Database Design and Implementation for *Hotel Management System*

Sachin Hansda(111601000)
Akash Cheerla(111601029)
Surendra Baskey(111601027)

March 2019

Contents

1 Contributions

1.1 Contributions of Sachin

Week 1: Requirement specifications and relations between entities
Week 2: Collectively developed schema with other group members, mostly correcting the schemas and sql queries for schema development
Week 3: Added few more entities and their attributes, discussed roles, views and triggers
Week 4: Created web pages
Week 5: Wrote the sql command for views and roles.
Week 6: Wrote a function and procedure
Last week:Finished all the Leftovers

1.2 Contributions of Akash

Week 1:Majorly Created different entities and their attributes
Week 2: Collectively developed schema with the group members
Week 3: Wrote roles, views and triggers with few discussions with other group members
Week 4: Inserted relevant datas in project database and gave few ideas for web page.
Week 5: Normalized some tables in BCNF form and wrote the sql command for Trigger Implementation.
Week 6: Wrote few functions and a procedure
Last week: Final Documentation

1.3 Contributions of Surendra

Week 1:Made ERD
Week 2: Collectively developed schemas with group members, most parts were done by him
Week 3: Extended the ERD, discussed roles, views, triggers
Week 4: Inserted some data in project database and gave few ideas for web pages
Week 5: Normalized some tables in BCNF form and write the sql command

for Trigger Implementation
Week 6: Wrote a function and a procedure
Last week: Finished all the Leftovers

So we all agree with each other that all the contributions mentioned above are true and in some weeks we split our work equally .

2 Introduction

In this project, our Aim was to create a Database of a hotel which would hold records for rooms,customers,employee details and all the necessary details. So this report touches all the required aspects such as Requirements,Entity Relations,Roles,Triggers,Views,Functions,Procedures in the respective order

2.1 Requirements

User Point of View
a) Each Hotel has different kinds of rooms
b) Each room has different facilities
c) Each hotel can have more 1 room of same type
d) Services should be associated with a room type
e) A room should be in a hotel
f) A customer can book any number of rooms at any hotel
g) An employee can work at only hotel
h) Every booking is associated with hotel, room and customer
i) Every booking will have a unique payment
j) Can Cancel the room at any point
k) Can choose the payment method
l) Availability of room

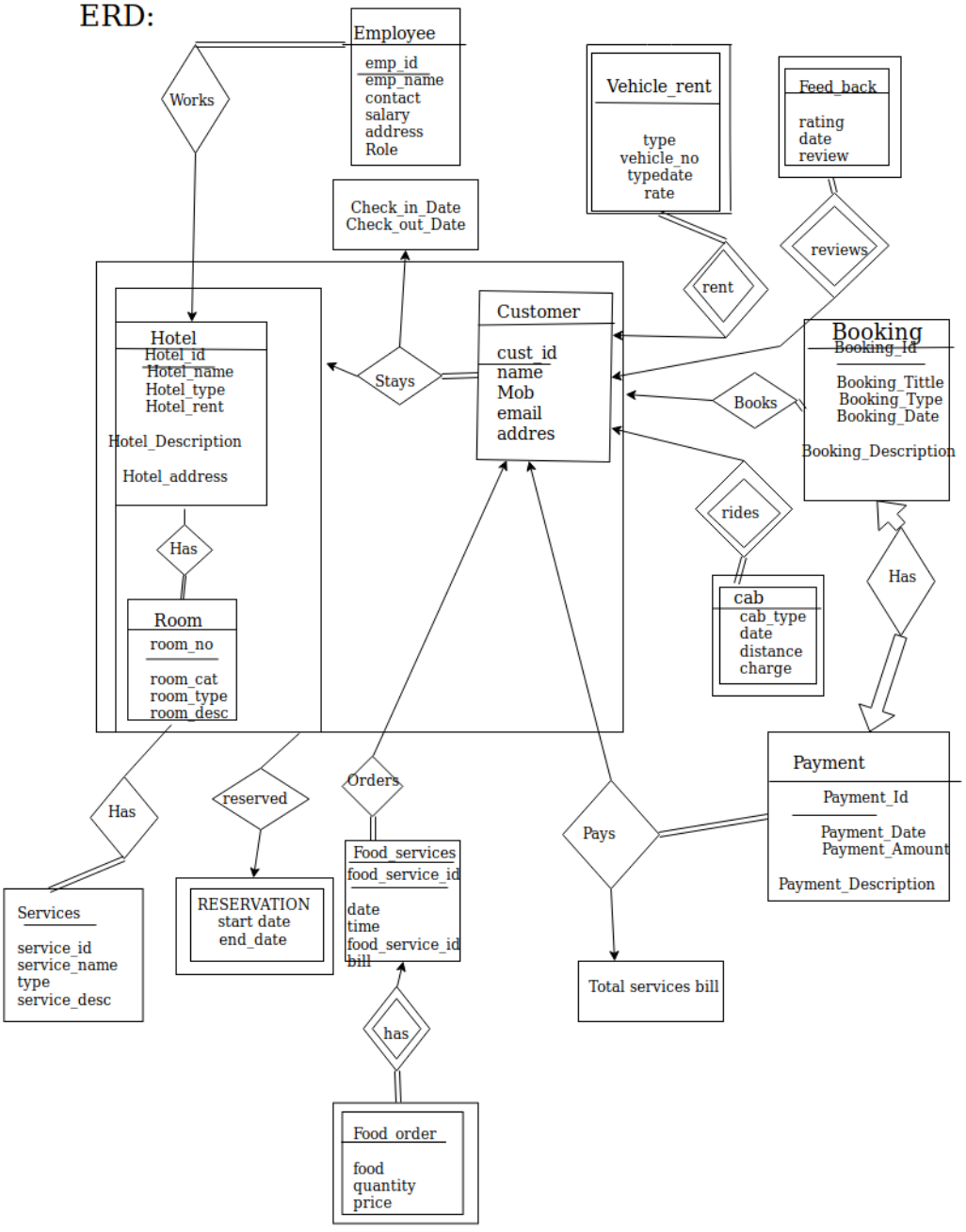
3 Entity Relation Diagram(ED)

