Sam's Guest House Database and Interface

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Class: Intro to Database

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Contents

Application Programming Interface

1. List (and describe) the information that your database is required to hold:

   The database holds four tables guests, locations, rooms, bookings.

   1. Guests: Holds guest information such as name (first and second), address, email, password, comments and guest id.

   2. Locations: Holds the guest house locations in each city. There are two locations in 5 major cities. Every guest house has unique id (Guest House ID).

   3. Rooms: Each guesthouse has four rooms (Room Number:101-104) and the rooms table holds information on each room such as number of beds, cost per day and extras.

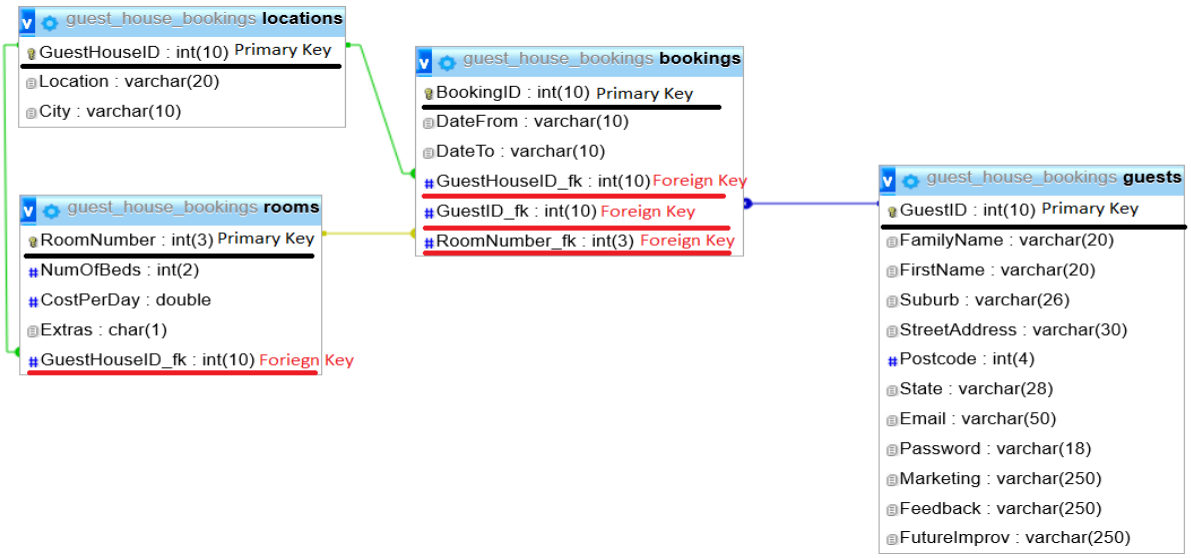
   4. Bookings: This table holds how long (Date From and Date To) a guest is going to stay in one of the rooms at a particular location. Each time a booking is made the booking is given a unique Booking ID.

2. List the functionality of the database you will create (how will a user interact with your database?):

   A webpage is used access the database. To add a new guest, the user must provide their family name and first name, suburb, street address, postcode, state, email, password(optional) and a comment on how they found out about the guesthouses. After details have been added the user is given their unique Guest ID and transported to the bookings page to make a reservation. Here they input their Guest ID and select what dates, which location and room number they want to book. After the booking user a moved to guest login page where the can view or delete bookings and give feedback on what they liked and what needs improving.

Other areas of the website are for managers of the guesthouses. On their page they can view all guest's details or just names and emails by location, calculate cost of client's stay, update room details, list which rooms at which locations are being booked and also delete bookings.

3. Design an entity-relationship (ER) diagram to model the relationships between the entities and attributes the database will hold:



4. Explain the primary and foreign keys to link the entities:

    1. Locations guest house has many rooms so the primary key GuestHouseID is linked to the foreign key (GuestHouesID_fk) in rooms. Also since locations can be booked multiple times there is a constraint between locations primary key and the foreign key (GuestHouesID_fk) in bookings.

    2. Rooms can also be booked multiple times so the primary key for rooms (RoomNumber) is joined to the foreign key in bookings.

