

# 67262: Final - Team: S2-14

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## **Business Selection:**

**What business you plan to model and a short write-up of what they do (e.g., their mission statement)**

Our Business Selection: OpenTable

OpenTable's missions range "from helping restaurants grow and run their businesses, to enabling diners to discover and book the perfect table every time they dine, our story is one of connection — among diners, restaurants, and their communities".

From our understanding of this mission statement OpenTable's goal is to help small restaurants and businesses grow and make it easier and more convenient to book tables as well as find places to eat every time a user is trying to go out to eat.

**What is the value proposition of your business?**

Our business's value lies in the information platform we construct so that customers have easier access to restaurants and reservations, and that food services can better attract customers. Although we do not directly generate values (e.g., we do not make food or write reviews for the restaurants), we provide values by organizing an information-dense system that integrates restaurant reservations, food pickup & deliveries, and customer reviews.

**What customer pain point(s) does it address?**

The specific customer pain points our business addresses include helping the customer find selections for restaurants specific to the user's location or preferred type of cuisine. Furthermore, we allow the user to input a specific date/time and it will return numerous restaurants that could fit those parameters which makes it significantly easier to find a restaurant for a specific date. Finally, we help the user in making online orders & takeout more convenient.

We also aim to help the restaurants to run their business. Many small restaurants suffer from the lack of advertisement, and our platform can help disseminate their information online with methods like keyword search and recommendation systems.

## **Research the Business:**

### **Origin & Competitors:**

OpenTable began in 1998 with a small selection of restaurants in San Francisco California. It has since skyrocketed being the leading software for easy reservations. Now they make reservations for approximately 1 billion diners and they connect 50,000+ restaurants.

The initial idea for this company came from Chuck Templeton. He had a passion for helping people and making lives easier so he created OpenTable to help small restaurants thrive as well as save diners the hassle of calling restaurant to restaurant trying to find a reservation for the date they need.

There are several softwares that attempt to do similar things to OpenTable. The top couple are Yelp Guest Manager and Seven Rooms. Both of which have the goal of revolutionizing reservations and making dining guests' lives easier.

### **Value Proposition & Customer Pain Points:**

OpenTable follows 4 primary value propositions: accessibility, conveniences, cost reduction, and brand/status. Accessibility is offered through the ability to reserve tables over the internet. Convenience is offered through the softwares ability to filter restaurant reservations based on date, time, cuisine, location, etc. The company reduces costs through deals made with restaurants, and finally OpenTable has built a huge brand as they have partnered with tens of thousands of restaurants worldwide.

The value really lies in the platform of information that OpenTable has constructed. They have made a platform that allows for easier access to restaurants and reservations as well as food services that can better attract customers. A large portion of our platform's value comes from the ability to provide an organized information dense system that allows for easy integration and communication between diners and restaurants.

This builds into the pain points that our business addresses. Firstly there is the issue of easy reservations. Reservations used to be a pain, calling restaurant to restaurant trying to find an open table for that special occasion. OpenTable addresses this by providing one platform that allows you to make reservations with any restaurant they are partnered with.

Second, there is the issue of finding restaurants close to you. Not everybody can afford a car in cities and public transportation can be a pain sometimes. OpenTable addresses this by allowing the user to search for restaurants close to them.

Another pain point customers experience is finding food they are in the mood for. Luckily OpenTable addresses this by allowing the user to search for specific cuisines as well as look at menus for numerous different restaurants to find something that would fulfill their cravings.

Building off this there are many pain points the restaurants face that OpenTable addresses. Firstly, there is the issue of getting your restaurant name out there. With small businesses they cannot afford expensive advertisements to get their name out there and known.

By partnering with OpenTable more diners will see their restaurant and menu and this will lead to more business.

In addition, organizing reservations is a pain. You have to make sure that there are enough tables and estimate how long customers will dine for and OpenTable handles this all giving restaurants numerous resources to help make their reservation systems more organized and efficient.

### **Business Model & Revenue Stream:**

At first it may seem a little confusing how OpenTable generates revenue. The service is free for customers as it doesn't cost anything to sign up or to make a reservation through the software. Where OpenTable is making its money is primarily through the restaurants. Restaurants who wish to be on OpenTable can choose one of three payment plans. The basic option is \$29/mo with a 25 cents per reservation or a \$49 flat fee for the month. This option also has a \$1.50 network cover.

Restaurants could also choose OpenTable's Core option for \$249/mo. This option has free reservations and \$1 network cover but also provides additional features such as table management, availability controls, and in-house/online waitlists.

OpenTable's final option is their pro which costs \$449/mo. This allows access to all of OpenTable's features as well as the same rates as the Core option, free reservations and \$1 network cover.

