Critical Thinking Assignment 1: Restaurant Customer Service System

Alexander Ricciardi

Colorado State University Global

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Dr. Vanessa Cooper

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Business use case diagrams are used to model and illustrate interactions between business actors and processes within businesses. Their primary purpose is to describe how a business is used by its customers and partners (Helm n.d.). This essay explores the business use case of a generic restaurant, more specifically the restaurant customer service system by providing a Unify Modeling Language (UML) business use case diagram and, based on the diagram, offers a critical analysis of the business actors and business interactions.

Definition of Business Use-Case Diagrams

IBM documentation (2023) defines a use case diagram as a model of the behavior of a system that helps to capture the requirements of the system. In other words, the diagram describes the high-level functions and scope of a given system. Additionaly, use-case diagrams identify the interactions between systems and their actors. A business use case diagram is related to business systems rather than software systems or other systems. Use case models are composed of the following elements:

- Actors: People, organizations, external or internal systems that interact with the business.
- Use Cases: Specific functionalities or services that the business provides to the actors and other use cases. Use cases can be divided into the following two categories:

  Base use cases are core functionalities that can be modified by other use cases.

  Additional use cases are supplemental functionalities that can modify other use cases.
- Relationships can be divided into the following four categories:

  Include: It is a relationship where a use case includes the functionality of another.

  Extend: It is a relationship where a use case can be extended by another under certain conditions.

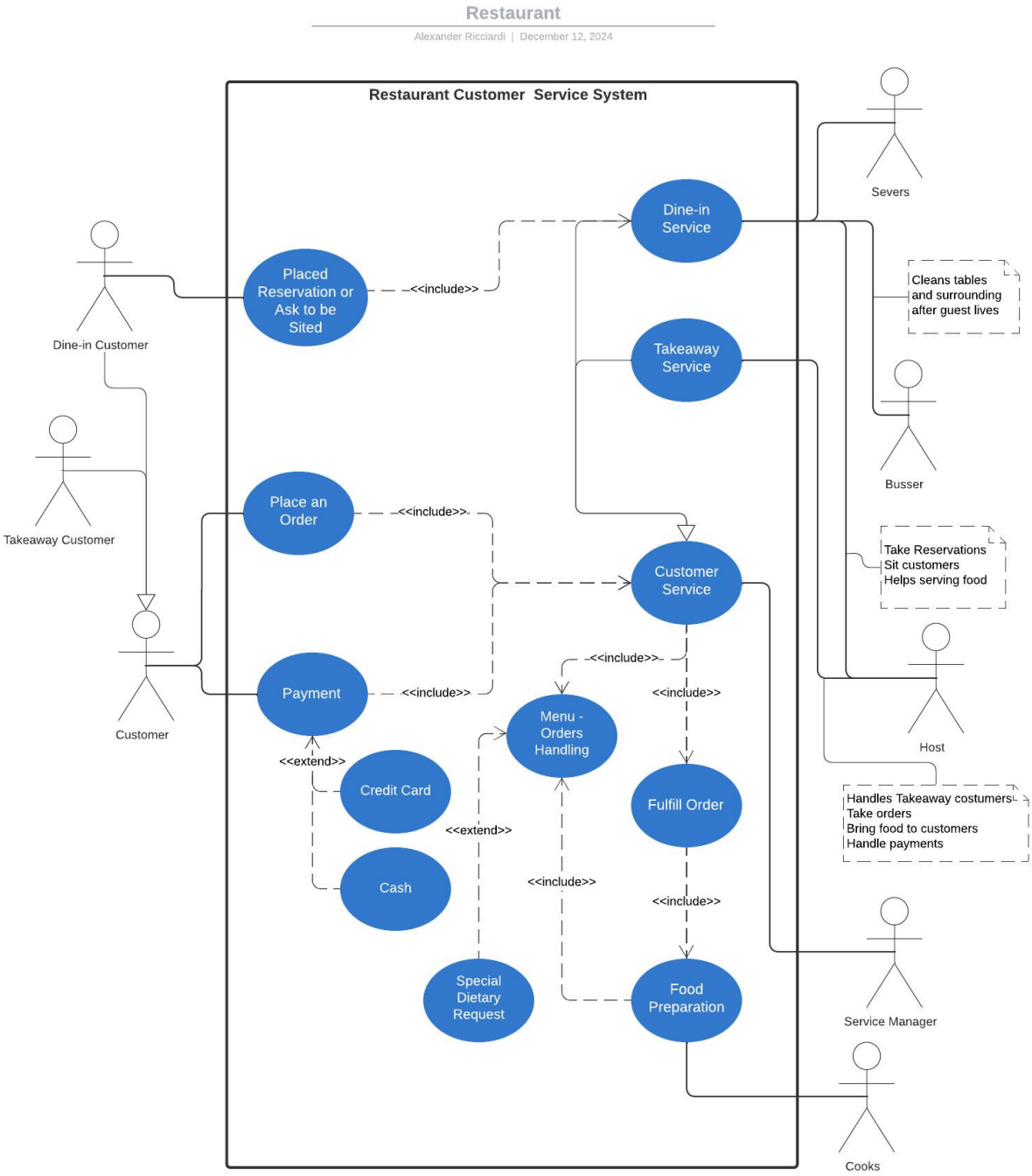
Generalization: It is a relationship where a use case is a generalized version of a use case.

