

## **Part(a): Project idea**

The project idea that we choose is “Ordering system at a restaurant”. Our goal is making an ordering system which can truly help users order the meal in a Chinese restaurant, view the order and get the total amount of the order.

The reason why we choose this topic is because our group members are all Chinese. We have a deep understanding of Chinese food and also are very familiar with Chinese restaurants. But we find that the way Chinese restaurant to place an order in nowadays is ineffective and outdated as we think, the stereotype of Chinese restaurant is crowd and underserved, and what’s worse is that it is not easy for non-Chinese customers to complete their ordering if they are first here. A fantastic ordering system we imagined will address these problems.

Target users of the ordering system including customers and attendant, but not limited to them. All people in the restaurant can access the ordering system, but depend on their identity, they can do certain types of work, and get different level of details of the order. The context that we expect it to be used is a Chinese restaurant in Canada. Unlike Chinese restaurant in China, our ordering system should give more considerations to non-Chinese customers.

## **Part(b): Stakeholders**

**Customer:** Customers are the most important stakeholders in the list. Because we design the system is just helping attendant do less work about ordering, and letting customers make an order by themselves. This system will guide customers to finish their ordering step by step based on their habits. Customers need no training or experience to use this system, just like the normal menu that restaurants have. So customers are the primary user.

**Attendant:** One of the benefit of order system makes attendants more focusing on serve the dishes instead of making orders for customers. But sometimes, if customers don’t know how to use ordering system, then attendants need to teach customers to use it. So, for attendants, they also need to know how to use the ordering system. Not only make an order, attendants have permissions to modify the ordering system. Because the restaurant might run out of ingredients, attendants can modify the menu to make related dishes unavailable to order. Then, customers won’t order dishes that we can’t cook at that time. Attendants are also primary users.

**Cashier:** Unlike western-style restaurants, there is usually a cashier at the front disk to help customers in Chinese restaurant. The Cashier will confirm the order to the customers before they pay the order. The cashier need to calculate the total amount of money using calculate,

but the dishes' price might change because of variable cost changed. It will cause cashier to get the incorrect amount of the order. But it won't happen if using ordering system. The price of each dishes is up to date, and total amount is always correct. The system will help cashier to get the amount after the order is placed. Cashier are secondary users.

Restaurant Owner: Restaurant owner is not usually use the ordering system, but it's necessary to consider it as stakeholder. For the restaurant owner, he doesn't need to be trained to use ordering system. He can pretend as customers to use the ordering system, in order to check if the ordering system fit his expectation. If possible, we can add a statistics feature to the ordering system, then owner can use it to check which dishes are popular, and which dished has more profit. Restaurant Owner are secondary users.

Chef: For chefs, they only need to know the final order. They don't have permission to change or add orders. After customers finishing ordering, chefs will finish their task by following the order. Chefs don't need background knowledge and they only need to understand the order from ordering system. There are a few advantages for chefs offered by the system. One of them is the advantage is that order they received is correct and easy to read. In some restaurant, attendants write the order on the paper, but attendants' handwriting might difficult for chefs to understand. It will not happen by using the electronic ordering system. Overall, chefs are tertiary users.

### **Part (c). User Research**

As a Chinese restaurant in Canada, customers must be consisted of many different ethnic groups. They have diverse cultural backgrounds, forming various eating customs. The basic logic of user research is trying to learn and understand as much as possible about their eating habits and their requirements and concerns about a Chinese restaurant. After discussion, my team decided to choose "Fly on the Wall" method firstly to have a close observation of customers.

"Fly on the Wall" is an efficient way to better understand how customers' eating habits is staying with them and observing their eating procedure without disturbing them. This method means observing and recording behavior within its context, without interfering with people's activities. Through this method, designers can take a God-like perspective to capture every detail they care, forming a global and perceptual understanding of customers' behavior patterns. Besides, it is useful to see what people actually do within real contexts and time frames, rather than accept what they say they did after the fact.

Through "Fly on the Wall" method, my team observed different groups in a Chinese restaurant during their dine process, from how they "sit-down" and how they ordered their

dishes to how they ate and how they paid the bill. We got a wholly new understanding of people's eating habit from different backgrounds, but meanwhile, we were also confused by why they did that. To address our confusion, we decided to set a series of questions to do some questionnaire.

A face to face "Surveys & Questionnaire" can be a complementary research. This method is to ask a series of targeted questions in order to ascertain particular characteristics and perceptions of customers. This is a quick way to elicit answers from a large number of people. We designed a questionnaire which you can find in the attachment. These questions were all about our confusion after we finished "Fly on the Wall" method. For example, we asked some Occidentals " Why are you accustomed to 'Individual Dining'?" They said it was more hygienic. By this method, we had a deeper understanding of different ethnic groups.

Based on the data collected from "Fly on the Wall" and "Surveys & Questionnaire" methods, designers can acquire diverse user requirements to build the ordering system prototypes on different level. Researching on the flow of ordering system prototype is called "Flow analysis". This method can represent the flow of information or activity through all phases of a system or process. It is useful identifying bottlenecks and opportunities for functional alternatives. It can help designers to design a more seamless experience on the ordering system.