Description of Our Database:

a) Each entity (Customers,Services,Booking,Rooms,Hotel,Employee) contains primary and unique keys.
b) The entity Services,Booking has binded with Hotel,Rooms entities with foreign keys.
c) There is one-one and one-many relations between Booking,Payments,Customers, Hotel
d) All the entities Booking,Services,Hotel,Customers are normalized to reduce duplicacy of
records.

In our **ERD** we have used the notions that were taught in the class.Our **ERD** is attached below

ERD:


Employee
emp_id
emp_name
contact
salary
address
Role
Works
Vehicle_rent
type
vehicle_no
typedate
rate
Feed_back
rating
date
review
reviews
rent
Check_in_Date
Check_out_Date
Hotel
Hotel_id
Hotel_name
Hotel_type
Hotel_rent
Hotel_Description
Hotel_address
Stays
Customer
cust_id
name
Mob
email
addres
Booking
Booking_Id
Booking_Tittle
Booking_Type
Booking_Date
Booking_Description
Books
rides
Has
Room
room_no
room_cat
room_type
room_desc
cab
cab_type
date
distance
charge
Has
Has
reserved
Orders
Pays
Payment
Payment_Id
Payment_Date
Payment_Amount
Payment_Description
Services
service_id
service_name
type
service_desc
RESERVATION
start date
end_date
Food_services
food_service_id
date
time
food_service_id
bill
Total services bill
has
Food_order
food
quantity
price

Text

4 Roles,Triggers and Views

4.1 Roles

Customer:
a) multiple users can have the role of Customer
b) They can only book rooms,food and have access of their own history.
c) Can check the availability of rooms and services.
d) Can give ratings and reviews.

Manager:
a) Can have the access to every data that belongs to that hotel they work in.
b) Cannot edit the customers ratings and reviews,

Admins:
a)Akash
b)Sachin
c)Surendra

4.2 Views

a) customer can **view** their booking history
b) customer can **view** availability of rooms
c) Location
d) customer can **view** the list of hotels in a particular city.
e) customer can **view** the facilities available in a hotel
f) customer can **view** the rating of hotels
g) customer can **view** the price of a room in a hotel
h) customer can book the cab or vehicle detail in a hotel
i) customer can **view** the food in the food table
j) customer can **view** the bill table from the database
k) hotel manager can **view** the bill table
l) hotel manager can **view** the rating table
m) hotel manager can **view** room availability in a hotel
n) hotel manager can **view** every details of a customer
o) hotel manager can **view** employee details of hotels

