

Assignment 2 - Relational Algebra

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1. 5.12 problems

b) List all single rooms with a price below £20 per night.

- $\sigma_{\text{price} < 20 \wedge \text{type} = \text{"single"}}(\text{Rooms})$

c) List the names and cities of all guests.

- $\Pi_{\text{guestName}, \text{city}}(\text{Booking} \bowtie \text{Hotel} \bowtie \text{Guest})$

e) List all guests currently staying at the Grosvenor Hotel.

- $\Pi_{\text{guestName}}(\sigma_{\text{hotelName} = \text{"Grosvenor"} \wedge \text{dateFrom} < \text{"15-SEP-2020"} \wedge \text{dateTo} > \text{"15-SEP-2020"}}(\text{Booking} \bowtie \text{Hotel} \bowtie \text{Guest}))$

g) List the guest details (guestNo, guestName, and guestAddress) of all guests staying at the Grosvenor Hotel.

- $\Pi_{\text{guestNo}, \text{guestName}, \text{guestAddress}}(\sigma_{\text{hotelName} = \text{"Grosvenor"}}(\text{Booking} \bowtie \text{Hotel} \bowtie \text{Guest}))$

2. More queries

a) Get a listing of the names of hotels that have a hotel in Cambridge.

- $\Pi_{\text{hotelName}}(\sigma_{\text{city} = \text{"Cambridge"}}(\text{Hotel}))$

b) Get a listing of the names of hotels that do *not* have a hotel in Cambridge.

- $\Pi_{\text{hotelName}}(\sigma_{\text{city} \neq \text{"Cambridge"}}(\text{Hotel}))$

c) Get a listing of the guest numbers of guests who have had a booking with every hotel in Stratford.

- $\Pi_{\text{guestNo}}(\sigma_{\text{city} = \text{"Stratford"}}(\text{Booking} \bowtie \text{Hotel}))$

3. 5.8 problems

a) Lists all hotel numbers whose room price is greater than £50

b) Creates a new table with all hotel rooms and their corresponding hotel data

- c) Lists all hotel names that has a room with a price greater than £50
- f) Lists all guest names and hotel numbers of guests who stayed at a hotel in London