Submitted To Professor Yun Huang

Hire2Use

Project Design Report

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Section II: Introduction to the project

This application is associated with the service industry. The concept of this application is to provide household services with minimal effort required from client side. It provides a good platform for the hard-working class to earn better wages and get more clients. Additionally, clients are pleased to find a database application which provides them all they need at one place. From, the type of worker (plumber, cleaner, electrician) to their hourly wages and multiple attributes. This database application is simple but presents an innovative idea.

So How does this application work?

- There are two main entities to start with. This application acts as a mediator for Customers and Workers.
- First, User creates their login in order to further view the provided services.
- Workers also have their own login to check their schedules or their appointments.
- Once a User logs in, there is a database of Worker Class.
- The User checks the workers work type (plumber, electrician), the workers hourly wage and various other attributes to select a worker for hire.
- Upon the selection Customer can book the worker in their Available Timeslot.
- This will notify the worker that they have been booked and it will help them see the information of client upon booking.
- Additionally, that Timeslot of that worker will not be booked by anyone.
- Upon completion of the task, it will be updated in the Workdone entity. Allowing to keep track of workers as well as client popularity.
- Also, the client will have access to the workers Review Rating. Depending upon how worker performed according to the client, they will provide their suitable review.

Section III: **Entity and Attribute table**

Customer Table(Entity)

Customer_ID	Primary Key	Unique identifier for each customer.
First_Name	Attribute	
Last_Name	Attribute	
Phone_Number	Required Attribute	
Gender	Attribute	
Age	Attribute	

Worker (Entity)

Worker_ID	Primary Key	Unique identifier for each worker.
Worker_Type	Required Attribute	This identifies what work speciality the worker has. For example, plumber, electrician, etc.
First_Name	Attribute	
Last_Name	Attribute	
Gender		
Age		
Review_Rating	Required Attribute	This attribute takes the average of all reviews given by customer for that worker.
Worker_Hourly_Rate	Required Attribute	This gives us the exact rate charged by worked for one hour.
Phone_Number	Attribute	
Time_Slot_Available	Required Attribute	This provides us all the time slot available for the worker.

House(Entity)

Customer_ID	Part of Composite Primary key, Foreign key	
House_Registration_Number	Part of Composite Primary key	This is a unique identifier which is provided to each new house registration
House_Number	Required Attribute	
Street_Name	Required Attribute	
City	Required Attribute	
Zipcode	Attribute	

Review (Associate Entity)

ReviewID	Primary Key	Unique identifier for each review given by customer to worker
Worker_ID	Foreign Key	This is the primary key in Worker Table and allows worker to get review rating from their customers.
Customer_ID	Foreign Key	The primary key of Customer table stores review rating given by a specific customer for a specific worker.
Review_Rating	Required Attribute	This is a rating scale from 1 to 5 that is given by customer on the basis of worker performance

Workdone(Entity)

Worker_ID	Primary key, Foreign key	Unique identifier for each worker. It stores the previous work done by each Worker.
Date	Required Attribute	The date on which task was performed
TimeSlotBooked	Required Attribute	This attribute informs which slot of that worker was booked
Work_Description	Attribute	This attribute describes what task was performed

Booking(Associative Entity)

Booking_ID	Primary Key	Unique identifier for each booking made by a customer.
Worker_ID	Foreign Key	
Customer_ID	Foreign Key	
Time_Slot_ID	Foreign Key	Unique identifier for Timeslots of all worker
Time_Slot_Booked	Required Attribute	This is a value from TimeSlots for each worker which tell what customer has booked.
Booking_Total	Required Attribute	It is the total amount charged.

TimeSlot(Entity)

