

Enhancing Customer Service through Refined Restaurant Workflow Provided by a Mobile POS System

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**Abstract**

***MP Megapro KTV Restaurant is experiencing problems due to its current system workflow that causes delays and customer dissatisfaction. To solve the problem, the researchers looked for three existing mobile POS systems that can help the restaurant namely Pozool, Waiterio and Loyverse POS. Considering the condition of the restaurant and what needs to be fixed, it turned out that Pozool is the most efficient and effective among the three because it offers the best features in a POS system namely: efficient POS because of small file size, automatic receipt billing and printing, inventory tracking and wide ranges of compatibility among printers and devices at a free full price.***

**I. Introduction**

**A. Background of the Problem**

MP Megapro Plus Marketing Corporation is a KTV Bar Restaurant in Jupiter St., Makati City which offers fine dining experience alongside with the entertainment provided by their karaokes. The establishment is composed of 3 parts, the mess hall, the multi-purpose hall and the karaoke rooms all located in the ground floor. The second floor is composed of mostly karaoke rooms and a multi-purpose hall. The labor force of the business consists of eight waiters and one cashier who is handling the POS (Point of Sale) of the whole restaurant. Given the structured layout of the restaurant and the current workflow that the employees are implementing, it causes problems like delays even though there are only few customers in the building.

According to the company's workflow, the pattern of order taking will start with the customers informing their desired orders to the waiter, the waiter will then write the orders on an order slip and will give it to the lone cashier in the restaurant. The cashier will then give the order slip to the cook. After the food is done, the waiter will fetch the order from the kitchen and deliver it to the customer. The problem often occurs on the part of the waiters, because no matter how mobile they are, them walking around the place carrying order slips makes the process slow. Human mistakes and sudden confusions like table/room numbers being hard for the waiter to find and wrong order inputs can also be an addition to the delays the customers are experiencing in the restaurant. This project aims to explore a system that can improve customer service through ordering experience and then becoming beneficial to restaurants and alike.

**B. Statement of the Problem**

In what ways would a POS system be helpful in increasing the efficiency of the current workflow of the restaurant to satisfy the customer's requirements/needs?

**C. Objectives**

● To find a system that suits the needs of the client's restaurant   
● To identify the cause of delays in taking an order   
● To lessen the time it takes for the cycle of order taking to complete

**D. Significance**

The result of this study will be beneficial to the following stakeholders:

● To the client

The researchers decided to conduct a research about the client's restaurant to find a solution to the problem that they are having. It will help them find the real problem they are not aware of and have the best possible solution to the problem. The client cares for the satisfaction of its customers, and the study will be beneficial for the client.

● To the customers

This research will significantly contribute to the satisfaction of the customers regarding their experiences in the client's restaurant.

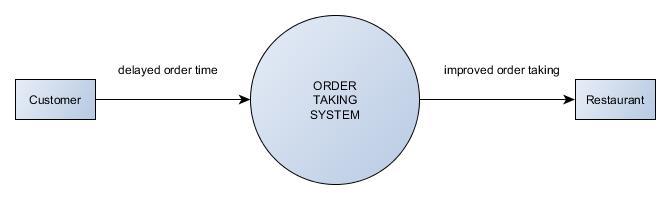
● To the future researchers

As the technology that can improve the system of a restaurant as well as the satisfaction of the customers are evolving, this study could be a reference for other researchers who would like to conduct a research in a similar field with that of the researchers.

**E. Scope and Limitations**

The scope of the study will only be about what a POS system can do to solve the current workflow problem of the restaurant. Further in-depth analyses about how the systems are developed will no longer be part of the research. The team will only focus on three examples of existing POS systems, what they can offer for the restaurant, and will be judged based on how efficient the app will be considering the context of the client. The team will closely look on their minimum device version requirement, printer compatibility, file size, and additional features to determine the best system the researchers can offer to their client.

**F. Context Diagram**

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**II. Related Literature**

**Related Articles**

A Point of Sale system in a restaurant is very important for the owner, having this will be beneficial for the business in so many ways. The website *shopkeep.com* listed down five most important features of a restaurant Point of Sale system. The most important advantage you can get by having a POS system is the speed and ease of use it provides. Second most important is that it can track your inventory, to keep the establishment competitive as it can help you make good decisions regarding the restaurant. Same logic can be applied to the third feature of a POS system - Reporting. The fourth feature to be considered is the Marketing while Technical support feature will be the last thing the owner must consider in choosing a POS system.

Koladiya, B. (2015, April 30). *5 restaurant POS features designed to serve up success*. Retrieved August 22, 2016, from Point of Sale & Payments, http://www.shopkeep.com/blog/5-features-that-define-superior-restaurant-pos-software

An article by Lorri Mealy stated that having an efficient POS system inside your restaurant simplifies the communication between the kitchen(cooks) and the wait staff (waiters and cashiers). Not only it can make transactions faster but is also cost-effective especially when you are previously running a bookkeeping department, as it gets the job done.

Mealey, L. (2016, August 11). *Pros and cons of restaurant POS systems*. Retrieved August 22, 2016, from The Balance, https://www.thebalance.com/why-you-need-a-pos-system-2888877

So by having a POS system that will make things right, it will most likely result into a restaurant with satisfied customers, and having satisfied customer can lead to better things for the restaurant. Once having a large number of satisfied customers can be an indicator of repurchases, an advantage over a competition, can reduce customer churn, and build up good business reputation. It can be attained in just having a fast customer service which is provided by a POS system.

