

# PROTOTYPING AND INTERACTION DESIGN

ASSIGNMENT 3



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## 1. Introduction

### a. Brief overview of the digital system and its objective (the concept).

Our design team has been tasked with analysing, researching, designing and prototyping a digital system tailored to meet the needs of a family-owned restaurant that is looking to expand. Certain traditional elements such as welcoming and greeting customers at the door will be maintained, however, inefficient methods such as tracking and updating tables on a chalkboard and taking handwritten orders will be replaced. These methods were sufficient for the original 30 seat restaurant but are no longer efficient for two new larger restaurants that will be accommodating around 200 customers.

The current non-automated system presents several significant pain points that impact both the restaurant operations and the customer experience. One of the main issues is the high possibility of errors occurring due to the loss of paper-based orders and miscommunication between kitchen, wait and buss staff. Without a centralised digital system, orders can be easily misplaced, incorrectly recorded, and/or misinterpreted. Thus, leading to multiple delays and unsatisfied customers. In addition to this, the current paper-based system is extremely time-consuming because it requires employees to handle the restaurant's tasks manually. This inefficient system significantly slows down the restaurant's service, increases customer wait times, and reduces table turnover, ultimately affecting the restaurant's revenue potential. As a result, customers often experience frustration due to long waiting times, incorrect orders, and inconsistency with regards to the restaurant's service quality. These challenges harm the restaurant's reputation and reduce customer loyalty, making it challenging for the business to grow.

The main objectives of the new digital system are to modernise and streamline the restaurants existing operations by replacing the outdated manual, paper-based system with an efficient, intuitive and automated platform. The digital system will function on work tablets which will require employees to log in to verify their roles. This ensures controlled access because it allows different permissions based on each user's specific responsibilities within the restaurant. Additionally, the digital system will provide employees with real time updates, facilitating seamless communication and improving overall efficiency across all employees. The new system has been designed in a way that will address the pain points of the restaurant's existing system, offering multiple solutions to benefit and improve efficiency for all users. By addressing the key challenges which have been mentioned above, it ensures that the restaurant operates efficiently,

enhancing employee productivity, customer service and customer satisfaction.

Any changes made on the system, such as order placements, table reservations, and inventory levels are instantly reflected across all platforms. Thus, ensuring that every employee has access to updated information at all times. For instance, when a waiter takes a customer's order, it is automatically sent through to the kitchen staff, eliminating the need for manual intervention and reducing the risk of miscommunication or misplaced order slips. This real time automated system ensures that the kitchen staff receive accurate information immediately, allowing them to begin the preparation process without any sort of delays. Kitchen staff can then update the order status (e.g., from "In Progress" to "Ready for Pickup"), instantly notifying the waiting staff to ensure that the food is given to the customers as quickly as possible to reduce service delays. Beyond order management, the digital system enhances coordination between different roles within the restaurant. Hostesses are able to update table statuses in real-time, providing immediate visibility to the bus staff, who can then promptly clear and reset the tables for the next customers. This in turn, helps the restaurant to maximise table turnover rates and ensures that customers have been served in an efficient manner. Customers also benefit from the system as they can conveniently make reservations and view the entire menu online without having to directly phone the restaurant. Additionally, management and owners have the ability to override certain system functions. For example, the system allows them to edit and update a customer's bill in case of errors. They can also access real-time business performance updates and monitor employee schedules to ensure that all shifts have been covered.

Furthermore, the system acts as a centralized platform where all staff members can seamlessly access and share updates. This centralised communication helps to ensure that the restaurant has a more coordinated and efficient workflow.

b. Summary of key points from assignment 1 & 2.

Throughout Assignments 1 and 2, we have focused on several key aspects to ensure the digital management system that we are designing successfully meets the needs of both the restaurant and its users. One of the first key points throughout this process was to clearly understand the goals of each user group. For example, hostesses should be able to effortlessly view table statuses with the click of a button, while waiter staff need a fast and efficient way to take customer orders and send them to the kitchen automatically.

With these goals in mind, we have designed a system that has automated the majority of the users' tasks to make them more productive.

Another key point of the design process was observing and role-playing real life restaurant operations. This hands-on approach allowed us as a team to better understand the challenges faced by each user in the restaurant environment. This provided us with valuable insights into their daily tasks. By imitating the activities of waiter staff and hostesses, we were able to clearly identify the specific pain points of each user. These observations guided us in designing solutions that directly addressed these challenges.