All of the options have a 2% service fee for takeout and deliveries as well. All in all OpenTable makes its money primarily off restaurants paying subscription fees as well as the referral fees from deliveries and take out. This has led OpenTable to have an annual revenue of \$8.0 Billion. This dropped by nearly 50% during 2020 and 2021 as a result from less people eating out due to the covid pandemic. However, it has been climbing again this year.

### **User Stories:**

#### **Users:**

Diner : A customer who is looking for a place to eat food, Can go to many different restaurants.

Restaurant Manager: Runs the restaurant and manages the waiters

Waiters: Serves customers food and make sure the restaurant is clean and runs smoothly

User ID	Simple/ Complex/ Analytical	As a <role>	I want to ... <goal>	So that ...<reason>
1	Simple	Diner	Make/Cancel a reservation	I can make plans accordingly
2	Complex (trigger)	Restaurant Manager	Offer a coupon for discounted food	I can attract more customers
3	Complex	Waiter	See the list of guest reservations for a given day	I can arrange for supplies and tables accordingly
4 (new)	Analytical/ Complex	Diner	See the number of reservations for the past month for a specific restaurant	I can assess the popularity of the restaurant
5	Simple	Restaurant Manager	Add menu items	Appeal customers with my restaurant's dishes
6	Analytical	Restaurant Manager	See customers who make reservations frequently	Provide special offers to increase customer loyalty
7	Simple	Diner	Favorite a restaurant	can save the restaurants that I want to try in the future
8	Complex	Waiter	Get the contact information of customers with reservations for a particular day	Can contact the customer in regards to the reservation
9	Complex/ Analytical	Diner	Search availabilities based on date & time	Can make plans
10	Analytical	Restaurant Manager	Provide summary statistics for which days of the week were most popular	Can arrange human and material resources more efficiently

File name mapping:

