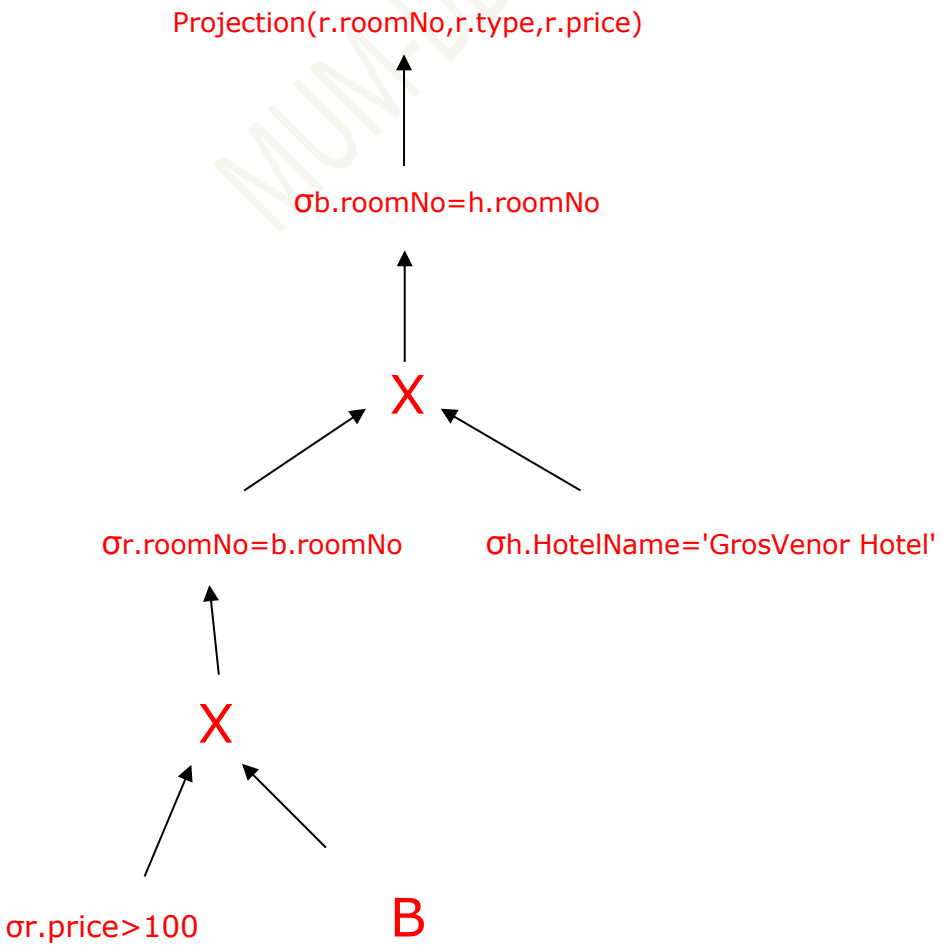
Q. Again using the Hotel schema, draw a relational algebra tree for each of the following queries and use the heuristic rules given in Section 23.3.2 to transform the queries into a more efficient form. Discuss each step and state any transformation rules used in the process.

(a) SELECT r.roomNo, r.type, r.price
FROM Room r, Booking b, Hotel h
WHERE r.roomNo = b.roomNo AND b.hoteiNo = h.hoteiNo AND
h.hoteiName = 'Grosvenor Hotel' AND r.price > 100;