Beard, R. (2014, January 20). *Why customer satisfaction is important (6 reasons)*. Retrieved August 22, 2016, from http://blog.clientheartbeat.com/why-customer-satisfaction-is-important/

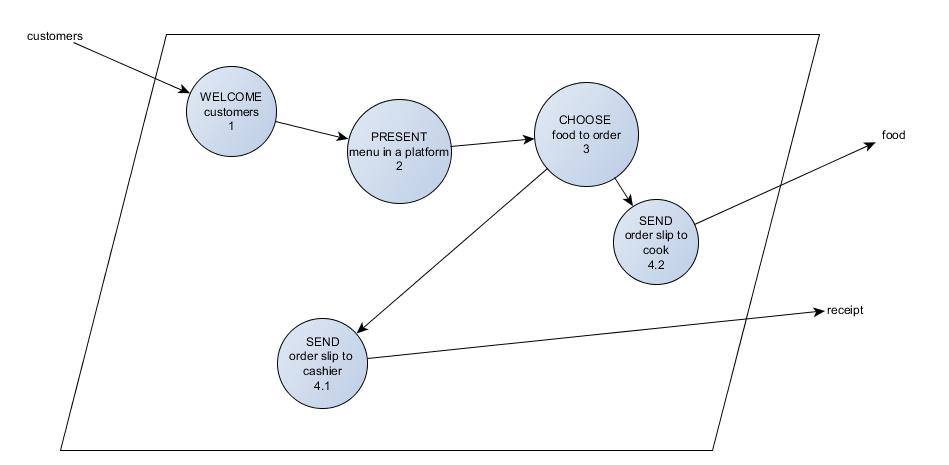
**Related Studies**

***Customer Satisfaction in the Restaurant Industry***

It is suggested that customer satisfaction was influenced most by responsiveness of the frontline employees, followed by price and food quality (in that order). Physical design and appearance of the restaurant did not have a significant effect.

Syed Saad Andaleeb, Carolyn Conway, (2006) "Customer satisfaction in the restaurant industry: an examination of the transaction‐specific model", Journal of Services Marketing, Vol. 20 Iss: 1, pp.3 – 11

**General DFD for Related Literature**

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**III. Theoretical Background**

A Point of Sale system is composed of the POS system itself, a cash drawer, a receipt printer, and a card machine. In the POS System, there is an inventory of the items that an establishment is offering, for pricing and tracking purposes. The person in charge of the POS machine will input data about the orders, send it to the receipt printer to be printed as a hard copy. The information being inputted can also be viewed by others, as long as it is connected to the network of the restaurant. Because of this, POS system offers fast communication and cooperation between staff, resulting to fast service.

Taylor, B. (2015, August 28). *How does a POS system work?* Retrieved August 23, 2016, from POS Basics, http://www.mobiletransaction.org/how-pos-system-work/

**IV. Proposed Solution to the Problem**

The team's proposed solution to the problem is to find the best existing mobile POS that has the needed features for the client's restaurant. The best mobile POS system will be chosen according to the scope the team had elaborated in the scope and limitations.

The team compared some features of the three chosen POS using a table which is placed in the Results and Discussion:

● The first parameter is the least android version required to run each certain POS. If an app can run in lower versions of android, then it can be used by more people because some people doesn’t have yet the higher versions of android in their phones.

● The second parameter is the least IOS version required for each POS to run. It is the same thing with Android, but iOS compatibility needs to be taken in account because other restaurant prefers using Apple devices, the lower the number the better.

● The third parameter is the compatibility of the mobile POS to printers. A mobile POS app must be compatible with wide ranges of receipt printers to be able to use greatly.

● The fourth parameter is the file size; the file size of the three POS is not too far away from each other but it is still better to use the app which has smaller file size. The smaller the file size, the efficient the app is, it has also a drawback small file size can be equated to small numbers of features the certain app can offer.

● The last parameter is the pricing of each Mobile POS. It will determine if the app is really cost-effective or not, a free app is preferred by most owners that is just starting with their business but free apps can have limited features.

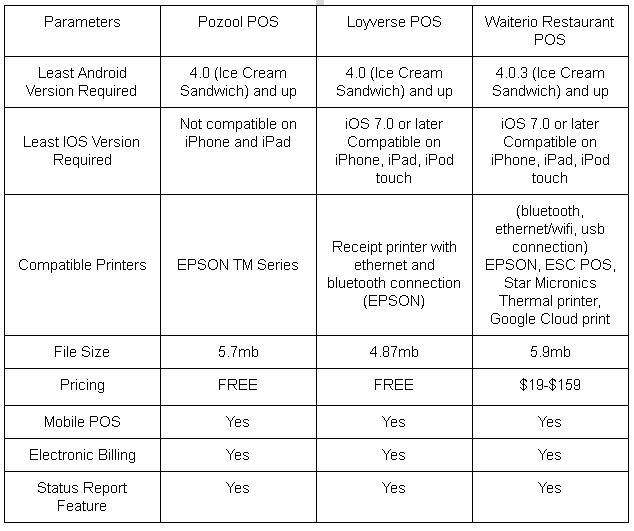
**V. Results and Discussions**

The researchers found three mobile Point of Sale (POS) systems that can help the cause of the client's restaurant, all of them having their own kind of unique features but one of them will be an effective tool to aid the problem the client is having with his restaurant.

