# Group Practice – Prep Test 1

1. HW 2 Q4, Q5, Q1
2. Answer the following questions *using the relations on the following page*.
3. What are the candidate keys for each relation?

Hotel: HotelNo

Room: RoomNo + HotelNo

Booking: HotelNo + RoomNo + DateFrom / HotelNo + RoomNo + DateTo

Guest: GuestNo

1. What foreign keys exist in these relations?

Room: HotelNo refers to HotelNo in Hotel

Booking: RoomNo, HotelNo refer in Room not Hotel, GuestNo refers in Guest

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

Yes, because every primary key has a valid value not null (the entity integrity constraint)

No, every foreign key does not match every candidate key in a relation (the referential integrity constraint). For example, there is no HotelNo = 5 in the Hotel relation, but there is HotelNo = 5 in the Booking relation.

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

DateFrom should be less than DateTo

OceanView should be 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.

Select GuestName, HotelName, Price from Guest, Hotel, Room

Group by GuestName

**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.