

Restaurant Automation

Report 2

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Project Team

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**All team members contributed
equally!**

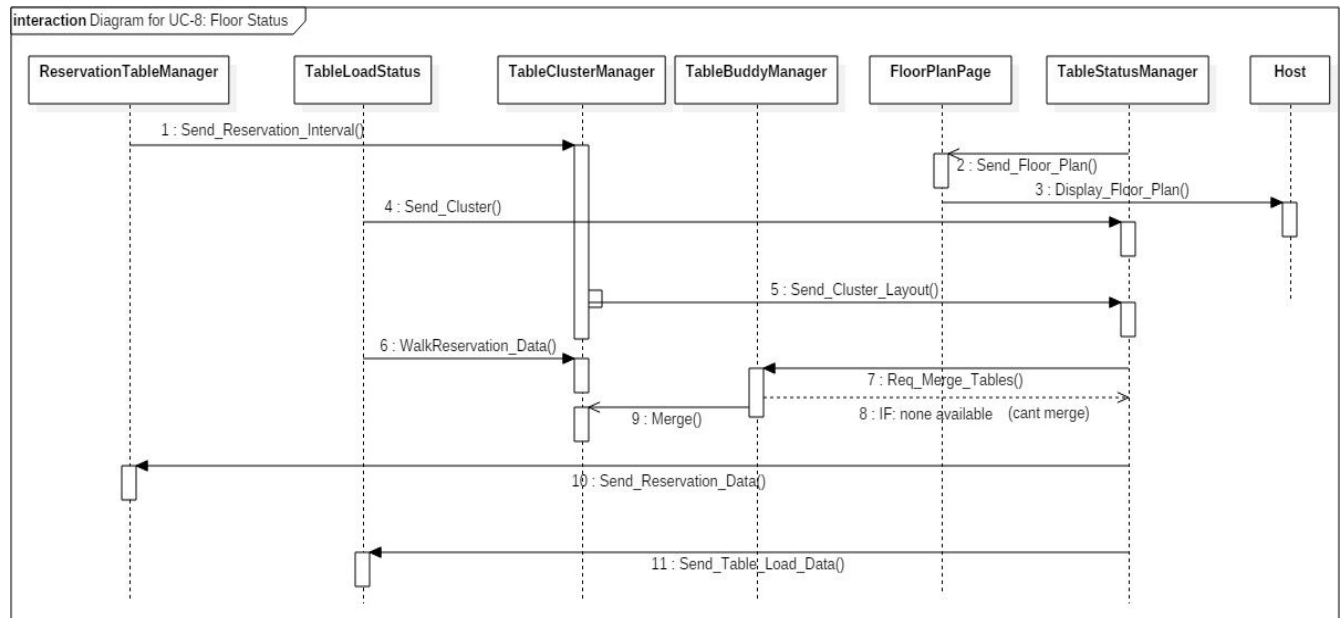
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Interaction Diagrams

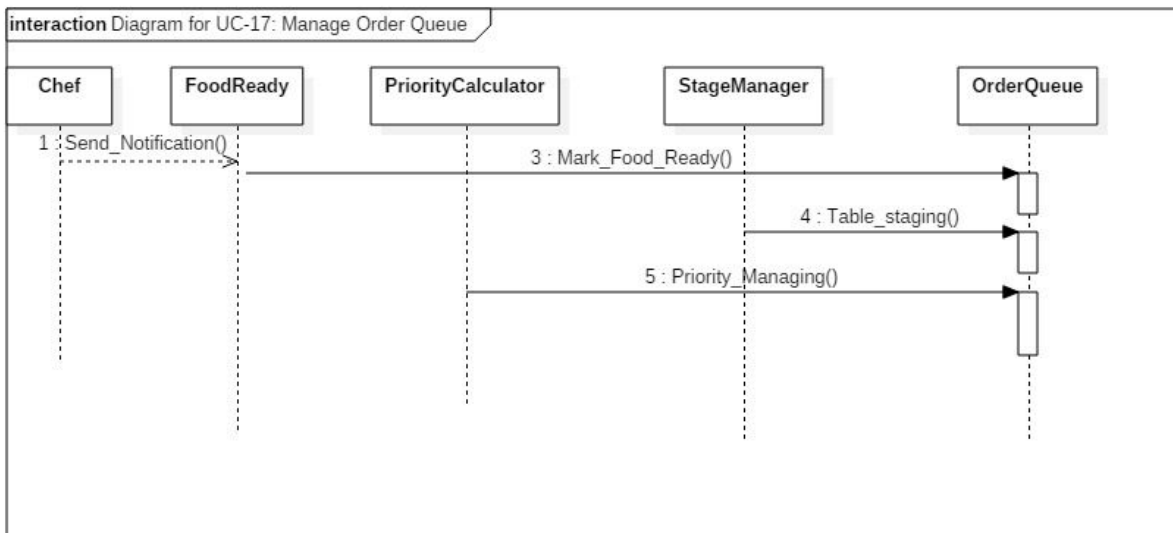
Based on *Learning UML 2.0*, a sequence diagram should be used to represent a flow of messages, while a communication diagram is better for focusing on the connections between different participants within an interaction. The fully-dressed use cases we chose lean towards a flow of messages rather than a communications link because our use cases are more focused on how messages are passed between different modules.