The first mobile POS is the Pozool (*http://pozool.com/*), it is a free mobile POS device that works on the Android platform, and requires your android device to be in versions 4.0 and up. It is customizable, you can create your own items and modify or delete it if needed. It also comes with sales registration that is important in the restaurant's billing process that can configure multiple taxes options and discounts. Pozool also offers the Reporting Suite feature, which will be helpful for the managers to track the health of their business. Lastly, they had a wide variety of printing options, be it cloud printing, Bluetooth printing or simply sending it as an email. Also compatible with various Epson printers namely: TM-T88V, TM-T70, TM-U220, TM-U330, TM-P60, TM-P60II, TM-T20, TM-T82, TM-T81II, TM-T82II, TM-T83II, TM-T70II, TM-T90II, TM-T20II, TM-P20, TM-P80. All these feature can be downloaded initially on a 1.7mb apk file.

Second on the list is the Waiterio app (*https://www.waiterio.com/*), a free multiplatform app that is accessible in an Android, iOS or Windows device. The minimum requirement for installing the software in if you have at least Android version 4.0.3 on your device, requires iOS 7 or later in Apple devices and at least a Windows 7 operating system in PC. It takes the orders faster, and the menu can be customized. Offers fast straight to the kitchen so that the cook can prepare their food right on time. Also has the Sales Reports feature to keep track of how things are going and which menu is hot or not. Comes with modified billing meaning you can set your bills according to circumstances like taxes and discounts. Compatible with various printers like ESC POS Printers, Star Micronics, and Epson TM Series that comes with direct, online, or Bluetooth methods according to the printer the users are using. All of these features will be downloaded in an initial 12mB file.

The last mobile POS system to be taken account is the Loyverse POS (*https://loyverse.com/en/products/pos/*) is a 6.6mB app that offers free POS service in Android and Apple devices. It requires versions 4.0 and up for Android while your Apple devices needs to have an iOS 7 or better. It offers a reliable Point of Sale system, where you can take orders electronically without pen and paper and can track your inventory in real-time. It also offers the unique "Customer Loyalty Program" feature where you can run your own loyalty program and receive valuable feedback straight to your app. Lastly, it comes with a web-based "back office" where you can know the hot items, manage your employees and access your sales history for future references.

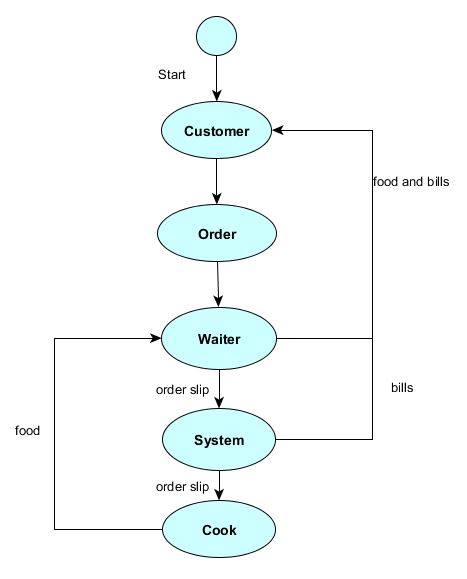


**VI. Conclusions and Recommendations**

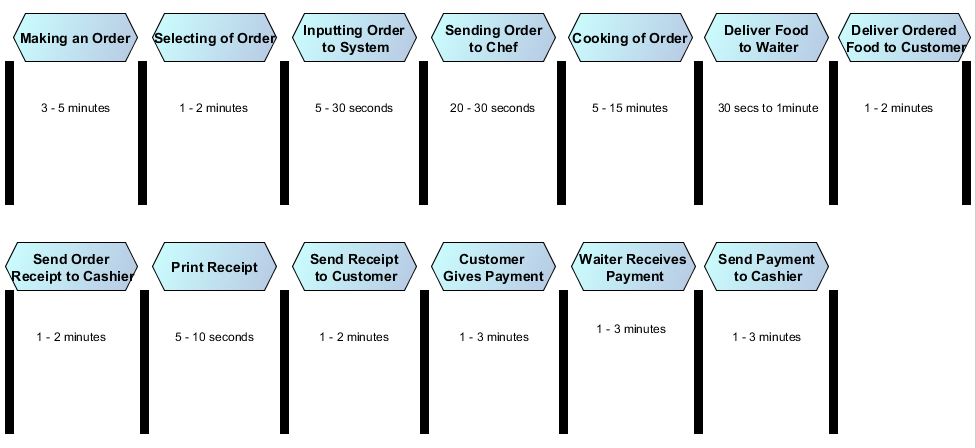
Of the three POS systems, the team thought that Pozool POS App is the best system they can offer for the client's restaurant. It has a good reputation from Android users, having 10,000 downloads and gained a rating of 4.1/5 out of 458 users that decided to give feedback to the app. It has the features that the restaurant needs. One of the needs Pozool can provide is the mobility of giving the restaurant's workflow an online gist by having the order be taken electronically and be sent to the kitchen the same way. With its customizable settings, you can modify menus to the client's liking. It also offers an efficient billing module with its bill splitting feature, which makes a very informative receipt that can involve taxes and discounts, all according to how the client wants it. Even though it is only compatible with Epson printers, Epson has its wide variety of POS printers and all of them are compatible with the app, so it is not an issue. Lastly, the main reason why Pozool is the best among the three is its price. Compared to Waiterio and Loyverse that only offers free or limited trials, Pozool is absolutely free and because of that, it will be helpful to the KTV restaurant as they were just starting and not that popular.