Association: It is a relationship that defines interactions between actors and use cases.

(Helm, n.d)

Figure 1

Restaurant Customer Service System Diagram



Critical Analysis of the Business Actors and Business Interactions

The restaurant customer service system is one of several systems that are part of a restaurant; other systems are, for example, inventory management, accounting, and kitchen. Thus the restaurant customer service system represents one functionality of a restaurant organization. It is a process that involves external actors such as dine-in customers and takeaway customers, and internal actors such as servers, bussers, hosts, service managers, and cooks. Use cases include placing an order, making a payment, and preparing food. Relationships within the system include associations, includes, and extends. Additionally, the use case customer service system model showcased in this essay is based model that can be built upon.

Use Cases

Business use cases can be divided into base cases and additional cases; however, they can also be further categorized into three categories which are:

- Business processes the commercially important activities (Helm n.d.).
- Supporting activities that are not commercially important, but have to be performed.
- Management activities are a type of work that affects how the other business use cases are managed.

The table below, Table 1, summarizes the use cases within the restaurant customer service system, categorizing them into business processes, supporting activities, and management activities

Table 1

Case Use Table

Use Case	Category	Description	Base/Additional
Customer Service (Generalized)	Management Activities	Management business process important for overall customer service.	Base

Dine-in Service	Business Process	Business process specific to dine-in customers.	Base
Take Reservations/ sit customers	Business Process	Core use base that manages reservations and sits customers.	Base
Takeaway Service	Business Process	Business process specific to takeaway customers.	Base
Place an Order	Business Process	Core business process for placing an order, crucial for both dine-in and takeaway.	Base
Fulfill Order	Business Process	Business process for order preparation and delivery.	Base
Special Dietary Request	Supporting Activity	Important for customer satisfaction.	Additional
Food Preparation	Business Process	Business process crucial for preparing food for orders.	Base
Menu – Order Handling	Business Process	Essential for order management.	Base
Payment	Business Process	Core use case, essential for receiving payment.	Base
Credit Card	Supporting Activity	Payment method using credit cards.	Additional
Cash	Supporting Activity	Payment method using cash.	Additional

As shown in the table above core business processes like customer service, fulfilling orders, and payment highlight the core functionalities of the business. Supporting activities such as order handling, credit card or cash payment processing, and handling special requests are important functions for the smooth operation of the restaurant and for customer satisfaction.

Actors

Business actors can represent individuals, organizations, and other businesses that interact with the business. Furthermore, actors who interact with the business but are not part of the business use case system are categorized as external actors, and actors who are an integral part of the use case system are

categorized as internal actors. The table below, Table 2, summarizes the internal and external actors that interact with the restaurant customer service system.