4.3 Triggers

a) **After_checking_out**
When a customer checks out bill should be generated.
b) Trigger for allocating room to customer after booking
c) Trigger for deallote room
d) Trigger for non-availability of room
e) when ever a customer orders food or uses a cab or vehicle - bill table will be updated for that customer
f) when a customer leaves the hotel then that room will be labeled as unoccupied
g) when a customer cancels a reservation then reserved room will be unoccupied

5 Checking Functional Dependecies

So in this section we described our schema and also mentioned that it is **normalized**(BCNF)

a) **hotel**(hotel_id,hotel_name,hotel_desc,hotel_city,hotel_address)
hotel_id – ***hotel is the relevant dependency and hence it is in BCNF***

b) **services**(service_id,service_name,service_desc,service_type)
(service_id,hotel_id) – ***services is the relevant dependencies as it can derive all other attributes Hence it is in BCNF.***

c) **room**(room_no,hotel_id,service_id,room_type,room_rent,room_desc,occupied)
(hotel_id,room_no) – ***room is the relevant dependencies Hence it is in BCNF.***

d) **customer** (customer_id,customer_name,customer_mobile,customer_email,customer_addr
customer_id can derive all the other attributes, Hence it is in BCNF.

e) **booking**(booking_id,hotel_id,room_no,customer_id,booking_type,booking_date)
booking_id can derive all the other attributes, Hence it is in BCNF.

f) **payment**(payment_id,booking_id,payment_date,payment_amount,payment_desc)
payment_id - ¿ ***payment the relevant dependency and hence it is in BCNF***

g) **employee**(emp_id,hotel_id,emp_contact,emp_name,emp_salary,emp_address,emp_role)
emp_id can derive all the other attributes, Hence it is in BCNF.

h) **stays**(customer_id,check_in,check_id,room_no)
(customer_id,check_in,check_id,room_no) is primary key.So it is in BCNF form

i) **food_services**(customer_id,service_date,service_time,food_service_id,price)
food_service_id can derive all other attributes.Hence it is in BCNF Form.

j) **food_order**(food_service_id,food,quantity,price)
food_service_id can derive all other attributes.Hence it is in BCNF form

k) **vehicle**(customer_id,date_rent,time_of_rent,vehicle_type,vehicle_num,charge)
(customer_id,date_of_rent,time_of_rent) can derive other attributes.Hence it is in BCNF form

l) **cab**(customer_id,cab_type,booking_date,charge,distance)
(customer_id,booking_date) can derive all other attributes.Hence it is in BCNF form

m) **bill**(customer_id,service_type,service,price)
(customer_id,service_type) can derives all other attributes.Hence it is in BCNF form

n) **feed_back**(customer_id,feed_back_date,hotel_id,rating,review)
(customer_id,feed_back_date) derives other attributes.Hence it is in BCNF form

6 Functions and Procedures

So here are the list of all the Functions and Procedures we have used in this Project

6.1 Functions

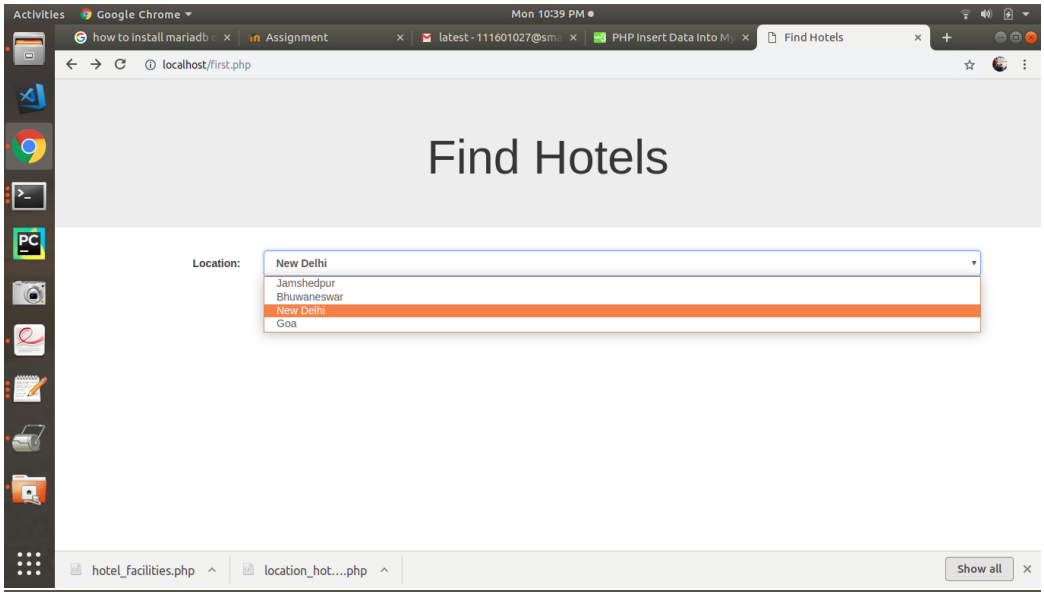
a) Function to Count number of employees working in a hotel
b) Function to Count number of hotels in a particular city
c) Function for calculating average rating of a hotel
d) Function to count the no. of available rooms in a given hotel