**VII. Appendices**

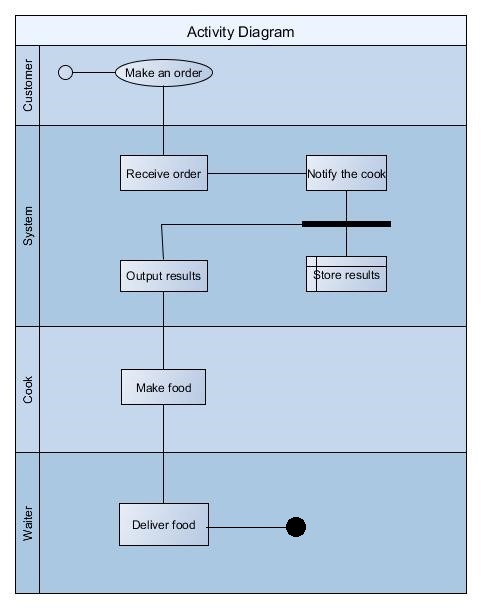
**State diagram**

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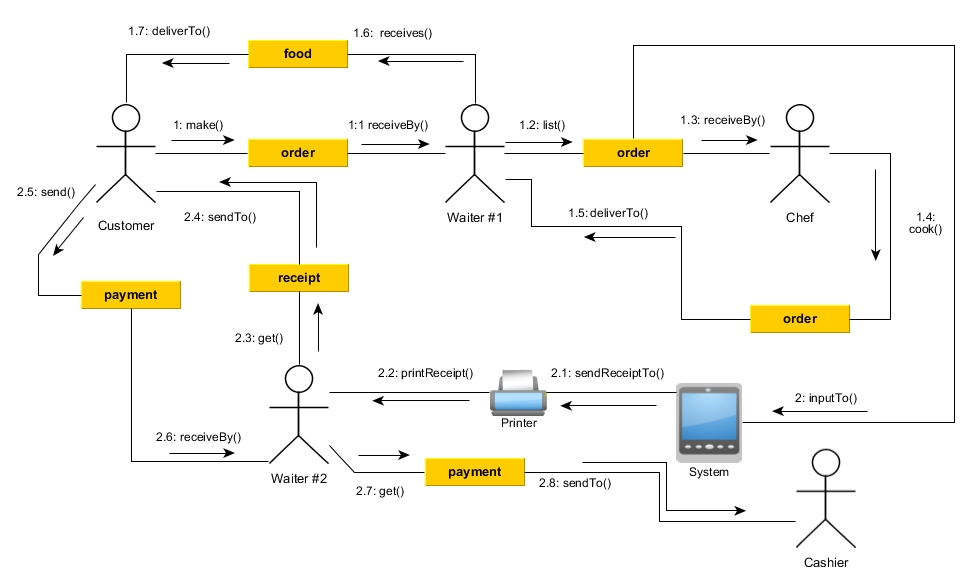
**Timing Diagram**

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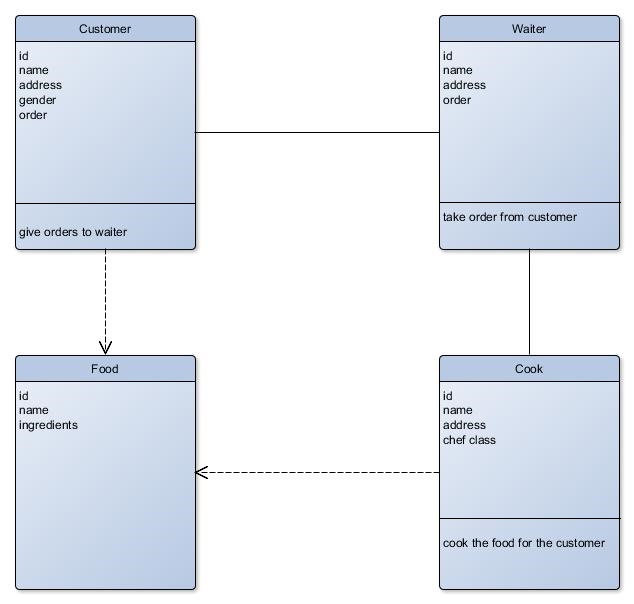
**Activity Diagram**

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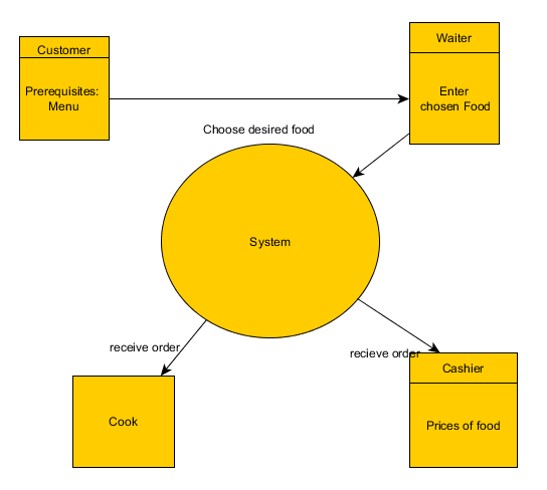
**Communication Diagram**

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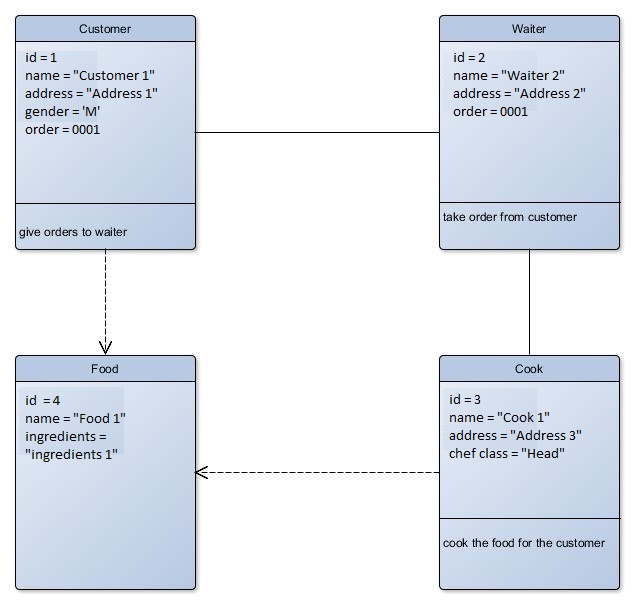
**Class Diagram**