Furthermore, a key point in the success of this system was identifying and understanding the users pain points and goals. The stakeholders involved include managers, owners, hostesses, kitchen staff, wait staff, buss staff, and customers. To create a solution that truly enhanced the user experience, we began by identifying the pain points in their existing system. For example, waiter staff were often required to receive, prepare, and store orders on paper, leading to inefficiency and errors. As mentioned earlier, our system's goal is to automate these tasks, eliminating the need for paper and reducing errors.

In order to enhance the digital system, we developed a user flow diagram to clearly show us step by step how the wait staff interacts with it. This diagram highlighted the key tasks, ensuring the process is straightforward and easy to understand. By mapping these steps, we ensured the system is user friendly and minimizes the likelihood of errors.

In addition to this, we also focused on applying key design principles to ensure that the system and wireframes are intuitive and user friendly. Creating low-fidelity wireframes was a crucial step in the design process because it allowed us to clearly visualize the system's structure and functionality. By focusing on this early on, it helped identify key features on each screen while providing an opportunity to refine and enhance the design in the high-fidelity wireframes. Furthermore, by following design patterns such as navigation, content organization, and search and filter, we were able to determine which elements were necessary and how they should be structured to enhance the user experience. We will be further expanding on these topics throughout this assignment.

## 2. Brainstorming phase

### a. Explanation of the brainstorming process

Our brainstorming process was largely iterative, as we continuously revised our interaction and prototyping solutions throughout their development. The first step in this process included reviewing our low-fidelity wireframes, taking into consideration aspects such as colour palette, icons and typography. Our primary objective was to translate the minimalist design of the low-fidelity wireframes into readable and effective high-fidelity wireframes which prioritised various design principles.

This process consisted of brainstorming various colour palettes which would align with the aesthetics of a family owned Italian restaurant while maintaining legibility. Our first proposal for this colour palette included colours and shades associated with the Italian flag, as this would be consistent with the restaurant's brand identity. However, upon review, these colours were deemed unsuitable due to their inaccessibility to colour blind people as well as the ways in which these colour combinations often appeared to be busy, distracting, and incongruent.

Our revised colour palette therefore centred primarily around a deep red colour, referencing the colour of red wine often associated with Italian restaurants and keeping in accordance with Luno e Vino's brand identity. Additionally, our initial colour choice for the secondary colours were cream and a lighter, pinkish, shade of our primary deep red. This was also revised as our high-fidelity wireframes became busy and cluttered with shades of red and pink. In response, our secondary colours were decided to be cream and white, with lighter shades of deep red instead being used as accents on various high-fidelity wireframes such as the floor plans.

However, there were certain instances wherein the use of the lighter, pinkish shade of our primary deep red were deemed appropriate. One such instance is its use to signify tables in our various 'Floor Plan' frames. These frames were particularly difficult to design, as we opted for improved functionality over aesthetics by matching the placement of the various tables to their real life counterparts. This would make it much easier for staff using the system to visualise each table and table availability, even if the frame does appear 'messy' at first glance.

The final steps of our brain storming process included brainstorming ways in which aspects of the low-fidelity wireframes could be translated into

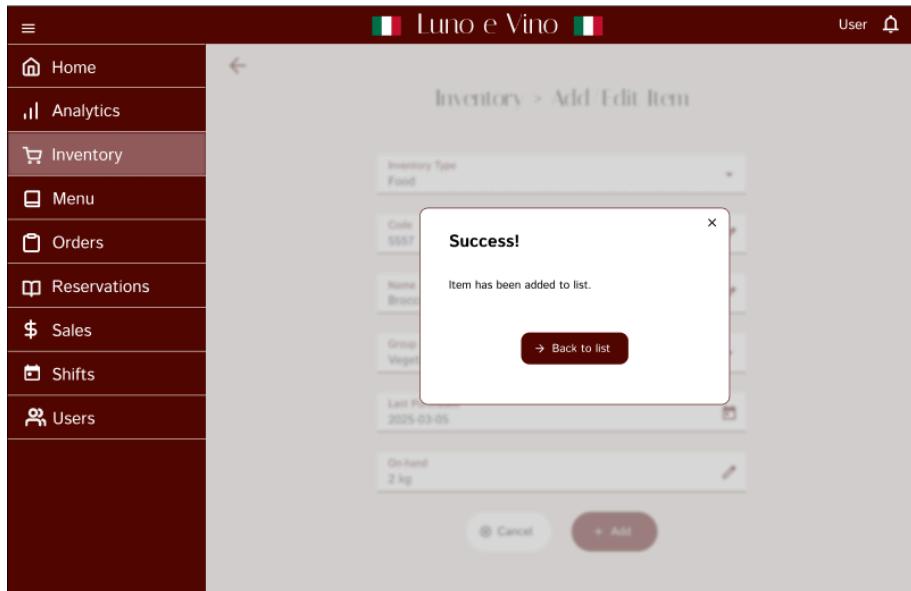
high-fidelity wireframes in a way which would maximise functionality and flow of the digital restaurant management system.

