

Homework 3

Instructions

1. For question 1, please prepare your answers in a word processor.
2. For question 2, it would be preferable if you could use a word processor with an equation editor, but if that is too difficult, you may hand write your answers and scan them in. However, you must write **neatly** or you may receive a 0 if the TA cannot read your handwriting.
3. For questions 3-5 prepare your answers using either a word processor or by neatly sketching diagrams and then scanning them into a single digital document (e.g., scan them into a word processing document and then create a pdf file of the word processing document).
4. Please submit your answers as a single file. You should insert scanned pages into your word processing document.

Problems

1. 5.8 parts a, c, and f. I want an English language description of the relations that a non-computer scientist can understand. As an illustration of the type of answer I want, here is an example answer for 5.8d:
This will produce a relation containing all guests and show the details of any bookings they have on or after 1-Jan-2002. Even guests who do not have a booking after 1-Jan-2002 will appear in the relation.
2. 5.12, b-f.
 - a. Only generate the relational algebra and tuple relational calculus expressions.
 - b. Do not generate the domain relational calculus expressions.
 - c. You can use mysql's CURDATE() function and its between syntax for finding currently occupied rooms.
 - d. 5.12c should read "List the names and addresses of all guests" rather than cities of all guests.
3. Provide the equivalent tuple relational calculus expressions for parts a, c, and f from exercise 5.8
4. 5.10. Answer all parts of this question. I want an English language description of the relations that a non-computer scientist can understand. Question 5.10d should read:
d) $\{H.\text{hotelName}, G.\text{guestName} \mid \text{Hotel}(H) \wedge \text{Guest}(G) \wedge (\exists B1)((\exists B2)(\text{Booking}(B1) \wedge \text{Booking}(B2) \wedge H.\text{hotelNo} = B1.\text{hotelNo} \wedge G.\text{guestNo} = B1.\text{guestNo} \wedge B2.\text{hotelNo} = B1.\text{hotelNo} \wedge B2.\text{guestNo} = B1.\text{guestNo} \wedge B2.\text{dateFrom} \neq B1.\text{dateFrom}))\}$
5. Provide the equivalent relational algebra expressions for each of the tuple relational calculus expressions given in exercise 5.10a and 5.10c