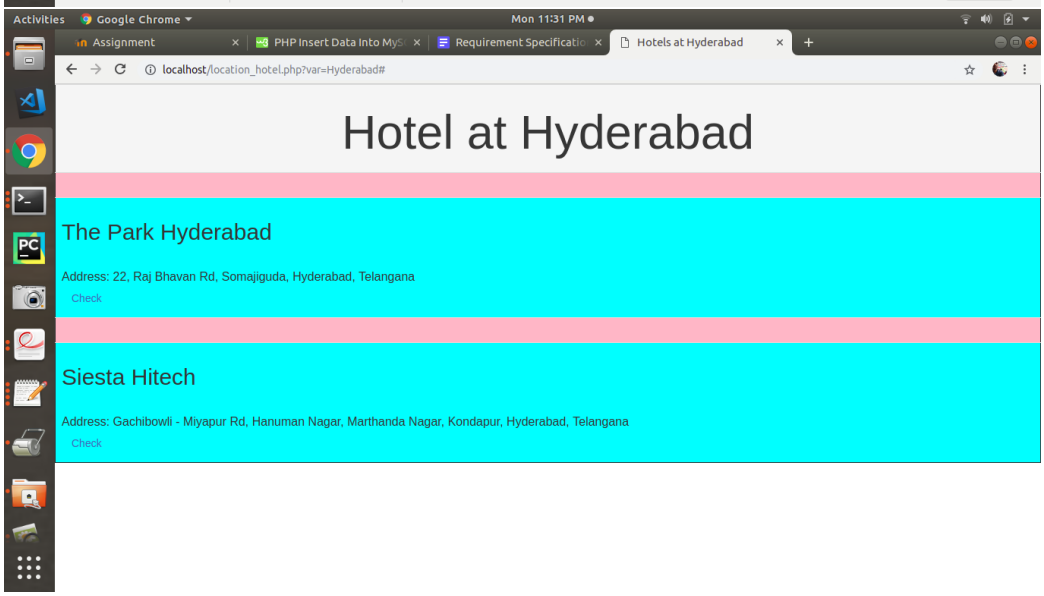
6.2 Procedures

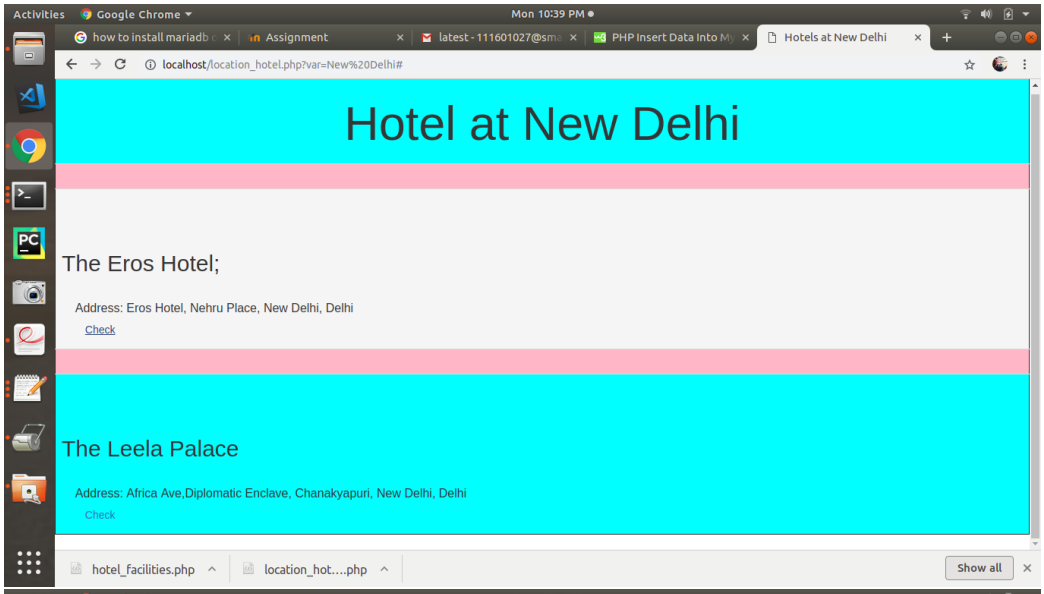
a) Procedure to find hotels which has rooms available within a given budget in a city.
b) Procedure to select the hotels based on rating values
c) Stored procedure that selects hotels from a particular City from the "ho-