UC-8 Floor Status



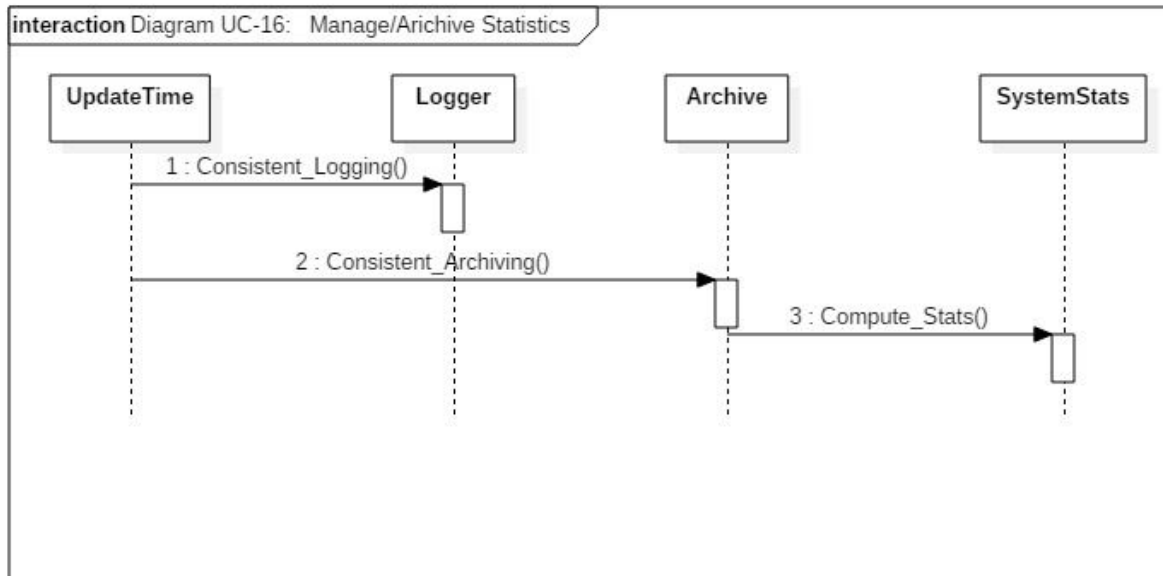
The Floor Status Use Case describes the interactions that take place for the host to be able to view an accurate display of the dining area floor plan. There are two types of tables: Reservation and Walk-in tables. Reservation tables can only be reserved within periodic intervals; this ensures there is enough time for each person to eat. However, a person can take a Reservation table through walkin if no one has reserved it at the start of the current interval; once the interval ends, the table is up for reservation again. Walkin tables are exclusive to people "walking in" only. Data is collected from past days and throughout the current day via the ReservationTableManager to decide the optimum interval for reservations, and data is collected via the TableLoadStatus to decide the optimum number of Reservation to Walk-in tables per Cluster. A Cluster is a grouping of tables of a given size. The status of each table: whether it is reserved, dirty (needs to be cleaned), taken, or free is tracked in real time. In addition, if there aren't enough tables of a certain size and type to satisfy a request, tables of a smaller size can be "buddied" up to form larger tables. All of this information is then forwarded to the floor plan display so the host can see the status of all tables in real time.

