Databases
Additional Materials

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Lecture 8

- Corrections to Weak entities (ignore slides 32, 33, and 70).
- Entity hierarchy, revisited
Example of a weak entity

- **Hotel**: `hotel_id`
- **Room**: `room_number`
- **HasRoom**

Remarks:

- A room cannot exist without being associated with a particular hotel.
- The attribute `room_number` is called a *discriminator*.
- Discriminators are not keys. To uniquely identify a room, we need both a `hotel_id` and a `room_number`. 
Implementing weak entities

One approach:
- \( S(Z, W) \)
- \( R(Z, DISC, U) \) with \( \pi_Z(R) \subseteq \pi_Z(S) \)
- \( T(Z, DISC, Y) \) with \( \pi_Z(T) \subseteq \pi_Z(S) \)

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- \( S(Z, W) \)
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Sometimes an entity can have “sub-entities”. Here is an example:

Sub-entities inherit the attributes and relationships of the parent entity. **NOTE**: the attributes hourly_rate and contract_id were incorrectly underlined as keys on slide 34.
Implementation of entity hierarchy

One approach:
- $S(Z, W)$
- $T(Z, Y)$ with $\pi_Z(T) \subseteq \pi_Z(S)$
- $U(Z, V)$ with $\pi_Z(U) \subseteq \pi_Z(S)$

Could we combine these tables into one with type tags?