b. Explain the rationale behind each design

We utilised various design elements and theories as the logical basis for all our designs. Examples of the rationale and elements taken into consideration for these designs are as follows:

i. Visual hierarchy

All of our designs were outlined with elements of visual hierarchy, which states that the most important content on a page should stand out the most, while the least important information on a page should stand out the least. An example design in which this is particularly evident has been included below.



In this frame from our Food Inventory Section, the relative importance of screen elements is clear. The notification pop up is in the forefront of the design, illustrated by the blurring of the background information when the pop up appears. This communicates to the user the ways in which the pop up contains the most important information on the screen at that time, while the blurred 'Inventory > Add/Edit' information is less important. Additionally, this indicates to the user what action to take next, as the red 'Back to List' button stands out and illustrates importance.

ii. Size

The size of headlines and subheadings were also designed in a way that would indicate to the user the order and importance of information. An example design in which this is evident has been included below.

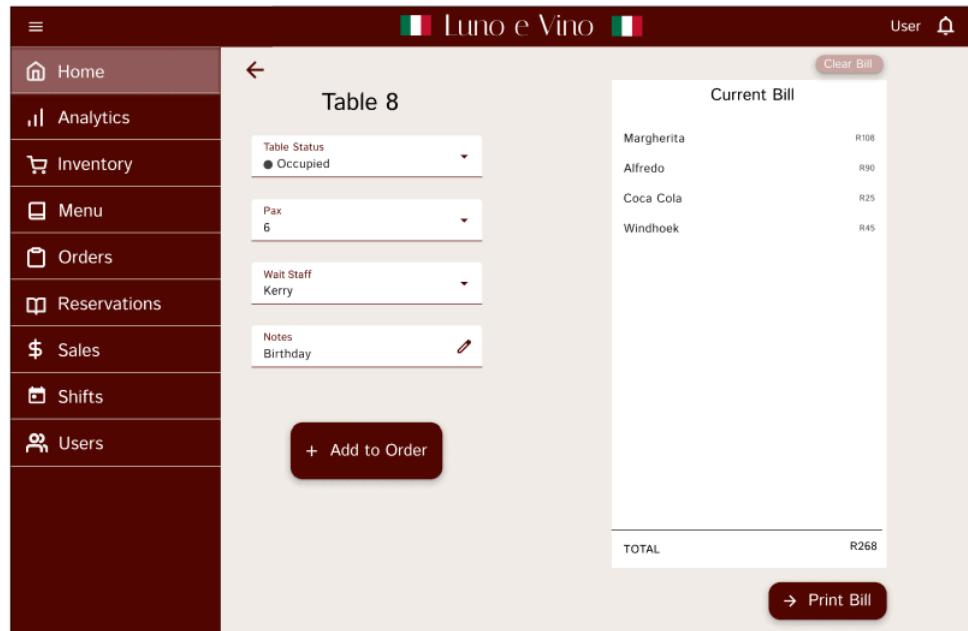
The screenshot shows a software interface for a restaurant named 'Luno e Vino'. The left sidebar has a dark red background with white icons and text for 'Home', 'Analytics', 'Inventory', 'Menu', 'Orders', 'Reservations', 'Sales', 'Shifts', and 'Users'. The main content area has a light gray background. At the top, there are two small Italian flags and a 'User' icon. The title 'Table 8' is centered in a large, bold, black font. Below it is a 'Table Status' dropdown set to 'Occupied'. There are three other dropdowns: 'Pax' (set to 6), 'Wait Staff' (set to 'Kerry'), and 'Notes' (set to 'Birthday'). A red pencil icon is next to the notes. A dark red button at the bottom left says '+ Add to Order'. To the right, a 'Current Bill' section is titled 'Current Bill' in a smaller, bold, black font. It lists items with their names and prices: Margherita (R108), Alfredo (R90), Coca Cola (R25), and Windhoek (R45). At the bottom, it shows a 'TOTAL' of R268. A dark red button at the bottom right says 'Print Bill' with a white arrow icon.