UC-17 Manage Order Queue



The Manage Order Queue use case describes the interactions that take place to order items within the queue. Items in the queue are prioritized based on the stage the items are assigned (i.e. appetizers, entrees, and desserts). In addition, a second priority calculation is computed based on the average service time it takes to process a table's order. Then, the chef marks each food item as completed.

UC-16 Manage/Archive Statistics



The Manage/Archive Statistics use case describes the interaction that takes place whenever there is a new transaction. The system will get automatically updated once these transactions occur, As these values are updated, the system will periodically compute several statistics such as total profit, number of items sold, most popular dish, etc. All this information is available upon request through the system.

Project Management

Project Coordination and Progress Report

Our team has not started development yet, so no use cases have been implemented. We plan to start development after submitting Report 2 - Part 1 since we are now getting into the system design. The team will be deciding on which technologies to use in order to accomplish our tasks most efficiently based on the requirements. Our plans for development are described below in the breakdown of responsibilities along with what we have already accomplished.

Plan of Work

Tasks			Feb 20	Feb 26	Mar 2	Mar 5	Mar 8	Mar 10	Mar 12	Mar 24	Mar 25	Apr 15	Apr 26	May 1	May 3	May 5	
Report # 2	Part 1	Interaction Diagrams															
	Part 2	Class Diagrams															
		System Architecture															
	Part 3	Algorithms															
		User Interface Design															
		Design of Tests															
		Project Management															
First Demo	Product Brochure																
	Demo																
Report #3	Part 1	Revise Report #1															
		Revise Report #2															
		Add summaries/finalize															
	Part 2	Full Report															
	Reflective Essay																
Second Demo																	
Project Archive																	

Note: The different colors indicate that there is a deadline for submission is between them.

Breakdown of Responsibilities

To make sure that our team is productive and efficient we divided up into 3 groups of two. Since we have completed an initial design of our system together, our next few weeks would be to build prototype of the system. Since we have not completely created detailed algorithms, we will try to build the UI and use basic/naive algorithms according to the concepts in the domain model. We created the tasks by grouping similar use cases in a subsystem and assigning each subsystem to a subteam. As each feature is developed by the sub-teams they will be performing tests on it so its not left until last minute.

Teams:

Dylan Herman and **Moulindra Muchumari** are responsible for Cleaning, Billing, and Manager subsystems.

Completed Tasks:

- Created preliminary UI design of the Manager's data and statistics view
- Planned out the use cases and domain models for the management subsystem

Current Tasks:

- Design what data points are to be collected from the restaurant and possible statistical measurements that can be analyzed from the data.
- Keep attending weekly meetings

Future Tasks:

- Implement the UI design for the manager's console and make changes accordingly
- Create/list out possible settings that the manager should manage
- Create the split check interface
- Implement the archiving and statistics system

Mit Patel and **Prabhjot Singh** are responsible for the Ordering subsystem.

Completed Tasks:

- Created the UI design for the chef's Order Queue
- Planned out the use cases and domain models for the Order Queue subsystem
- Created the mathematical models for managing order queue

Current Tasks:

- Implement the UI design for the chef's Order Queue
- Keep attending weekly meetings
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Future Tasks:

- Create UI design for the waiter's tablet to place orders and receive notifications
- Create a sample menu/ menu categories
- Implement the Order Queue subsystem using the mathematical model and domain analysis

Nill Patel and **Raj Patel** are responsible for Seating and Inventory Management subsystems.

Completed Tasks:

- Created an interactive UI design for the floor plan using different colors for the status
- Keep attending weekly meetings
- Planned out the use cases and domain models for the Floor Plan subsystem
- Created the mathematical models for suggesting meal plans

Current Tasks:

- Implement the floor plan UI (only the non-interactive part)
- Keep attending weekly meetings

Future Tasks:

- Create the reservation interface frontend
- Design the UI for raw materials (ingredients) interface that displays the list of materials and their amounts
- Implement the food suggestion subsystem using the mathematical model and domain analysis

**All team members managed the
project equally!**

References

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- Axure
-Program used to create wireframes for the UI
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