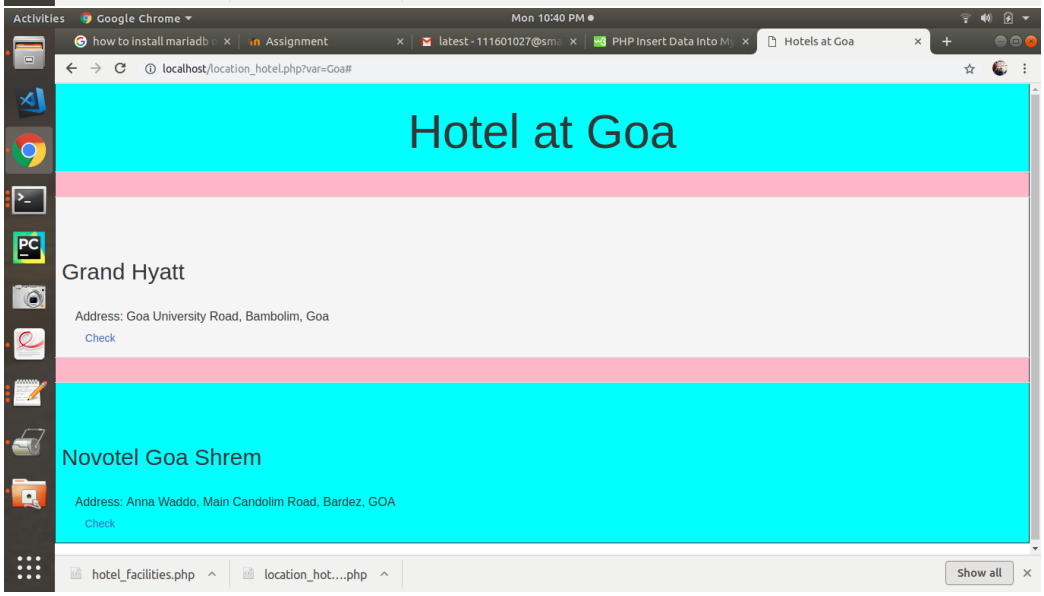
tel" table:
d) Procedure will accept a given interval of time, room no and hotel id, and then it will check whether it overlapping with any interval of time for which the room of the particular hotel has been reserved
e) Procedure to reserve a room for a given interval of time in future, but before reserving the room it calls a function to check whether the room is reserved for the given interval of time

7 Few Screenshots of the Website






Activities
Google Chrome
Mon 10:39 PM
how to install mariadb
Assignment
latest - 111601027@sm
PHP Insert Data Into My
Hotels at New Delhi
localhost/location_hotel.php?var=New%20Delhi#
Hotel at New Delhi
The Eros Hotel;
Address: Eros Hotel, Nehru Place, New Delhi, Delhi
Check
The Leela Palace
Address: Africa Ave,Diplomatic Enclave, Chanakyapuri, New Delhi, Delhi
Check
hotel_facilities.php
location_hot....php
Show all


Activities
Google Chrome
Mon 10:40 PM
how to install mariadb
Assignment
latest - 111601027@sm
PHP Insert Data Into My
Hotels at Goa
localhost/location_hotel.php?var=Goa#
Hotel at Goa
Grand Hyatt
Address: Goa University Road, Bambolim, Goa
Check
Novotel Goa Shrem
Address: Anna Waddo, Main Candolim Road, Bardez, GOA
Check
hotel_facilities.php
location_hot....php
Show all


localhost/hotel_facilities.php?var=SH101#
Siesta Hitech
Rooms
No. of available rooms = 2
BOOK
Services
Laundry
Massage
Games
Wifi
Pool Bar