Table 2

Actors Table

Actor	Description	Type
Customer (Generalized)	Individuals or entity that interacts with the restaurant for services.	External
Dine-in Customer	A specific type of Customer who intends to eat their meal within the restaurant.	External
Takeaway Customer	A specific type of Customer who intends to take their food away from the restaurant	External
Servers	Restaurant employees responsible for taking orders, serving food, and clearing tables.	Internal
Busser	Restaurant employee who assists servers by clearing tables, refilling water, and providing general support.	Internal
Host	Restaurant employee who greets customers, manages seating arrangements, and may also handle takeaway orders.	Internal
Service Manager	Restaurant employee responsible for overseeing the overall operations and managing staff.	Internal
Cooks	Restaurant employees responsible for preparing food according to customer orders.	Internal

As shown in the table above, the interactions between external actors, customers, and internal actors like servers, bussers, and cooks are essential for the successful operation of the restaurant.

Relationships

Several relationships between actors and use cases, as well as user cases with other use cases and actors with other actors, are involved in the overall functionality of the restaurant customer service system. The relationships have been defined earlier in this essay. However, the generalization relationship can be defined further. It is a relationship that can be described as parent-child inheritance relationship and it can be divided into two categories:

- Use case generalization a relationship is where the properties of a parent use case or generalized use case, usually a base use case, are inherited by a specialized child use case.
- Actor generalization is a relationship where the properties of a parent actor or generalized actor are inherited by a specialized child a actors

The table below, Table 3, summarizes the different relationships involved in the overall functionality of the restaurant customer service system.

Table 3

Relationship Table

Relationship Type	Source Use Case/Actor	Target Use Case/Actor	Description
Generalization	Dine-in Customer Actor	Customer Actor	Dine-in Customer actor inherits the Customer actor's properties
Generalization	Takeaway Customer Actor	Customer Actor	Takeaway Customer actor inherits the Customer actor's properties
Generalization	Dine-in service use case	Customer Service use case	Dine-in service use case inherits the Customer Service use case’s properties
Generalization	Takeaway Customer use case	Customer Service use case	Takeaway Customer use case inherits the Customer Service use case’s properties
Association	Dine-in Customer Actor	Placed Reservation or Asked to be Sited use case	Dine-in Customers can place reservations or ask to be seated.
Association	Customer Actor	Place an order use case	Customers place orders.
Association	Customer Actor	Payment use case	Customers make payments.
Association	Servers Actor	Dine-in Service use case	Servers are involved in providing dine-in service.
Association	Host Actor	Dine-in service use case	Hosts are involved in managing dine-in service.
Association	Host Actor	Takeaway Service use case	Hosts are involved in takeaway service.

Association	Busser Actor	Dine-in service use case	Bussers support the dine-in service.
Association	Service Manager Actor	Customer Service use case	Service Managers oversee all aspects of customer service.
Association	Cook Actor	Food Preparation use case	Cooks are responsible for food preparation.
Include	Placed reservation or ask to be sited	Dine-in Service use case	Placing a reservation or asking to be seated is part of the Dine-in Service.
Include	Place an order use case	Customer Service use case	Placing an order is part of the overall Customer Service.
Include	Payment use case	Customer Service use case	Payment is part of the overall Customer Service.
Include	Customer Service use case	Menu - Orders handling use case	Customer Service includes handling menu and orders.
Include	Customer Service use case	Fulfill Order use case	Customer Service includes fulfilling orders.
Include	Fulfill Order use case	Food Preparation use case	Fulfilling an order includes food preparation.
Include	Food Preparation use case	Menu - Orders handling use case	Food preparation is influenced by menu and order information.
Extend	Credit Card use case	Payment use case	Credit card payment is an extension of the general payment process.
Extend	Cash use case	Payment use case	Cash payment is an extension of the general payment process.
Extend	Special Dietary Request	Menu - Orders Handling	Special Dietary Requests can extend the menu and order handling process.

As shown in the table above, relationships between actors and use cases, as well as user cases with other use cases and actors with other actors, demonstrate how complex interactions within the restaurant customer service system are. Additionally, these relationships showcase how the different components contribute to the overall functionality of the system.

Conclusion

Business use case diagrams are used to model and visually represent interactions between business actors and processes within businesses or systems. As shown by the critical analysis of the restaurant customer service system the use cases, actors, and their relationships give a deep insight into the processes, interactions, and dependencies within the restaurant customer service operations. Thus, business use case diagrams are a great tool for stakeholders to gain a deep understanding of the business or a system, identify potential issues, and make informed decisions about system design and development. This tool is also a great first step when engineering software for any system or business as it provides a solid foundation model.

References

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