

## Assignment M2

### Abstract

The primary goal of this project is to redesign the Yelp app interface of searching restaurants in U.S. The current searching restaurant interface will be optimized, and a few modules with surging demands from the users will be implemented to bridge the gulf of execution and evaluation.

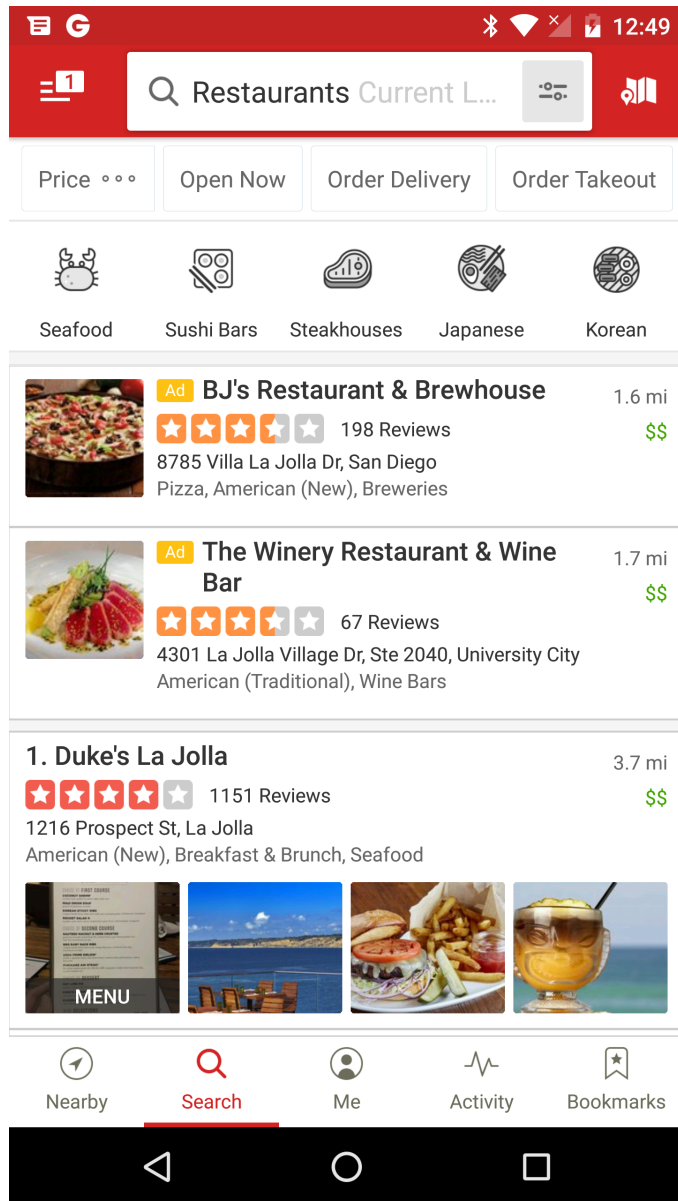


Figure 1. The screenshot of Yelp app interface for searching restaurants.

## **Needfinding Execution 1: Participant observation**

Action 1: Search “Korean BBQ Oceanside” in Yelp’s app (Android OS), current location is my home (San Diego).

Result 1: Some Korean BBQ restaurants showed up.

Note 1: All listed restaurants are in San Diego, not in Oceanside. I must input “Oceanside” in secondary searching bar for location.

Action 2: Refine the results by click “\$\$” sign.

Result 2: Less Oceanside Korean BBQ restaurants showed up.

Note 2: My budget is \$11 ~ \$20. But the results are between \$11 ~ \$99. Need to redesign this part.

Action 3: Select restaurant “Maru” and drive to there.

Result 3: I drove 1 hour and 15 mins to arrive due to traffic jam.

Note 3: It is 25 miles away from my home and I expected 30 mins driving for arrival. It is not easy to find real time traffic data in Yelp’s app.

Action 4: Waiting for waiters to assign the seat.

Result 4: I waited 15 mins and finally was seated.

Note 4: No waiting time information could be found in Yelp’s app.

Takeaway: The functionality of the main searching bar is limited and should be redesigned in the future.

Control for the biases: I tried searching different styles of restaurants with different current locations in different time periods, so as to reduce the biases of participant observation: lack of context.

## **Needfinding Execution 2: Think-Aloud**

Participant: my wife

Observation 1: participant inputs some texts into the Yelp's app searching bar.

Ask 1: What are you thinking right now?

Answer 1: I am looking for a Ramen restaurant close to us.

Observation 2: participant has a hesitated look without actions.

Ask 2: Why did you stop for a while?

Answer 2: It has an distance option "6 blocks" yet we are in suburban areas. I don't know what it means.

Observation 3: participant slides her fingers on the screen several times.

Ask 3: What are you looking for and thinking?

Answer 3: There is a list of restaurants but I don't know how they are ranked.

Observation 4: participant sees her mobile phone at close.

Ask 4: Why did you push your face towards the screen?

Answer 4: I want to check the menu and it is an unclear picture with tiny fonts.

Takeaway: There is an enough room to improve the usability of the interface.