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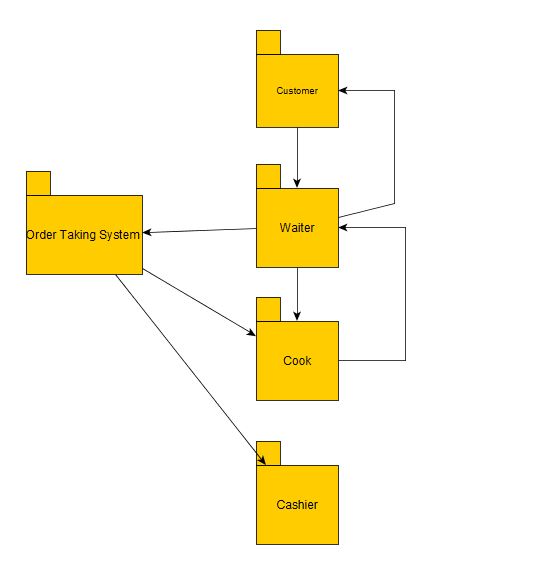
**Composite Diagram**

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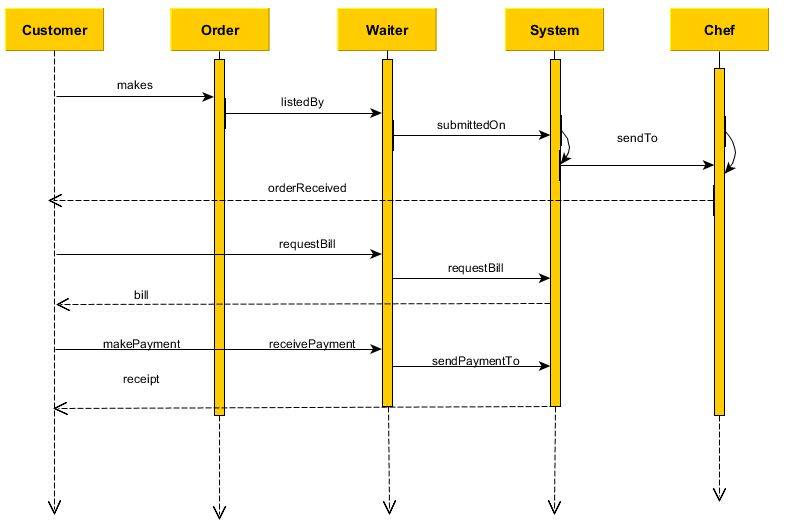
**Object Diagram**

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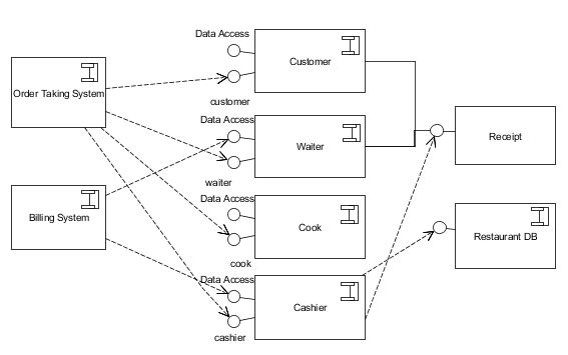
**Package Diagram**

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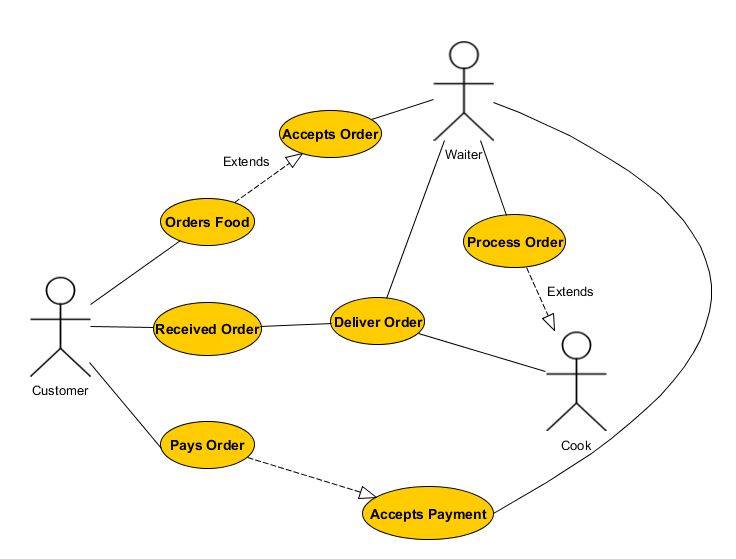
**Sequence Diagram**