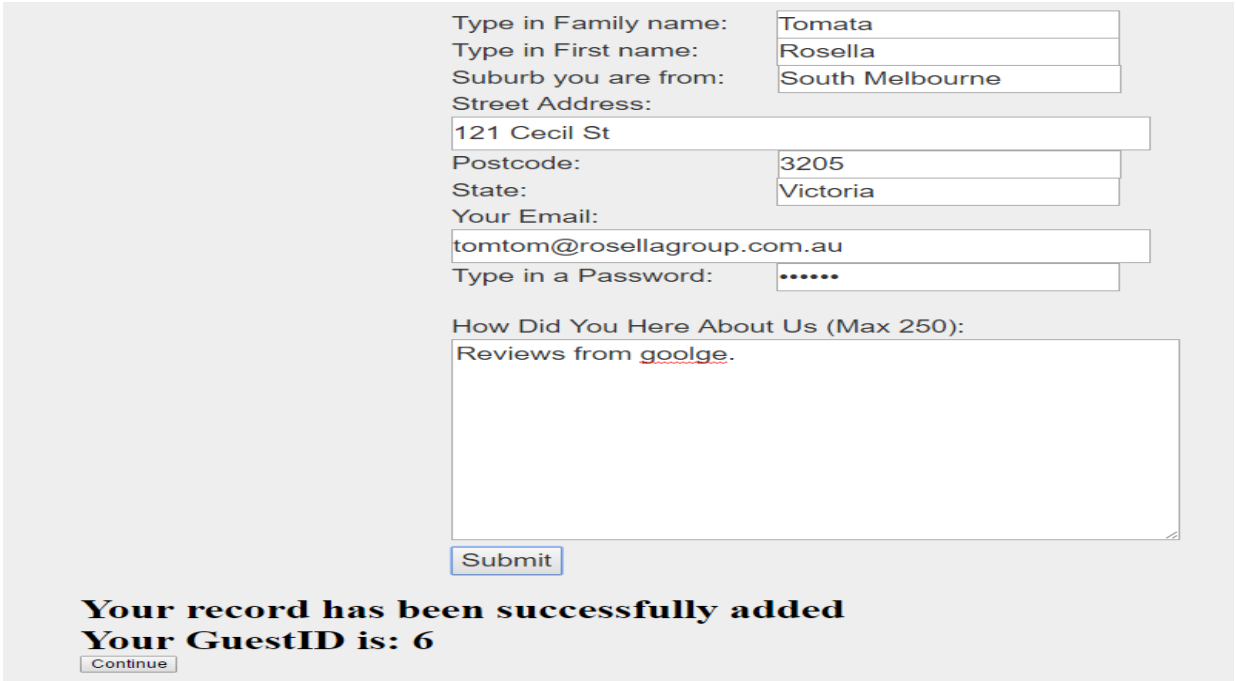
    3. Since guests can book multiple reservations the guests table and bookings table are joined by GuestID (primary key for guests) and GuestID_fk (foreign key in bookings).