Item	Price
Margherita	R108
Alfredo	R90
Coca Cola	R25
Windhoek	R45
<b>TOTAL</b>	R268

In this frame from our Table Details section, the importance of information is communicated to the user through the differing sizes in headings and subheadings. The main heading, 'Table 8' is bigger than the subheading 'Current Bill', indicating to the user that the current bill is for Table 8.

### iii. Position

Various elements were also designed so that their importance could be discerned by their size and positions, as well as the colours of the layout. An example design in which this is evident has been included below.



This can be viewed in a frame from our Table Details section. The 'Clear Bill' button can be viewed as an example, as the button is a different, more muted, colour to the other buttons in the frame to illustrate its lesser importance- as the 'Clear Bill' button is less important and used less than the other buttons present on the frame. Additionally, the decision was made to not put the 'Clear Bill' button next to the 'Print Bill' button to reduce the likelihood of accidental clicks when users may have intended to click 'Print Bill'. In this way, the user can discern the importance of the 'Clear Bill' button by its size, position, colour, and layout.

#### iv. Density

Density was taken into consideration when designing every frame in order to make the text and elements easier to read and reduce the stressfulness of the user interaction and reading experience. An example design in which this is evident has been included below.

This can be observed in the above frame from the Menu of the Customer View section. Taking density and user experience into account, we decided that nine menu options per screen would be the maximum displayed. This ensures a balance between readability, efficiency, and density.

#### v. Background colour

Taking into account aspects of background colour in our designs involved adding shading or background colour in order to draw attention to a block of text and distinguish it from other text. An example design in which this is evident has been included below.

In the frame presented above from our Reservations Hostess View section, background colour is used to differentiate text on one card from the other cards. This decision was made because we required a way to communicate to the user that a reservation was still valid and should be viewed in conjunction with other reservations, while the alternative background colour indicates the reservation has been waitlisted. The alternative background colour distinguishes the card and communicates to the user at a glance that a reservation is waitlisted.

#### vi. Rhythm

Rhythm refers to the manner in which lists, grids, and whitespace can create a strong visual rhythm that draws the user's eye. An example design in which this is evident has been included below.

First Name	Last Name	Role	Password
O	Olivia	Manager	647278
E	Ethan	Manager	628499
S	Sophia	Manager	128421
L	Liam	Wait Staff	936267
I	Isabella	Wait Staff	361524
N	Noah	Wait Staff	662415
A	Ava	Wait Staff	725267
J	James	Host	015261
E	Emma	Hostess	762451
B	Benjamin	Buss Staff	901345
C	Charlotte	Buss Staff	223314

In the above frame from our Users section, lists, grids, and whitespace are used to draw the user's eye and create rhythm in the information presented on screen in a table. This makes the information more readable for the user and increases the effectiveness of the user's experience.

#### vii. Emphasising small items

Emphasising small items refers to making small items stand out by putting them at the top of the frame, along the left side, or in the upper right corner of the frame. Additionally, small items can be

emphasised by giving them high contrast and visual weight. An example design in which this is evident has been included below.

Food	Non-Food	+ Add	Search		
1234	Chicken Breast	Meat & Poultry	2025-02-28	10 kg	
5648	Ground Beef	Meat & Poultry	2025-02-28	8 kg	
9101	Salmon Fillet	Seafood	2025-03-01	5 kg	
1123	Shrimp	Seafood	2023-03-02	3 kg	
1012	Eggs	Dairy	2025-03-03	6 dozen	
7902	Whole Milk	Dairy	2025-03-03	10 L	
6734	Cheddar Cheese	Dairy	2025-02-28	4 kg	
2234	Butter	Dairy	2025-03-01	1.5 kg	
6781	Olive Oil	Oils & Condiments	2025-03-01	5 L	
1144	Onions	Vegetables	2025-03-01	10 kg	
3214	Carrots	Vegetables	2025-03-01	7 kg	

In this frame from our Food Inventory Section, the small 'Add Item' is emphasised through high contrast colour, visual weight, and its positioning in the upper right hand corner. This communicates to the user that the most important action available on the frame is the 'Add' button used to add a food item to the inventory. Additionally, the use of a high contrast colour with high visual weight emphasises the pagination of the table, communicating to the user that multiple list pages are available for view.

### viii. Alignment and grid

A design that is based on a grid allows the user to focus on the content while maintaining design consistency and balance, contributing to a better user experience. An example design in which this is evident has been included below.