These three methods are a cyclic process—collecting data, analyzing data, building prototype based on the data, analyzing prototype and collecting more data. The cyclic process is aimed to understand users and make products highly bundled with users' requirements.

#### **Part (d). Requirements**

After user research in part(c), my team did some analysis of the data. Based on the data from all the users participated in the survey, we divided users into two groups—Chinese and non-Chinese. Below is all the requirement we analyzed after user research.

##### ***Functional***

As a Chinese restaurant ordering system, obviously, it must have the function guiding customers to complete their ordering in a Chinese restaurant based on their different eating habits. For example, Chinese would prefer to "Gather Dining" while Occidentals would prefer "Individual Dining". That means Chinese people can share the delicious food of all over the table when eating which may not be suitable to Occidentals. So the system must follow the customer's preference to finish the guidance.

Compared with traditional papery menu, the system should have a total amount shown on the interface to notice how much they have ordered. In our surveys, many people told us when ordering, they always concerned the total amount they had ordered in order for purpose of controlling budget. If the system could show the total amount timely, they didn't need to calculate themselves.

Statistic function should also be taken into consideration. The restaurant owner or manager can easily know which dish is the best seller and which one is the worst by analyze the statistic information. It can help them adjust their operating strategy timely.

Besides, the system should have some notice about allergy to decrease food safety risk and some notice about religious dietary to respect different ethnic groups' religion. Not only a few respondents raised these two issues in the survey.

The system could have caloric information to whom want to have balanced diet. With more caring about health, this issue was featured in the survey.

### ***Data***

Based on the function listed above, the system must have access to the price of all dishes in the Chinese restaurant with picture. Besides, the system should have access to sale statistics, allergy alarm, religious dietary notification and could have access to caloric information.

### ***Environmental***

Users will sit around a table in the Chinese restaurant. The system is only for people in the restaurant, not for ordering by phone.

### ***User character***

Users could be all ethnic groups from the young to the old with different cultural backgrounds, and they all are curious about Chinese food.

### ***Usability***

According to user characters, the system should be easy to use so that every new user can use it immediately with low learning cost.

## **Part (d). Requirements**

***A scenario generated by a group of frequent visitor of a Chinese restaurant***

Lei Li, Meimei Han and Hua Wei are three Chinese students from China studying at UofM. They just finish their classes and want to have lunch in their favorite Chinese restaurant. The restaurant is a typical Chinese restaurant with bunches of square tables and large round tables. They enter the restaurant and a waitress leads them to their seat – a clean square table with four seats. After a few minutes' discussion, they decide that everyone orders one dish which is his/her favourite but eat together. Finally, they order Mapo tofu, Poached Pork, Moo Shu pork, and white tea as drink. These dishes are all classic in China. 20 minutes later, the waitress serves the food with three big dishes, and bowls for everyone respectively. Students take rice into their own bowl, and pick up food from public dishes. After lunch, they dry their cups and get a bill from the waitress. Li pays this meal because this time is his term. They leave the restaurant after paying the waitress tip.

***A scenario generated by a group of stranger of a Chinese restaurant***

Terry, Lisa, Tony and Ann are four typical native guys working in Canada. After working, they are all hungry and thirsty, and want to find a place to have supper. Recommended by a Chinese friend, they decide to try a new opening Chinese restaurant. Because they come at a busy hour, a waitress ask them whether they want to share a table with strangers and they agree about that. Since they never went to a Chinese restaurant before, they decide to select their dishes based on the suggestion order in the menu. For four persons, this menu suggests they order three dishes, formed by a cold dish and two hot dishes. When ordering a cold dish as appetizer, they don't know what those names' meaning because those names are all translated from Chinese clumsy. But luckily, there are English descriptions with pictures. With the help of descriptions and pictures, they decide their supper, which is formed by Seaweed Salad, Kong Pao Chicken, Sweet and Sour pork. Since Tony is allergic to peanuts and Lisa cannot eat pork, they ask the waitress to take care about that. Besides, Ann is trying to lose weight so she asks the waitress about the quantity of calorie. Lastly, they want to individual serving their food and ask for knives and forks. 30 minutes later, the waitress bring their food, which is separated into four portions. After their supper, the waitress separates the bill. They pay their own bill and give the waitress tip individually.

## **Appendix—Questionnaire**

1. Have you ever eaten in a Chinese restaurant?

A. Yes B. No

2. Which meal do you usually prefer to have in a restaurant?

A. Lunch B. Supper

3. Which flavor is your favourite?

A. Spicy B. Sour C. Salty D. Sweet E. Umami

4. Do you know how to use chopsticks?

A. Yes B. No

5. Are you used to “Gather Dining” or “Individual Dining”?

A. Gather dining B. Individual dining

6. If your answer of question 5 is individual dining, why?

7. Do you feel it is hard to order in a Chinese restaurant?

A. Yes B. No

8. If yes, can you say one main reason?

9. Which factor listed below is the most important one that you think a restaurant must have?

A. Flavor B. Environment C. Service D. Hygiene