5. Develop a Data Dictionary (ref Appendix A).

Testing

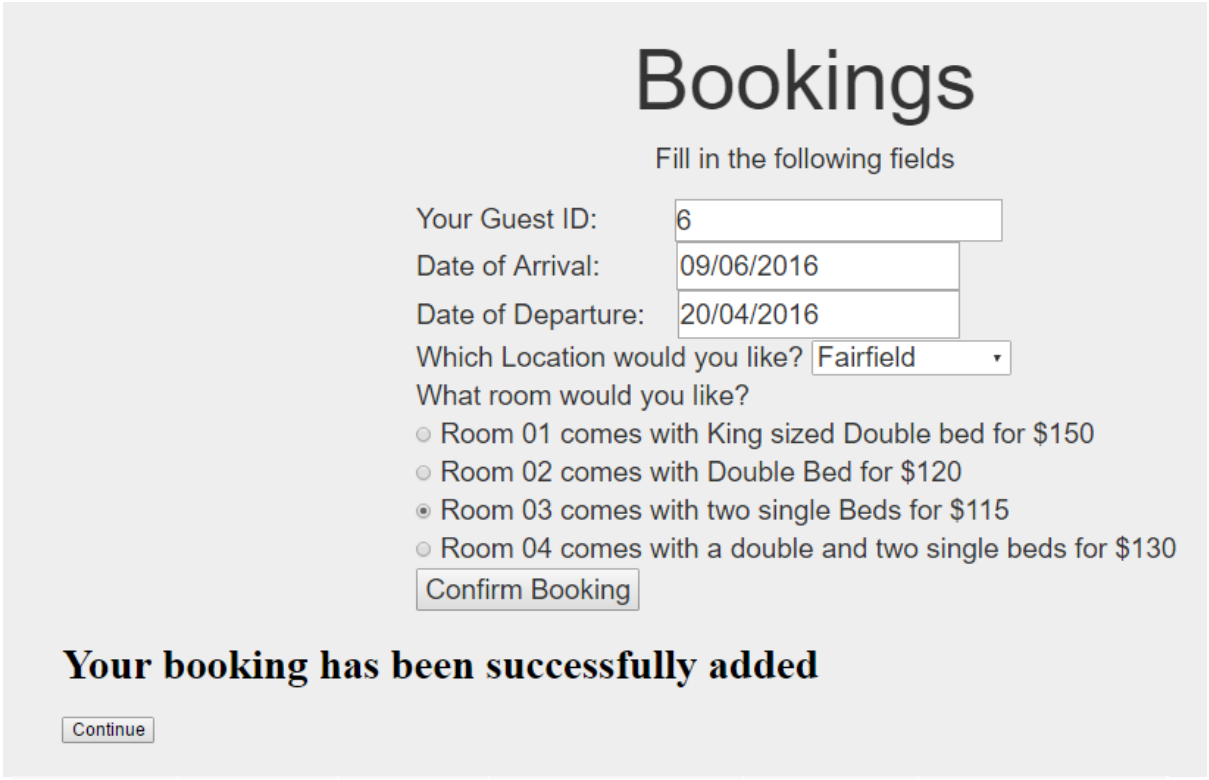
6. Describe how you are going to test your application (i.e. list all test scenarios):
   a) Adding guest details to the data base via the web interface and receiving a GuestID.
   b) Making a booking.
   c) Deleting a booking.
   d) Entering in feedback.
   e) Listing all guests by suburb they live in.
   f) Listing all comments made by every guest.
   g) List guest names and emails by guest house location.
   h) List bookings, rooms and locations.
   i) Delete guest booking.
   j) Show the total cost for guests stay.
   k) Update room details.
7. Provide results for each test from the previous question (screen shots).

a)



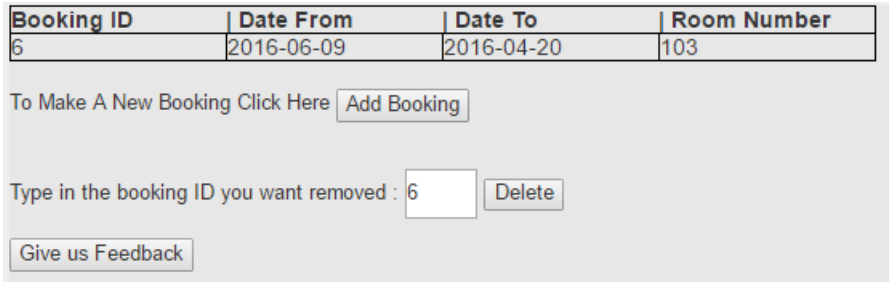
GuestID	FamilyName	FirstName	Suburb	StreetAddress	Postcode	State	Email	Password	Marketing	Feedback	FutureImprov
6	Tomata	Rosella	South Melbourne	121 Cecil St	3205	Victoria	tomtom@rosellagroup.com.au	tomtom	Reviews from goolge.	*NULL*	*NULL*

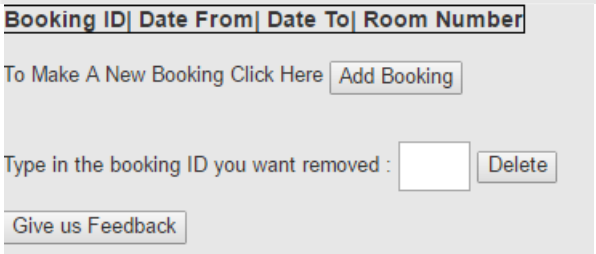
b)