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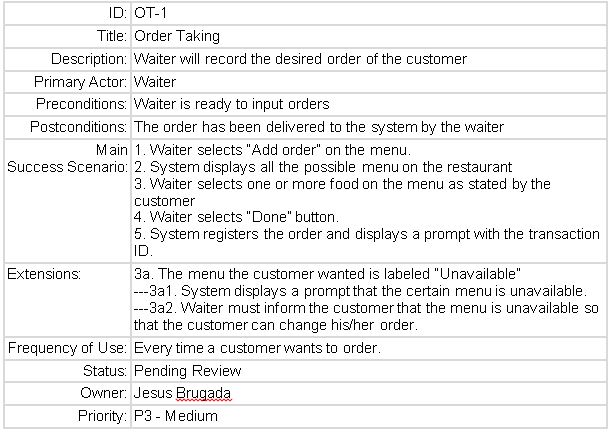
**Component Diagram**

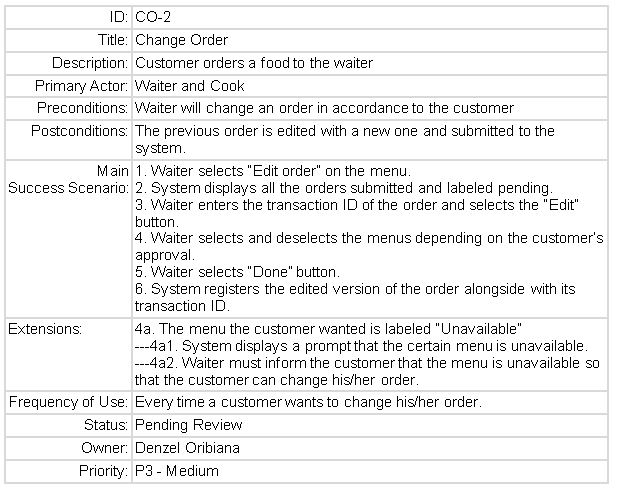
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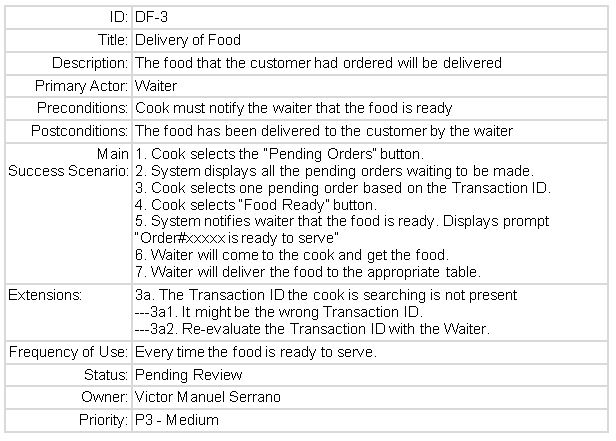
**Use Case Diagram**

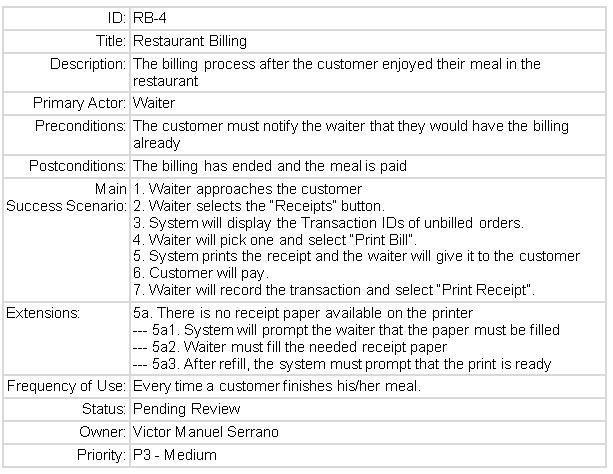
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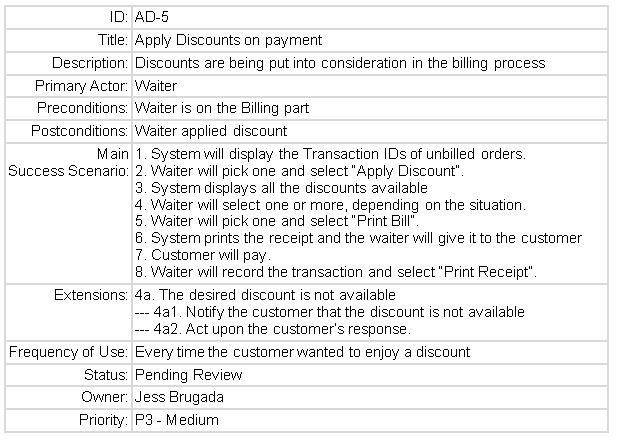
**Use cases:**