Control for the biases: I tried to set up the conversation in a natural way and used pen-paper to record everything. I also prompted participant to keep her talking to avoid filtered statements.

## Needfinding Execution 3: Survey

Total participants: 25 GIT students via peersurvey.cc.gatech.edu.

- 1) Age: 76% are less than 40 years.
- 2) Gender: 20% are female, 68% are male, 12% did not report.
- 3) Frequency of using web browser to search restaurants in the past 2 weeks:  
24% never did this, the rest did 1 ~ 5 times.
- 4) Frequency of using mobile app to search restaurants in the past 2 weeks:  
36% never did this, 52% did 1 ~ 5 times, 12% did 6 ~ 10 times.
- 5) OS: 44% Android, 72% Apple iOS, 4% Others.
- 6) Mobile App to search restaurants: 64% Yelp, 16% TripAdvisor, 68% Others.
- 7) Ways to arrive at restaurants: 72% driving a car, 28% walking and 16% other ways.
- 8) Number of restaurants to look online before deciding where to dine in:  
64% no more than 5, 20% more than 5, 16% didn't know.
- 9) Time on the way: 56% expect less than 45 mins.
- 10) Waiting time in restaurants: 84% expect less than 30 mins.
- 11) Importance of following features in choosing restaurant:  
0 – Very Important; 1 – Important; 2 – So-So; 3 – Less Important; 4 – Not Important at all; 5 – I have no ideas

	0	1	2	3	4	5
Menu	64%	16%	12%	0%	4%	4%
Online coupon	0%	12%	20%	20%	44%	4%
Price	24%	32%	36%	0%	4%	4%
Operation hours	24%	52%	16%	4%	0%	4%
Others' reviews	28%	36%	24%	8%	0%	4%
Kids-Friendly	8%	8%	12%	16%	44%	12%

Takeaway: Most of the users believe “Menu” is a very important feature in choosing restaurants.

Control for the biases: I implemented all three common question formats: multiple choice, numeric open-end and text open-end into the survey to reduce user response biases. I also avoided “yes/no”, “agree/disagree” questions to minimize acquiescence biases.

## Data Inventory

Question 1: Who are the users?

From the needfinding results most of the users are less than 40 years old. And it might be highly correlated with the age distribution of GIT students. The users' genders should be almost equally distributed yet the survey shows much more male users. The users' expertise levels of searching restaurants online are above average.

Question 2: Where are the users?

I did not specifically set up questions to discuss the users' environments. My assumption is users will start to seek for restaurants when they are hungry or intend to dine in in the near future. Thus it could be anywhere with internet/LTE signals that the users initiate their searches.

Question 3: what is the context of the task?

Since my hypothesis is the users may perform the task at anywhere with internet/LTE signals, it could not exclude the probability that the users do the task when they are driving (it is dangerous though). Thus the entire traffic conditions, plus other drivers' behaviors will be competing for users' attentions.

Question 4: what are their goals?

The users' goals are quite simple: find out a restaurant that fulfills all their criteria, yet their criteria are quite complicated.

Question 5: right now, what do they need?

The information that the users need could be classified into three categories:

- 1) Real-time information: including but not limited to traffic conditions, how long it will take to arrive at the restaurant and what is the expecting delivery time.
- 2) Static information: such as menu, location and operation hours etc.
- 3) Shared information: including but not limited to the average waiting time, the reviews of food quality and the reviews of services.

Also some users do not have their own vehicles thus they need bus route, Uber and/or taxi information as well.

Question 6: what are their tasks?

Their tasks are to use Yelp's app to achieve their goals. Physically the users need to touch the mobile devices' screens to collect the information they need. Cognitively they need to convert their searching criteria into touching icons and links on the Yelp's app.

Question 7: what are the subtasks?

It is not necessary for the users to collection all information at once. They could perform the following subtasks sequentially:

- 1) Searching all restaurants in a certain distance.
- 2) Applying one criterion to the listed restaurants and narrowing down the candidates.
- 3) Repeating step(2) until the goal is reached.

## Defining Requirements

The followings are a few interface requirements drawn out of this data inventory:

- 1). **Functionality:** returning a list of restaurants fulfilling users' all criteria and sorted by one certain criterion. Any estimation of traveling time should be on the basis of real-time data.
- 2). **Usability:** searching bars, menus, icons and buttons are easy to read, understand, and manipulate.
- 3). **Learnability:** Ideally the first-time users should be familiar with the interface and achieve their goals within 20mins.
- 4). **Accessibility:** people with disabilities can perceive, understand and manipulate the interface and contribute equally without hindrances.
- 5). **Compatibility:** the interface should be compatible with major mobile device operation systems.



## **Continued Needfinding**

### 1) Remaining questions:

Some survey questions are not designed properly. For instance, 68% of the participants reported they used other mobile apps instead of Yelp to search restaurants. Yet I did not offer opportunities to let them write down what these apps are, and what the advantages are of using these apps. Such questions should be reconstructed to benefit this project.

### 2) New questions:

All current needfindings are lack of questions about the users' environments and the contexts of using interface. By checking the data inventory, I realize that different contexts might have huge impacts on redesigning the app. Therefore such questions should be recruited in the continued needfinding.