User story 1 → simple\_query\_1.py

User story 3 → complex\_query\_2.py

User story 5 → simple\_query\_2.py

User story 7 → simple\_query\_3.py

User story 9 → analytical\_query\_2.py

User story 2 → complex\_query\_1.py

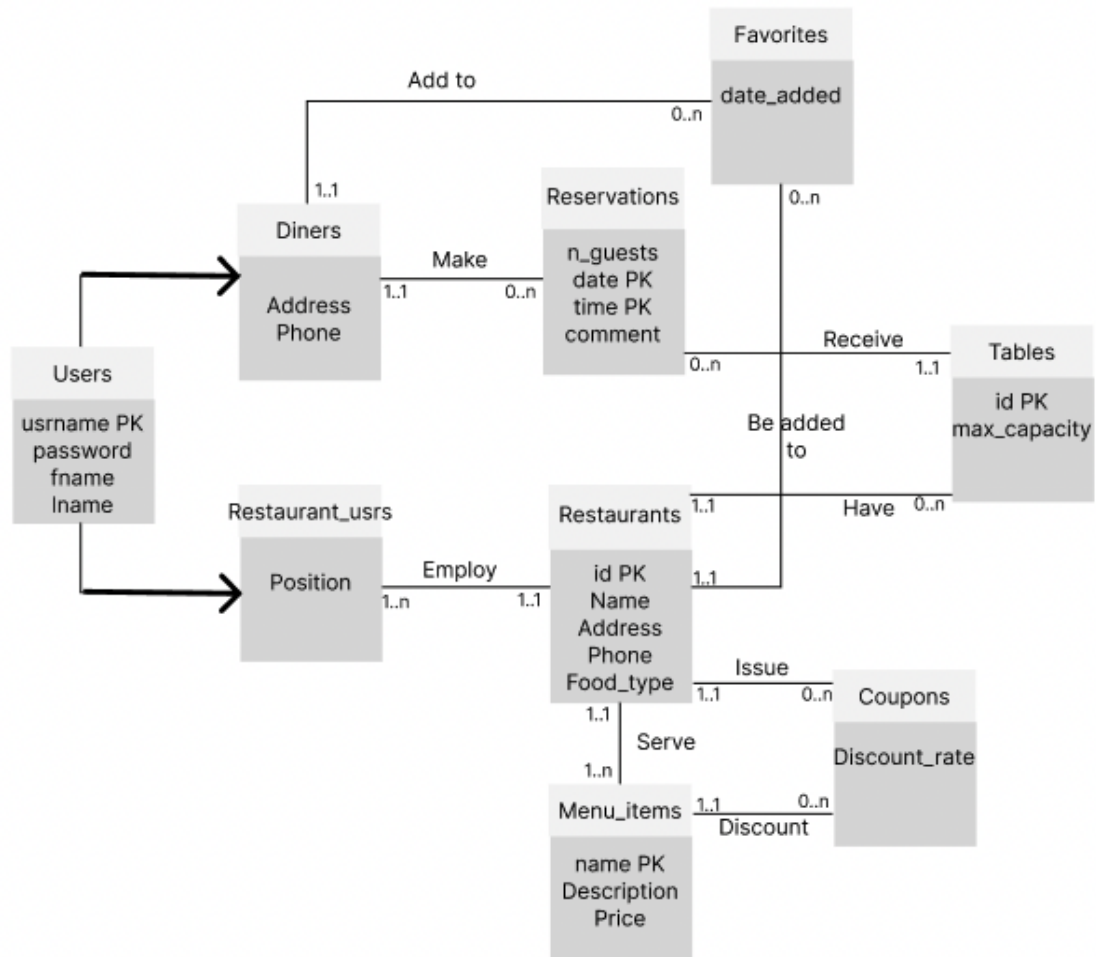
User story 4 → complex\_query\_3.py

User story 6 → analytical\_query\_1.py

User story 8 → complex\_query\_4.py

User story 10 → analytical\_query\_3.py

## Conceptual Model:



**Note:** some of the above PK's are missing or incomplete since we are not supposed to add FK's in the conceptual model, and some FK's in certain entities also act as PK's. Please see the below relationship model for complete PK's and FK references.

## Relational Model:

Users (**username**, password, fname, lname)

Diners (Address, Phone, **username**)

Restaurant\_usrs (position, **username**, **restaurant\_id**)

Restaurants (**id**, name, address, phone, food\_type)

Tables (**id**, max\_capacity, **restaurant\_id**)

Reservations (id, n\_guests, **date**, **time**, comment, **username**, **table\_id**)

Favorites (date\_added, **username**, **restaurant\_id**)

Menu\_items (**name**, description, price, **restaurant\_id**)

Coupons (discount\_rate, **restaurant\_id**, **menu\_item\_name**)

## Functional Dependencies:

### Users (already in BCNF)

username → password, fname, lname (good FD)

### Restaurant\_users (already in BCNF)

username → position (good FD)

### Diners (already in BCNF)

username → address, phone (good FD)

### Restaurants (already in BCNF)

id → name, address, phone, food\_type (good FD)

### Reservation (already in BCNF)

username, table\_id, date, time → id, n\_guests, comment (good FD)

### Tables (already in BCNF)

id → max\_capacity, restaurant\_id (good FD)

### Favorites (already in BCNF)

username, restaurant\_id → date\_added (good FD)

### Menu Items (already in BCNF)

restaurant\_id, name → description, price (good FD)

### Coupons (already in BCNF)

restaurant\_id, menu\_item\_name → discount\_rate (good FD)

### Assumption & clarification:

- We did not use a composite primary key (id, restaurant\_id) for *Tables* table since we want to use the attribute *id* as a serial type, which will be enough to uniquely identify each instance. We also want to avoid the complication when a serial integer is involved in a composite PK. The con is that *id* would become very large if this system were to scale. We are using an automated Python script to generate the fake data, and we confirmed with Raja that it is okay to use a serial type in our case.
- One user can only make reservation for one table at one restaurant at one time point

- A party can only reserve a table if their n\_guests is lower than the max capacity of said table
- Reservations can be made on the hour and the table opens up exactly 1 hours after the reservation
- Restaurants have 1 food\_type
- One diner cannot make more than one reservation for the same time/date
- Tables are not being moved and combined around a restaurant. There is a set number of tables for each restaurant
- A user can only favorite a restaurant once without removing it
- One restaurant cannot have two menu items with the same name
- One restaurant cannot place more than one coupon for a single item

## Normalization:

Our Relational Model is already in third normal form (No repeats, partial dependencies, or transitive dependencies)

**Users** → 3NF, Everything is dependent on the username, there are no transitive or partial dependencies.

**Diners** → 3NF, Similarly address and phone number are dependent on the unique username and nothing else making it third normal form

**Restaurants** → 3NF, name, food\_type, address are all dependent on the restaurant\_id giving it no partial or transitive dependencies

**Tables** → 3NF, every other attribute depends solely on the serial *id*

**Reservations** → 3NF, every other attribute depends solely on the composite PK (username, table\_id, date, time)

**Tables** → 3NF, every other attribute depends solely on the PK

**Favorites** → 3NF, every other attribute depends solely on the composite PK

**Menu items** → 3NF, every other attribute depends solely on the composite PK

**Coupons** → 3NF, every other attribute depends solely on the composite PK

## Citations For Research:

“About Us.” *OpenTable*, <https://www.opentable.com/about/>.

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Hendelmann, Viktor. “The Opentable Business Model – How Does Opentable Make Money?” *Productmint*, 23 Aug. 2021, <https://productmint.com/opentable-business-model-how-does-opentable-make-money/>.

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“OpenTable Revenue: Annual, Historic, and Financials.” *Zippia*, 30 Sept. 2022, <https://www.zippia.com/opentable-careers-33768/revenue/>.

*Top 10 Opentable Alternatives 2022* | G2.  
<https://www.g2.com/products/opentable/competitors/alternatives>.