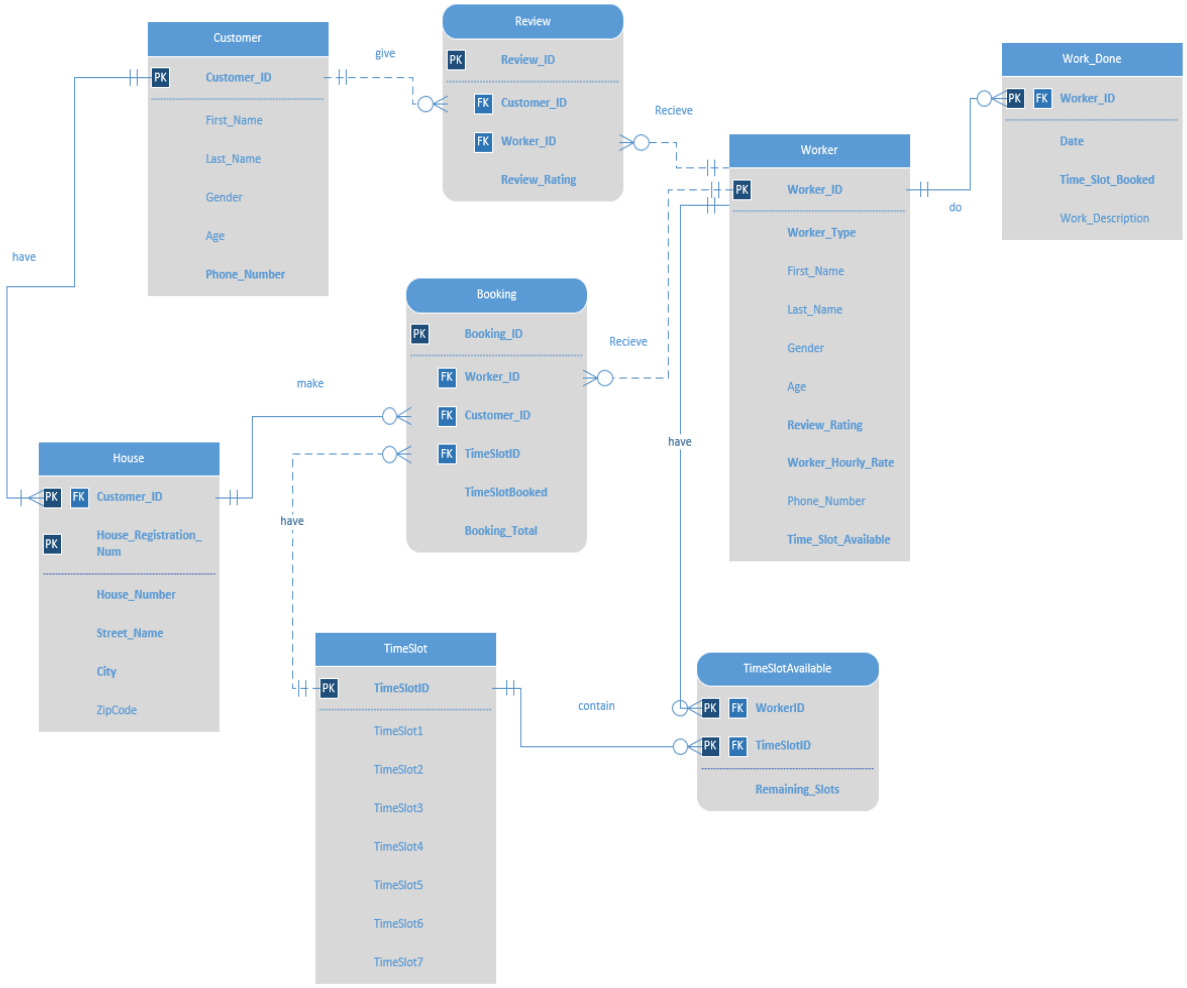
TimeSlotID	Primary Key	This is a unique identifier which stores the designated TimeSlots for each worker
TimeSlot1	Attribute	They are one-hour time slots. It is not essential that each worker may have all the time slots.
TimeSlot2	Attribute	
TimeSlot3	Attribute	
TimeSlot4	Attribute	
TimeSlot5	Attribute	
TimeSlot6	Attribute	
TimeSlot7	Attribute	

TimeSlotAvailable(Associative Entity)

WorkerID	Primary Key, Foreign Key	This will connect the TimeSlot database to Worker and will uniquely allow each worker to have their timeslots.
TimeSlotID	Primary Key, Foreign Key	This will display the TimeSlots for each worker and connect the TimeSlot table to Worker Table through associative entity.
Remaining_Slots	Required Attribute	The Remaining Slots are all the slots which have not been booked so far. Thus helping us

		find workers Available slots.

