# Group Practice – Prep Test 1

1. HW 2 Q4, Q5, Q1

Solution to HW 2 has been uploaded to Canvas Files/assignments

1. Answer the following questions *using the relations on the following page*.
2. What are the candidate keys for each relation?

Hotel: HotelNo

Room: (RoomNo, HotelNo)

Booking: (HotelNo, DateFrom, RoomNo) (HotelNo, DateTo, RoomNo)

Guest: GuestNo

1. What foreign keys exist in these relations?

In Room, HotelNo refers to Hotel relation

In Booking, (HotelNo, RoomNo) refers to Room relation, GuestNo refers to Guest relation

1. Are the entity integrity and referential integrity constraints satisfied by these relations? Explain.

In Booking relation, (RoomNo: 001 HotelNo 005) violates referential integrity constraint as no such value pair in Room relation

1. Give examples of enterprise constraints that should be applied to this data to ensure that the database makes sense.

e.g., Ocean view is more expensive than Standard in the same hotel

1. Consider a view of the database that displays the guest name, hotel name, and daily price of each booking. Show the data that would be displayed in this view.

|  |  |  |
| --- | --- | --- |
| ***GuestName*** | ***HotelName*** | ***Price*** |
| Min Chen | Super 8 | 80 |
| Ichiro Suzuki | Hilton | 300 |
| Farha Banerjee | Marriot | 150 |
| Julie Tahajian | Best Western | 100 |
| Wrong tuple so skip | | |
| Julie Tahajian | Hilton | 200 |

**Base Relations**

## Hotel

|  |  |  |
| --- | --- | --- |
| *HotelNo* | *HotelName* | *City* |
| 001 | Hilton | Seattle |
| 002 | Marriot | Honolulu |
| 003 | Best Western | Los Angeles |
| 004 | Super 8 | Portland |

## Room

|  |  |  |  |
| --- | --- | --- | --- |
| ***RoomNo*** | ***HotelNo*** | ***Type*** | ***Price*** |
| 100 | 001 | Suite | $300 |
| 200 | 001 | Deluxe | $250 |
| 300 | 001 | Standard | $200 |
| 100 | 002 | Ocean view | $200 |
| 200 | 002 | Standard | $150 |
| 100 | 003 | Deluxe | $120 |
| 200 | 003 | Standard | $100 |
| 100 | 004 | Standard | $ 80 |

## Booking

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***GuestNo*** | ***HotelNo*** | ***DateFrom*** | ***DateTo*** | ***RoomNo*** |
| 001 | 004 | 10-Aug-2012 | 12-Aug-2012 | 100 |
| 004 | 001 | 02-Nov-2012 | 24-Nov-2012 | 100 |
| 003 | 002 | 12-May-2013 | 16-May-2013 | 200 |
| 002 | 003 | 29-Mar-2015 | 13-Apr-2015 | 200 |
| 001 | 005 | 23-Mar-2015 | 29-Mar-2015 | 100 |
| 002 | 001 | 31-Dec-2014 | 02-Jun-2015 | 300 |

## Guest

|  |  |  |
| --- | --- | --- |
| ***GuestNo*** | ***GuestName*** | ***GuestAddress*** |
| 001 | Min Chen | Null |
| 002 | Julie Tahajian | Pasadena, California |
| 003 | Farha Banerjee | Dallas, Texas |
| 004 | Ichiro Suzuki | New York, New York |

## Definitions:

*Superkey* – An attribute, or set of attributes, that uniquely identifies a tuple within a relation.

*Candidate key –* A superkey such that no proper subset is a superkey within the relation.

*Primary key* – The candidate key selected to identify tuples uniquely within the relation.

*Foreign key* – An attribute, or set of attributes, within one relation that matches the candidate key

of some (possibly the same) relation.

*Entity integrity –* In a base relation, no attribute of a primary key can be null.

*Referential integrity –* If a foreign key exists in a relation, either the foreign key value must

match a candidate key value of some tuple in its home relation or the foreign key value must be wholly null.

*Enterprise constraints* – Additional rules specified by the users or administrators of a database.