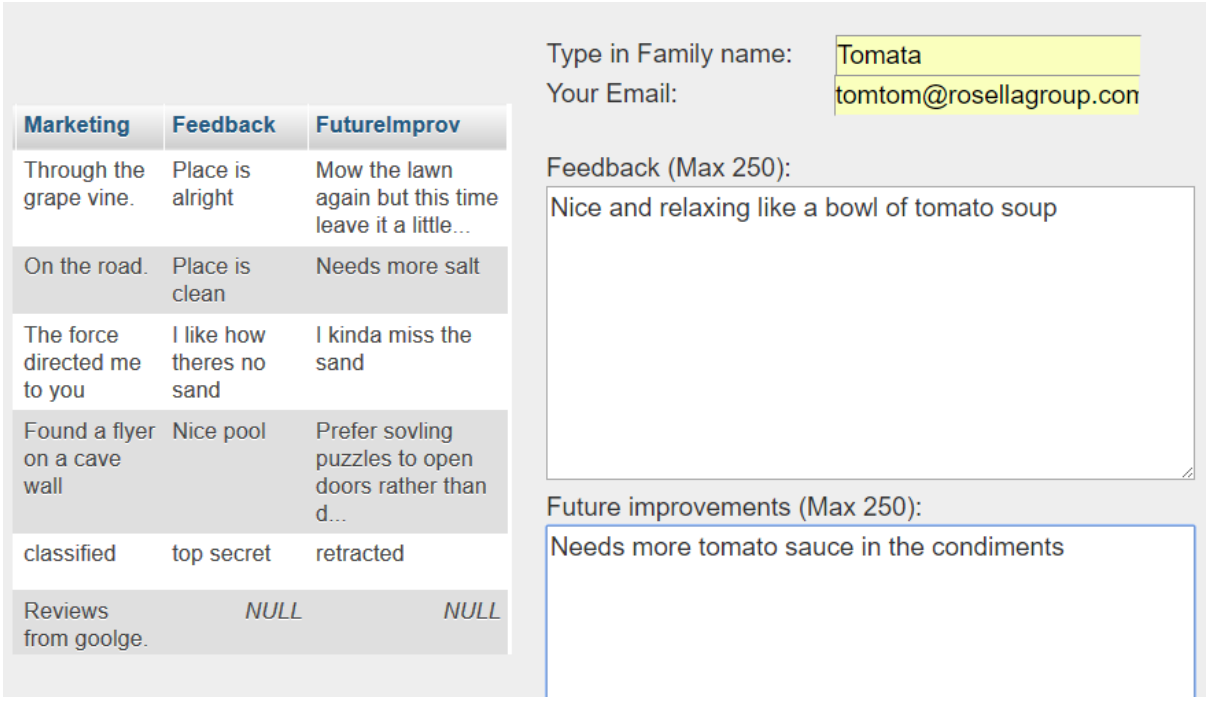
BookingID	DateFrom	DateTo	GuestHouseID_fk	GuestID_fk	RoomNumber_fk
6	2016-06-09	2016-04-20	6	6	103

c)





d)



Marketing	Feedback	FutureImprov
Through the grape vine.	Place is alright	Mow the lawn again but this time leave it a little...
On the road.	Place is clean	Needs more salt
The force directed me to you	I like how theres no sand	I kinda miss the sand
Found a flyer on a cave wall	Nice pool	Prefer sovling puzzles to open doors rather than d...
classified	top secret	retracted
Reviews from goolge.	*NULL*	*NULL*

Type in Family name: Tomata

Your Email: tomtom@rosellagroup.com

Feedback (Max 250):

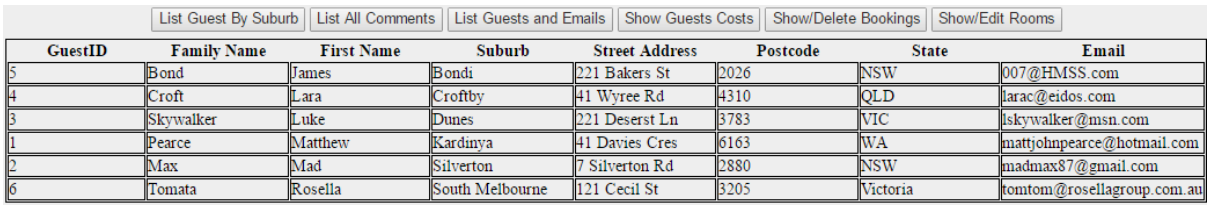
Nice and relaxing like a bowl of tomato soup