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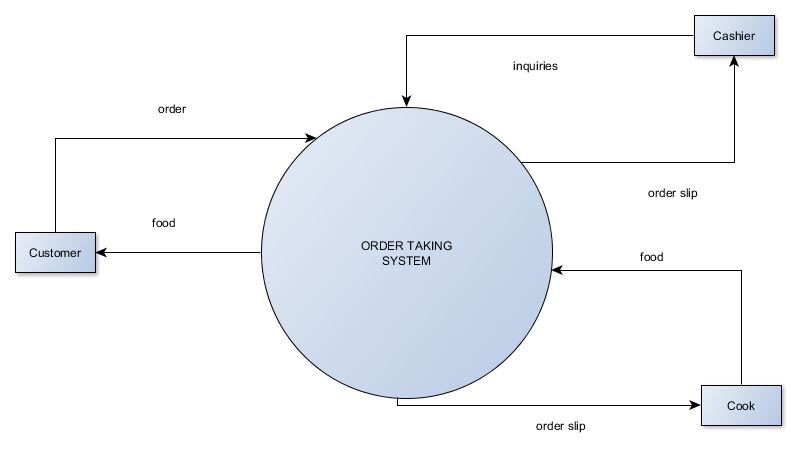
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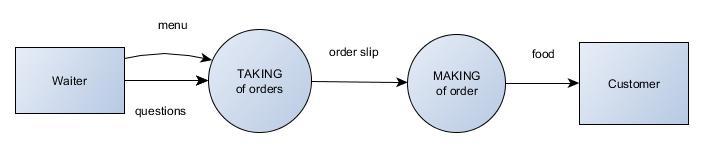
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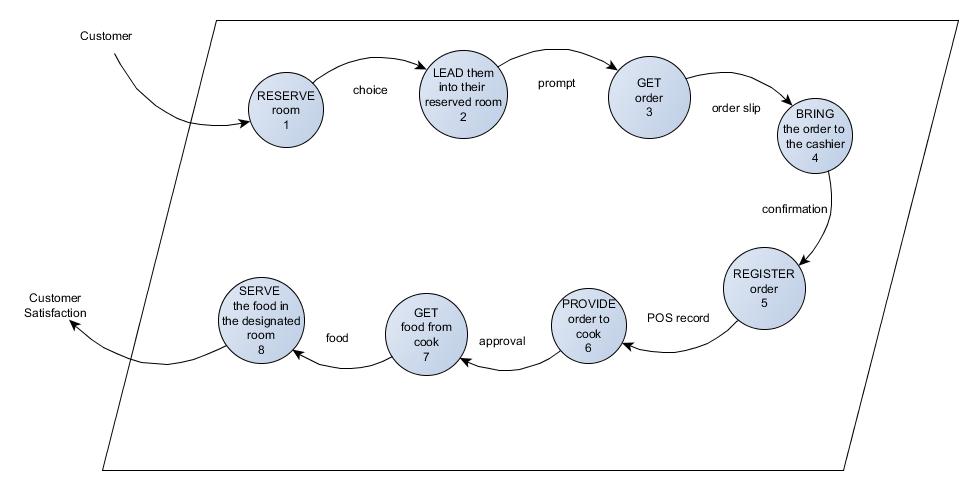
**Context Diagram**

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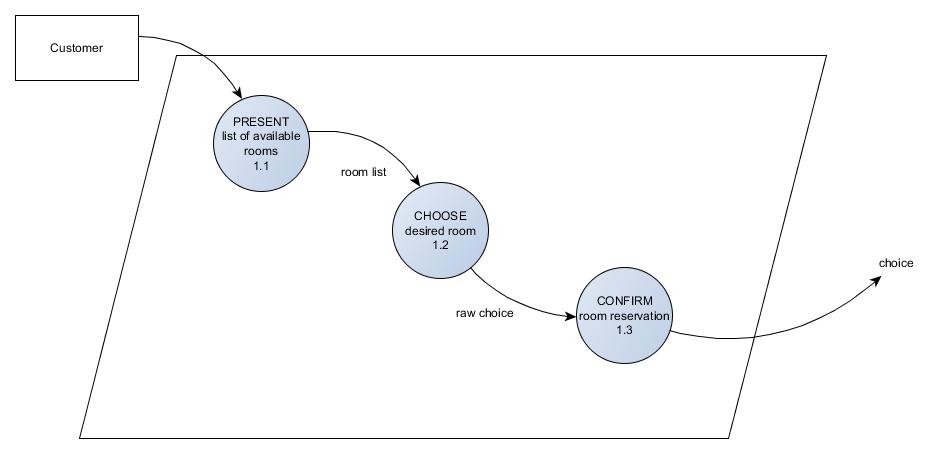
**DFD**

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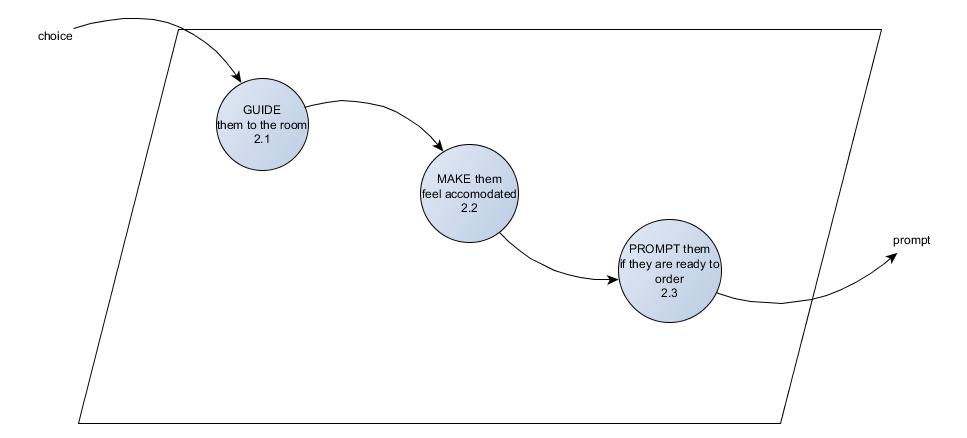
**Diagram 0**