Luno e Vino

Employee Schedule

**Monday 03/03/2025**

Shift 1- 08:00	Liam Brown	
Shift 2- 14:00	Isabella Taylor	
Shift 3- 18:00	Emma Harris	

**Tuesday 04/03/2025**

Shift 1- 08:00	Noah Anderson	
Shift 2- 14:00	Ava Martinez	
Shift 3- 18:00	James Thomas	

**Wednesday 05/03/2025**

Shift 1- 08:00	Emma Harris	
Shift 2- 14:00	Benjamin Clark	
Shift 3- 18:00	Charlotte Lewis	

1 2 3 ... 11 12

In the above frame from our Employee Shifts Schedule section, the use of alignment and grids is clear. This makes it easy for the user to find the information they are searching for intuitively because of the use of the grid design. This contributes to the legibility and usability of the design.

### 3. Prototype development

#### a. The process of converting wireframes into digital prototypes.

To transform our wireframes into digital prototypes for our restaurant management system, we started by refining our low-fidelity wireframes, which outlined our initial concepts and planning. We incorporated feedback from the previous assignments to improve clarity and functionality. As we transitioned to high-fidelity wireframes, we brainstormed visual design elements, carefully selecting colour schemes, typography, and iconography to enhance aesthetics and usability. We also refined the wording of labels and buttons to ensure clarity and user-friendliness. Throughout this process, we maintained consistency in layout, spacing, and alignment, creating a cohesive and intuitive interface. This method allowed us to create a more refined and lifelike depiction of the final system, providing a clearer understanding of how essential features like reservations, order management, and shift scheduling, will operate.

#### b. Design principles applied in our restaurant management system

In designing our restaurant management system, we adhered to key design principles to enhance usability, accessibility, and overall user experience. Below are the principles we applied and how they contributed to an intuitive and functional interface.

##### i. Consistency

Consistency was maintained throughout the system by using the same colours, typography and button designs across different screens. This approach makes the interface predictable, reducing the learning curve for staff and ensuring that interactions feel cohesive and familiar. The navigation bar is always on-screen, allowing users to quickly access different sections of the system regardless of where they are. In addition, we ensured proper alignment of related items and visual separation between unrelated items to avoid clutter and confusion, creating a more organized and accessible design.

##### ii. Accessibility

To ensure the system is usable for individuals with disabilities, we applied colour-blind friendly colours to the table status indicators, ensuring that the colours are distinguishable by those with colour deficiencies. Additionally, we used high-contrast colours schemes for the overall system theme to improve visibility and clarity. We also ensured the text is legible and appropriately sized, making it easier to

read and navigate for all users. These design choices contribute to a more inclusive user experience.

iii. **User Control and Flexibility**

We designed the system to give users control over their actions. Features such as cancel options, clear exit points (like close buttons), and the ability to move back through pages or steps were implemented to prevent frustration and allow users to correct mistakes easily.

iv. **Feedback and Responsiveness**

Providing feedback is crucial in guiding users through the system. We included visual highlights on selected buttons and navigation bar items, as well as success, error, and notification messages to inform users about their actions. This ensures that users are aware of what is happening at all times, reducing uncertainty.

v. **Simplicity**

We kept the interface as clean and uncluttered as possible by avoiding unnecessary visual elements. This simplicity enhances usability by making key features more prominent and reducing distractions.

vi. **Visual Hierarchy**

Elements on the screen were organised in a clear viewing order, making it easy for users to identify and focus on primary information first. Colour, size, and weight were strategically used to emphasise important elements such as buttons, headings, and key data. For example, larger and bolder fonts were used for headings and key buttons to make them stand out, ensuring that users can quickly identify essential functions.

vii. **Clarity and Information Presentation**

Information was presented in a clear and easily understandable manner by using concise language, structured layouts, and appropriate typography. We also incorporated white space to improve readability and prevent information overload. Readable fonts and proper font sizes helped ensure that users could quickly scan and comprehend information, making navigation intuitive and efficient.

viii. **Error Prevention and Recovery**

To minimise user errors, we incorporated previews, edit options, and final confirmation messages before submitting critical actions.

Additionally, informative error messages were provided (e.g. during login failures), along with intuitive error handling to guide users toward correcting mistakes.