Future improvements (Max 250):

Needs more tomato sauce in the condiments

Marketing	Feedback	FutureImprov
Through the grape vine.	Place is alright	Mow the lawn again but this time leave it a little...
On the road.	Place is clean	Needs more salt
The force directed me to you	I like how theres no sand	I kinda miss the sand
Found a flyer on a cave wall	Nice pool	Prefer sovling puzzles to open doors rather than d...
classified	top secret	retracted
Reviews from goolge.	Nice and relaxing like a bowl of tomato soup	Needs more tomato sauce in the condiments

e)



List Guest By Suburb | List All Comments | List Guests and Emails | Show Guests Costs | Show/Delete Bookings | Show/Edit Rooms

GuestID	Family Name	First Name	Suburb	Street Address	Postcode	State	Email
5	Bond	James	Bondi	221 Bakers St	2026	NSW	007@HMSS.com
4	Croft	Lara	Croftby	41 Wyree Rd	4310	QLD	larac@eidos.com
3	Skywalker	Luke	Dunes	221 Deserst Ln	3783	VIC	lskywalker@msn.com
1	Pearce	Matthew	Kardinya	41 Davies Cres	6163	WA	mattjohnpearce@hotmail.com
2	Max	Mad	Silverton	7 Silverton Rd	2880	NSW	madmax87@gmail.com
6	Tomata	Rosella	South Melbourne	121 Cecil St	3205	Victoria	tomtom@rosellagroup.com.au

f)

List Guest By Suburb | List All Comments | List Gu

Marketing	Feed Back	Future Improvement
Through the grape vine.	Place is alright	Mow the lawn again but this time leave it a little longer
On the road.	Place is clean	Needs more salt
The force directed me to you	I like how theres no sand	I kinda miss the sand
Found a flyer on a cave wall	Nice pool	Prefer sovling puzzles to open doors rather than door knobs
classified	top secret	retracted
Reviews from goolge.	Nice and relaxing like a bowl of tomato soup	Needs more tomato sauce in the condiments

g)

List Guest By Suburb | List All Comments | List Guests and Emails | Show Guests Costs | Show/Delete

GuestID	Family Name	First Name	Email	Suburb
4	Croft	Lara	larac@eidos.com	Edithvale
1	Pearce	Matthew	mattjohnpearce@hotmail.com	Marrickville
1	Pearce	Matthew	mattjohnpearce@hotmail.com	Marrickville
2	Max	Mad	madmax87@gmail.com	Murdoch
3	Skywalker	Luke	lskywalker@msn.com	Stuart Park

h)

Delete Booking ID: 5 Remove

BookingID	Family Name	Date From	Date To	Location	Room Number	GuestID
1	Pearce	2016-06-06	2016-06-10	Marrickville	101	1
2	Max	2016-05-17	2016-05-25	Murdoch	102	2
3	Skywalker	2016-05-12	2016-06-12	Stuart Park	103	3
4	Croft	2016-08-01	2016-08-16	Edithvale	101	4
5	Pearce	2016-07-22	2016-07-24	Marrickville	104	1

i)

Delete Booking ID: Remove

BookingID	Family Name	Date From	Date To	Location	Room Number	GuestID
1	Pearce	2016-06-06	2016-06-10	Marrickville	101	1
2	Max	2016-05-17	2016-05-25	Murdoch	102	2
3	Skywalker	2016-05-12	2016-06-12	Stuart Park	103	3
4	Croft	2016-08-01	2016-08-16	Edithvale	101	4

j)

List Guest By Suburb | List All Comments | List Guests and Emails | Show Guests Costs | Show/Delete Bookings | Show/Edit Rooms

Family Name	Booking ID	Date To	Date From	Total Days	Room Number	Cost of Room	Payment Due
Pearce	1	2016-06-10	2016-06-06	4	101	150	600
Max	2	2016-05-25	2016-05-17	8	102	120	960
Skywalker	3	2016-06-12	2016-05-12	31	103	115	3565
Croft	4	2016-08-16	2016-08-01	15	101	150	2250

k)

Room Number	Number of Beds	Cost Per Day	Extras
101	1	150	y
102	1	120	n
103	2	115	n
104	3	130	y

Which Room would you like to update: 104
Number of Beds: 5
Cost Per Day: 250
Extras: n
Update

Room Number	Number of Beds	Cost Per Day	Extras
101	1	150	y
102	1	120	n
103	2	115	n
104	5	250	n

Which Room would you like to update:
Number of Beds:
Cost Per Day:
Extras:
Update

Security

8. Describe what you need to do to the PHP environment to prevent error messages displaying to the public:

   Try and catch statement is used to find problems with the code and display what the cause might be. To stop errors from showing up when the website is in use, open php.ini and find “display_errors = on” and change on to off.