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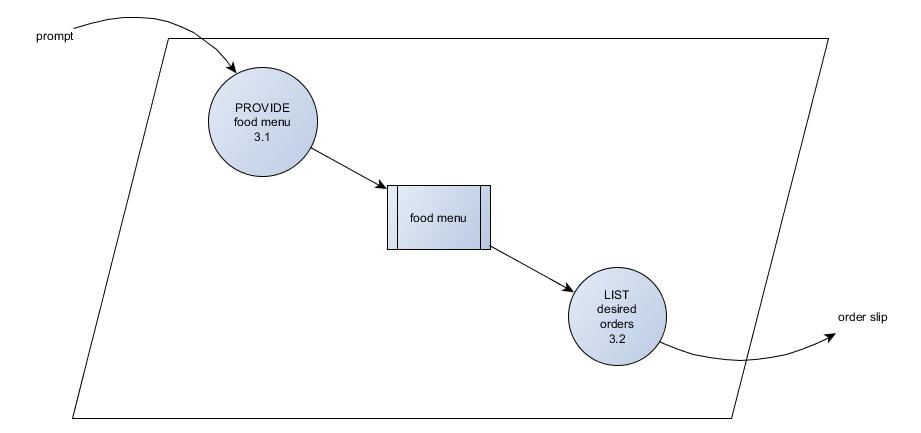
**Diagram 1**

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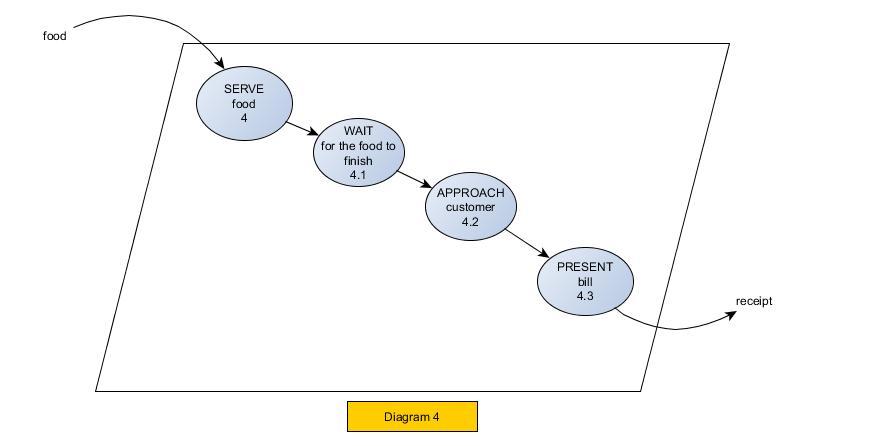
**Diagram 2**

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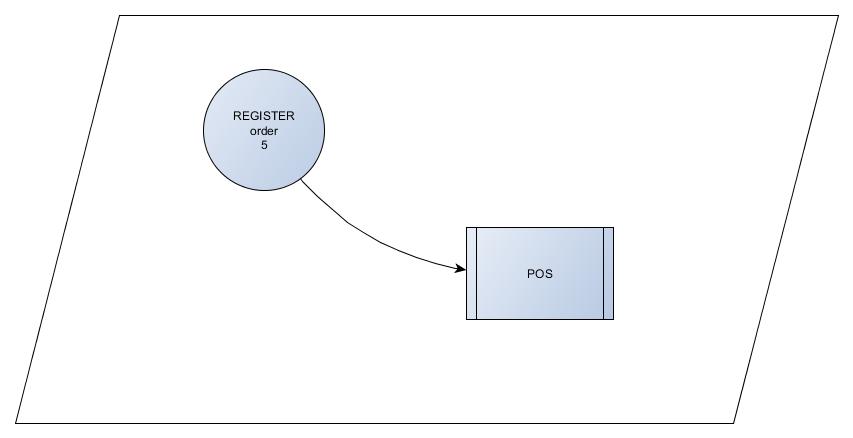
**Diagram 3**

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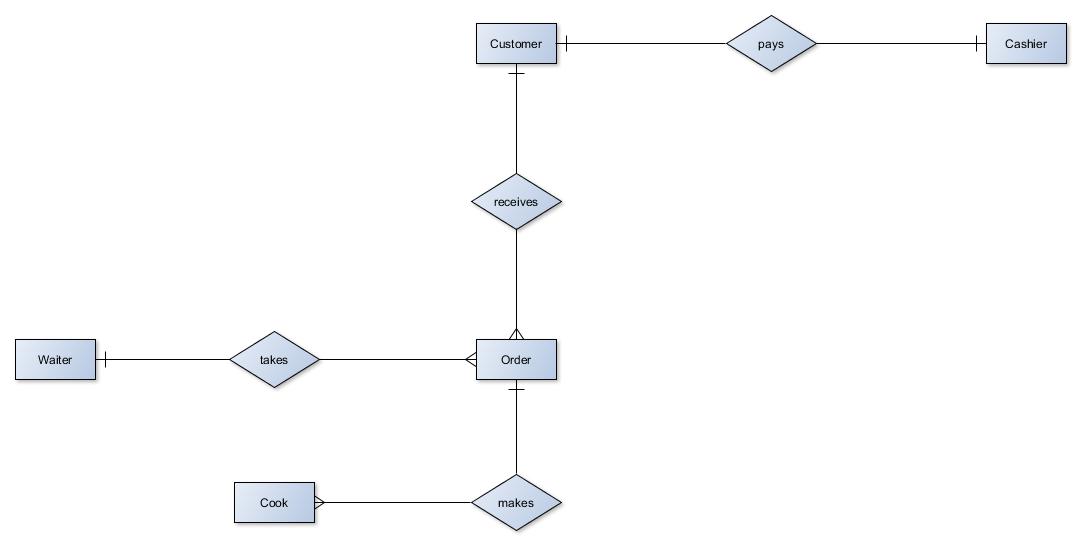
**Diagram 4**

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**Diagram 5**

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**ERD**

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