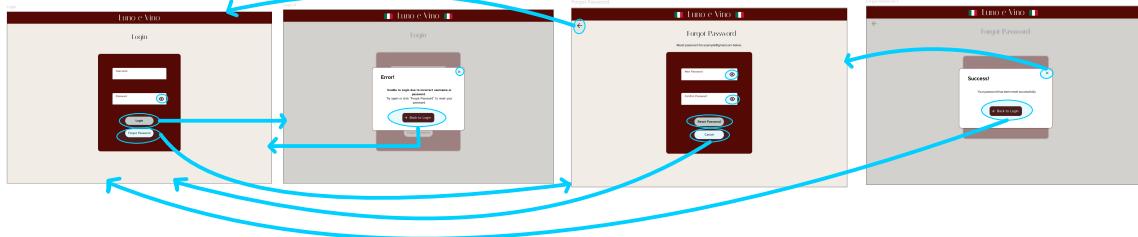
ix. **Progressive Disclosure**

We applied the principle of progressive disclosure to prevent overwhelming users with too much information at once. Instead, details are gradually revealed as users move through the system or request more information, making navigation more intuitive and less cluttered.

By integrating these design principles, we created a restaurant management system that is user-friendly, accessible, and efficient, ensuring a smooth experience for all users.

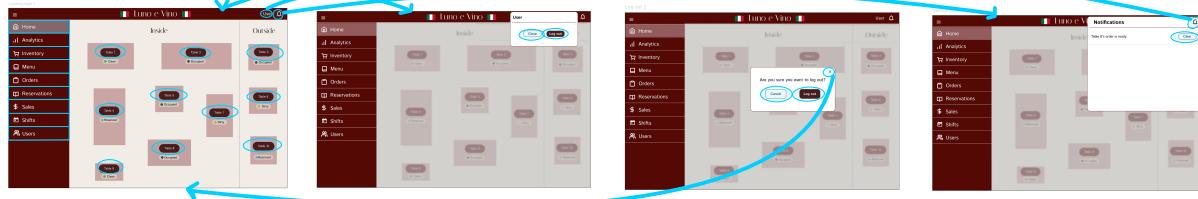
## 5. Interactivity and Simulation

### Login and Forgot Password:



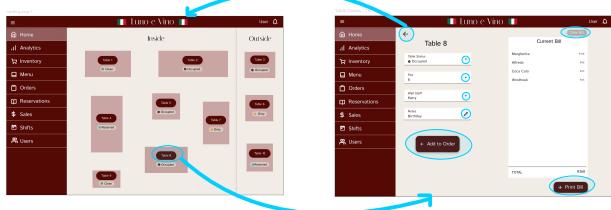
The Login Page Shows two interactive buttons, a Login button and a Forgot Password Button, as well as two text input boxes for Username and Password. By clicking on the text input boxes, the user can type in their respective username and password that has been saved onto the system by the owner/manager previously. The eye icon on the right of the Password text input box is an interactive icon that allows the user to view their password which initially displays as \*. Then, by clicking the Login button the system will authenticate the user's details. If the authentication is successful, the user will be redirected to the Landing Page. If the authentication fails, an error message appears on the Login Screen. The User can then click the Back to Login button to redirect them back to the Login Page where they can either re-enter their details, or click Forgot Password. The Forgot Password button will redirect them to the Forgot Password page, where the user can enter a new password in the text input boxes. They can click the Cancel if they would like to stop this process, or they can click the Reset Password button which will save their new password to their username. A Success message appears if the password has been reset successfully. The user can then press the Back to Login Button to retry the login process with their new password. On notifications, there are also Exit buttons indicated by an x, which will allow the user to exit the notification but not be redirected to a new page. In the top left corner of each page, there are back buttons indicated by an arrow to the left. These allow the users to navigate between pages. By clicking the arrow they will go back to the previous page. These two interactive icons are consistent throughout the system, and can be used on all pages and notifications.

### Landing Page, Log Out and Notifications:



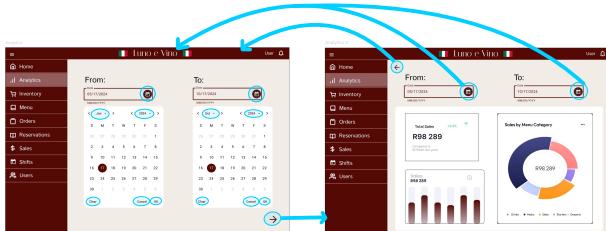
The Landing Page of The restaurant Management System is an interactive display of the table layout of the restaurant. Each table has a button Indicating the table number. By clicking the table number the user would be redirected to the Table Details page. There is also a left-aligned navigation bar that is interactive. If you click on each of these navigation bar items, the user will be redirected to that specific page. There is a User button which indicates who is logged into the system by displaying their name. This allows managers to track their user's actions efficiently. This User button is also used when logging out. The User can click the Logout button, which will log them out of the system and redirect them to the Login Page. The bell icon on the top right is an interactive button that allows the user to view their notifications. The notifications are things like updates on the table status or order status.