Section IV: Relational Data Model



Section V: Business Rules and Assumptions

Assumptions

- There is only one customer allowed from each house. Hence each house will have a one and only one customer.
- Customer must provide only one single phone number. Hence an atomic attribute.
- Review Rating is a required attribute and each customer must provide their review.
- Review ID is the primary key because CustomerID and WorkerID may be repeated if the same customer hires the same worker.
- Booking ID is the primary key because CustomerID and WorkerID may be repeated if the same customer hires the same worker
- Date and Time_Slot_Booked are required attributes to keep track of records of work done.
- Worker must have a Review_Rating attribute so customers can easily see how the worker is. It is the average of all ratings given by the customer for that worker.
- Time_Slot_Available and Worker_Type are required attributes to allow customer to select their workers. Worker_Type is an atomic attribute as each worker has one designation (either plumber, carpenter, electrician, etc.)
- Work done is a separate table to allow workers to see their previous work records. Also help organization for some useful anaylsis.
- House attributes except for Zipcode are required for worker to reach the place where work needs to be done.
- Every customer is allowed only one TimeSlot per booking.
- Although the TimeSlot Table has multiple TimeSlot from 1to 7. Each worker may have varying slots depending on the hours they want to work. Also, no more than 7 slots are allowed by the organization.
- Bill_total is a required attribute as it will provide the customer of their total charges while booking

Business Rules

- A customer must have one or more than one houses. Each house must belong to one and only one customer.
- A house may have had multiple workers. Each worker may have worked in multiple houses.
- A house may have zero or more bookings. Each booking must belong to one and only one house.
- A worker may have zero or more bookings. Each booking must belong o one and only one worker.
- A customer can hire one or more than one worker. A worker may be hired by one or more worker.
- A customer may hire multiple workers. A worker may be hired by multiple customers.
- A customer may give zero, one or more reviews. Each review must be given by a single customer.
- A worker may receive multiple reviews. Each review must be given to a single worker.

- A worker may have multiple work done. Each work done must belong to one and only one worker.
- A TimeSlot may belong to zero, one or more bookings. Each booking must have one and only one TimeSlot.
- A worker may have multiple TimeSlots. Each TimeSlot may belong to multiple workers. (Two workers may have 9:00-11:00 TimeSlot)
- A TimeSlot may have zero or more TimeSlotAvailable. Each TimeSlotAvailable must belong to one and only TimeSlot.
- A worker may have multiple TimeSlotAvailable. Each TimeSlotAvailable must belong to one and only one worker.

Section VI: Data Questions

Who are the users of this database application?
Customers, Workers, Admin

Who are the main users?
The Customers and Workers are authenticated by a login mechanism.This verifies whether the user is a Customer or a Worker. Each of these users have different access rights from the database.

What does Admin do?
Admin will be able to oversee the whole database to make sure that everything is working as designated. They will have the ability to query through every table and additionally alter things which might be out of hand. This right is given to the admin to make sure that the database works properly without any unnecessary interventions.

What Customers can do through database?
A Customer is able to search through the database to check all the workers. They will be able to see all the attributes of the workers. These attributes will allow them to weigh the pros and cons of workers and then select one worker according to them. The attributes such as HourlyRate, Worker_Type, Review_Rating are helpful attributes to select a worker. Further Customers can make bookings and a table for booking stores all the essential info. Additionally, the Review_Rating attribute is storing values given by Customer directly. Whatever the Review given by a Customer to a Worker will be averaged into its current Review_Rating.

What Workers can do?
A worker on the other hand has only access to their profile. i.e. they are able to change their hourly rate, worker_type and additional things such as TimeSlots. But, they won't be able to access the Customer profile. Only upon booking they will be notified by the organization to go to a specific address and perform the given task. The workers also have access to check one more table i.e. Work_Done table which tells them their recent task performed. They will be able to track their performances.

Is the information in the database sufficient?

The Database contains all the required information for the successful working of the organization. All the entities have all the essential information that might be required. Additionally, tables such as Work_Done are provided to check through progress of a Worker. Customer interaction is also provided by being able to give a review to a Worker. House is another essential entity which is connected to the customer. This database has all information to perform the organizational task i.e. to provide utility services to household. Additionally, the organization can also use the Work_Done table to analyze which workers are the most active to even filter out potential candidates that the organization needs.