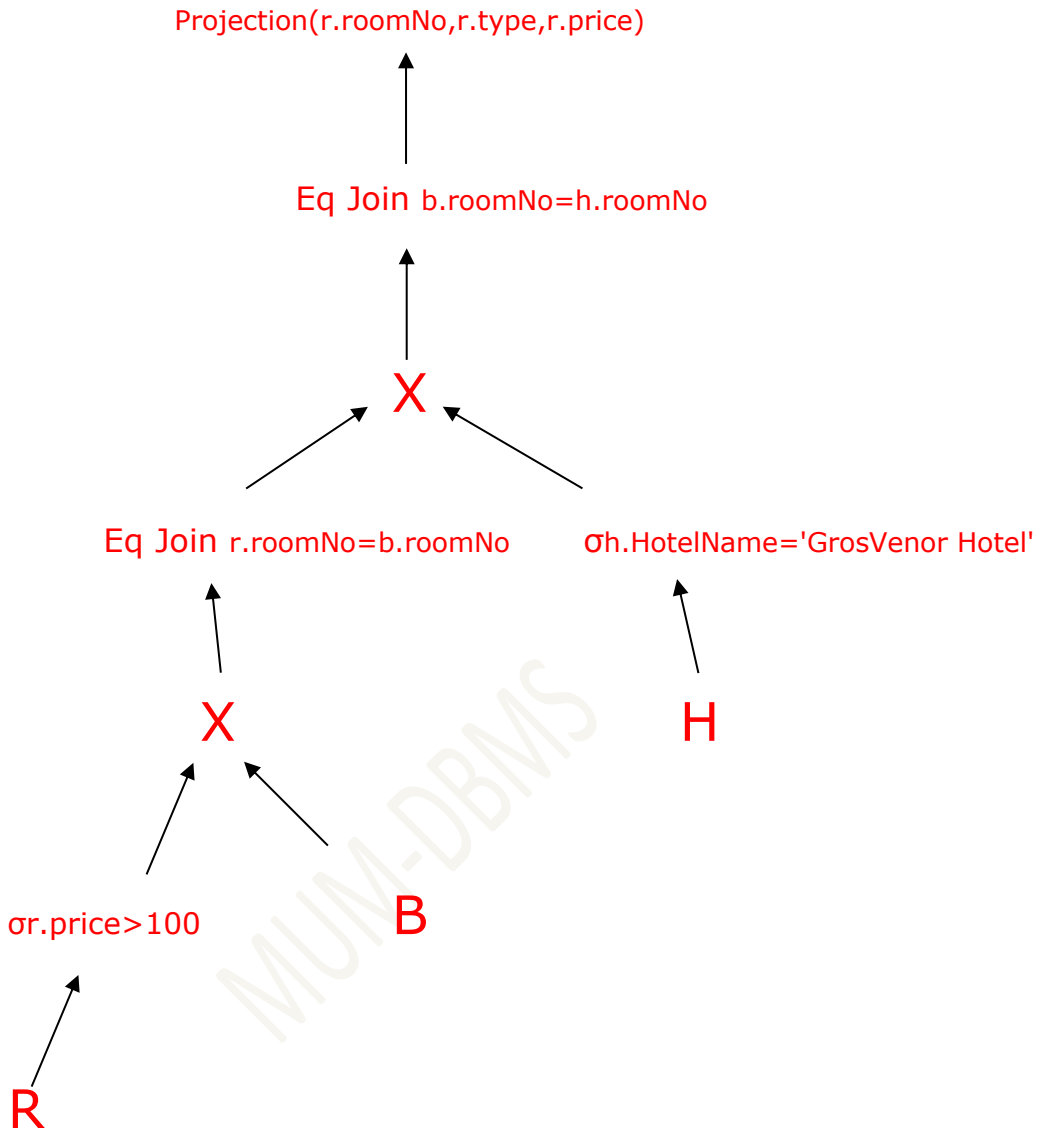
Step 1



Step 2



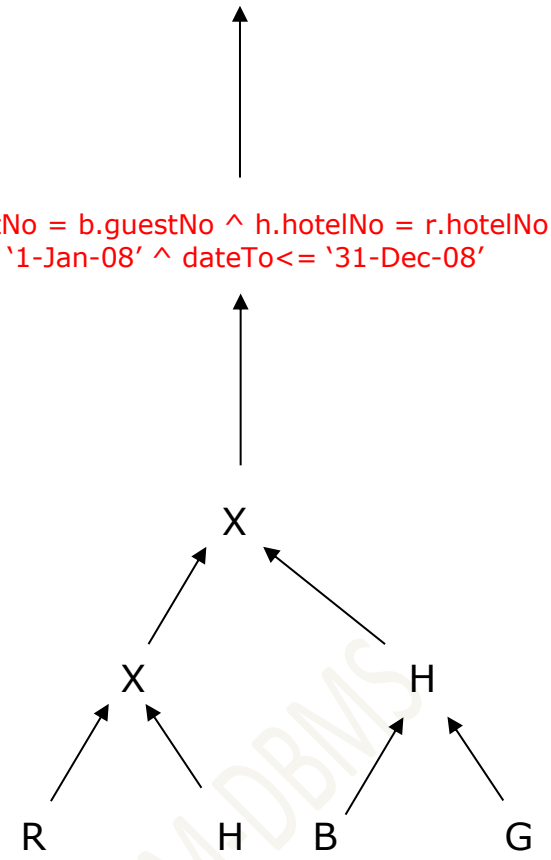
Step 3



(b) SELECT g.guestNo, g.guestName
FROM Room r, Hotel h, Booking b, Guest g
WHERE h.hoteiNo b.hoteiNo AND g.guestNo b.guestNo AND h.hoteiNo = r.hoteiNo AND
h.hoteiName = 'Grosvenor Hotel' AND dateFrom >= ' 1-jan-08' AND dateTo < = '31-Dec-08';

=>

Projection (g.guestNo, g.guestName)



σh.hotelNo = b.hotelNo ^ g.guestNo = b.guestNo ^ h.hotelNo = r.hotelNo ^ h.hotelName = 'Grosvenor Hotel' ^ dateFrom >= '1-Jan-08' ^ dateTo<= '31-Dec-08'