## Table Details:



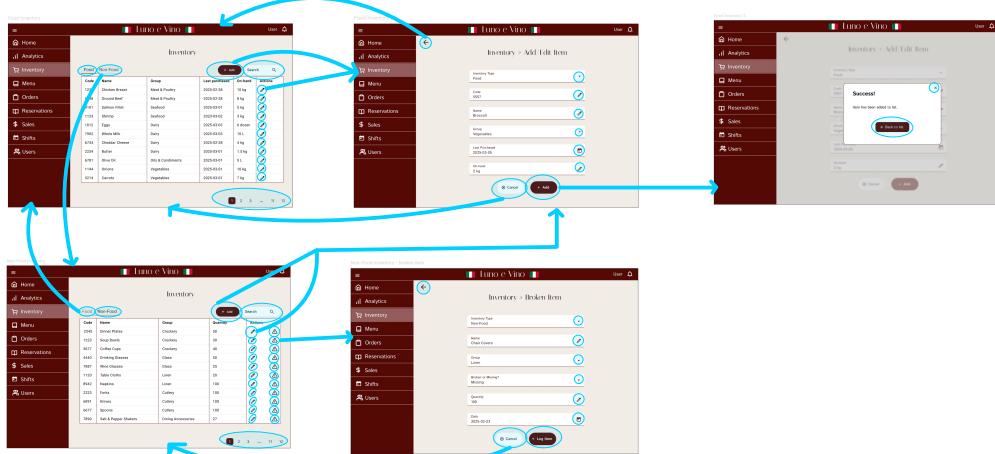
From the Landing Page, if a user clicks on the Table button, it redirects the user to the Table Details page. Here a waitress can create updates on the table status, indicating the pax, and indicating the wait staff by selecting an option from the drop down menus. The waitstaff can also add notes to the table that might be necessary information for other employees, such as a special event like a birthday, or a specific allergy. The waitstaff can also click Print Bill in order to print the table's bill for the customer, and Clear Bill in order to remove the items on the Bill. This would be used when the Customers have paid their bill and leave the restaurant, so that the waitstaff can reset all information on the table details page.

## Analytics:



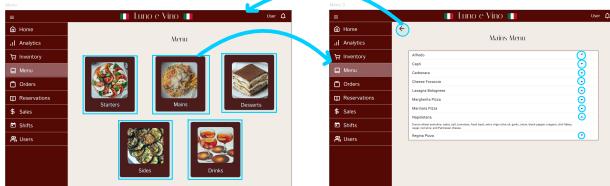
The calendar on the Analytics page allows the user to click on the calendars in order to choose date to view the trends of. You can filter the calendar by clicking the month and year at the top of the calendar. There are buttons on the calendar - Clear, Cancel and Ok. By clicking clear, the calendar clears the date that the user selected. By clicking cancel the action is cancelled and by clicking Ok, the date is selected. Because there are two dates to be chosen, there is also a right facing arrow at the bottom right of the screen. By clicking the right facing arrow, the user is directed to the Analytics 2 page where they can view the graphs for their selected dates. By clicking the calendar icons, the user will be redirected back to the Analytics Calendar page so that they can choose new dates.

## Inventory:



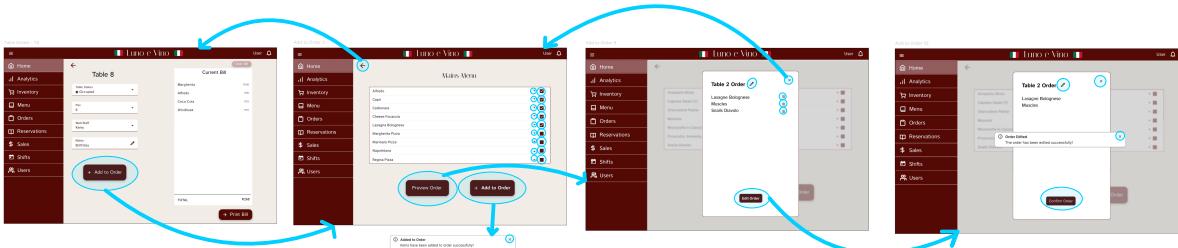
The Inventory page initially shows the Food Inventory. This can be changed to show the Non-Food inventory by clicking the Non-Food button on the left of the screen above the table. This would direct the user to the Non-Food Inventory pages. By selecting the Food button again, the user will be directed back to the Food Inventory pages. In the Actions column for Food inventory, there is an edit button indicated by a pencil icon. There is also an Add button above the Table. Clicking either of these buttons will take you to the Add/Edit page. Here, there are text input boxes to insert the necessary information for the table. By clicking the Cancel button at the bottom, the user will be redirected back to the Food Inventory page. By clicking the Add button at the bottom of the page, a notification will appear on the page to indicate that the edit was successful. By clicking the Back to List button on the notification, the user will be redirected back to the Food Inventory Page. This Add/Edit process is the same on the Non-Food Inventory pages. There is an additional button in the Actions column of the Non-Food Inventory table. It is a warning icon that is used as a button to log broken items. This will redirect to a similar page to the Add/Edit page called the Broken Items page. When you click the search button on either of the Inventory pages, a keyboard appears for the user to search an item. By clicking the search icon, the table is filtered to display only items that match the user's search. The various page numbers at the bottom of the screen takes you to the respective page of the list items.