9. Describe changes you need to make to your PHP program to minimize potential database attacks.

   My interface is pretty secure because no one can do a SQL injection because input is limited to what I have allowed. Passwords have been added to stop other people from deleting users booking details. Managers page is also password protected.

Recommendations

10. All fields in your database must have appropriately-defined data types. Explain how your application handles data entry errors when one of the constraints is violated e.g. a digits are entered into a first name field.

    Most fields the user can input data into use the VARCHAR data type meaning that anything they type in will be entered into the database. The exception is postcode and to some degree dates. Postcode is an integer (INT) data type which means users should put in numbers and if they don't a value of 0 is inputted into the database instead. For dates they are a VARCHAR but the browser implements a calendar setting that allows a user to pick a date of the calendar instead of typing one in (NOTE: Does not work in all browsers). If a manger uses a letter instead of a BookingID number to delete a booking nothing will happen.

11. Explain how your application behaves when it cannot connect to the database (note: your application MUST behave gracefully in such situations).

    If the user runs a statement that uses the SQL database but the server is not running a message is displayed on the browser, in an iframe so that the user can navigate somewhere else and is not stuck. The message states that no connection can be made because the target machine cannot be located.

12. Provide an explanation of alternative strategies for managing disconnected data.

    Always back up data, using SQL data can be exported in a number of formats, and the database itself can also be exported. The backup data can be used to for backup servers, if the main server goes down a backup can be used to until the main server is back up running.

Appendix A: Data Dictionary

Data Object Name	*Name*	*Attribute size*	*Data Type*	*Description*
Database Name	guest_house_bookings	n/a	n/a	The main database used to store all data
Table Names	Guests	n/a	n/a	Secondary table that holds guests details
	Locations	n/a	n/a	Secondary table that holds guesthouse locations
	Rooms	n/a	n/a	Secondary table that holds guesthouse locations
	Bookings	n/a	n/a	Secondary table that holds guests bookings
Field Names	GuestID	10	Autonumber	The primary key for guest table
	FamilyName	20	VARCHAR	The guests second name
	FirstName	20	VARCHAR	The guests first name
	Suburb	26	VARCHAR	The suburb the guest lives in
	StreetAddress	30	VARCHAR	The street the guest lives in
	Postcode	4	INT	The postcode of the suburb
	State	28	VARCHAR	The state the guest lives in
	Email	50	VARCHAR	Guests email
	Password	19	VARCHAR	Guest password(optional)
	Marketing	250	VARCHAR	Comment used to ask the guest how they guest found the website
	Feedback	250	VARCHAR	Comment used to ask the guest how they guest found the accommodation
	FutureImprov	250	VARCHAR	Comment on how the guesthouse can be improved for the future

Data Object Name	Name	Attribute size	Data Type	Description
Field Names	GuestHouseID	10	Autonumber	The primary key locations table
	Location	20	VARCHAR	The suburb the guesthouse is located
	City	10	VARCHAR	The city the suburb is located in
	RoomNumber	3	INT	The primary key for the rooms table, also the number for each room in any of the guesthouses
	NumOfBeds	INT	2	How many beds are in a room
	Extras	CHAR	1	States if the room has extra or not
	GuestHouseID_fk	10	INT	The foreign key that links to locations table
	BookingID	10	Autonumber	The primary key for the bookings table
	DateFrom	10	VARCHAR	The date the guest will arrive
	DateTo	10	VARCHAR	The date the guest will leave
	GuestHouseID_fk	10	INT	The foreign key that links to locations table
	GuestID_fk	10	INT	The foreign key that links to guests table
	RoomNumber_fk	3	INT	The foreign key that links to rooms table