## Menu:



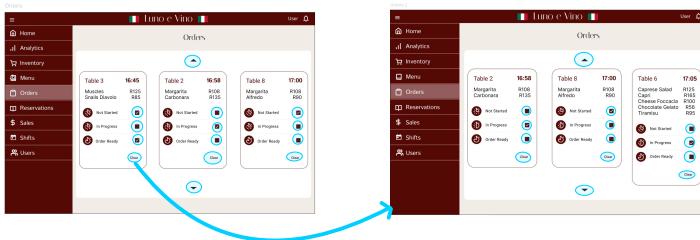
The Menu page initially displays 5 interactive buttons for each section of the menu - Starters, Mains, Desserts, Drinks, Sides. By clicking on a specific button (like Mains) the user is redirected to the specific page with those Menu items. Each specific Menu Course Page shows a list of Menu items with a drop down option to view their ingredients.

## Add to Order:



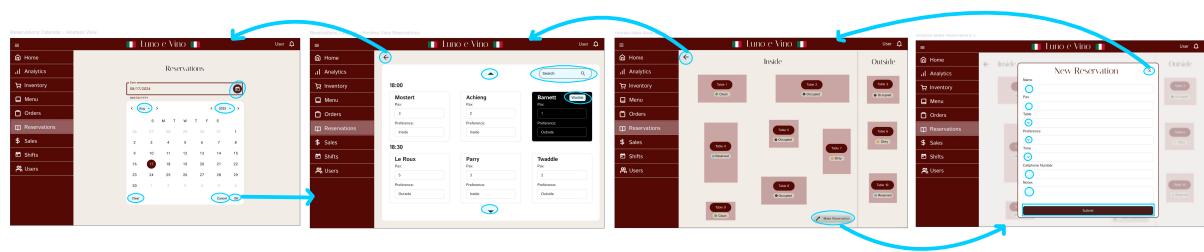
The Add to Order pages are accessed through the Table details Pages. On the Tables Details page, when the waitress clicks the Add to Order button, they are directed to the Add to Orders Page. The first page shown is exactly the same as the Menu page, with 5 interactive buttons for each course. By clicking the course, the waitstaff is redirected to a more interactive version of the Menu pages. Each Menu Course page has additional interactive elements in order for the system to add items to the order efficiently. There are check boxes next to the drop down buttons, which allow the waitstaff to add the selected items to the order by selecting the Add to Order button. When this is selected a notification appears at the bottom of the page to indicate that items have been added successfully. The Waitstaff can also select a preview order. The order preview appears on the same page and can be exited by using the x in the right corner of the preview. The edit button is indicated by a pencil icon. When this is clicked, the waitstaff is able to edit the order by clicking the bins to delete an item. When they have deleted all necessary items, they can click the Edit Order button at the bottom. This will display a notification in the centre of the screen and then the updated preview will be displayed. At the bottom of the preview is the button Confirm Order. This is what sends the order to the orders page for the Kitchen Staff to view.

## Orders:



The Orders page shows order cards that have various buttons for interaction. There is a checklist of order status options (Not Started, In Progress and Order Ready). When the option is selected a notification is sent to update the waitstaff of the Order's status. The page is scrollable to view all Order cards. There is a Clear button at the bottom of each card that allows the kitchen Staff to remove the order once it has been collected by the waitstaff. When the clear button is clicked, it shifts all the order cards so that the next order is displayed on the displayed page too.

## View and Make Reservations:



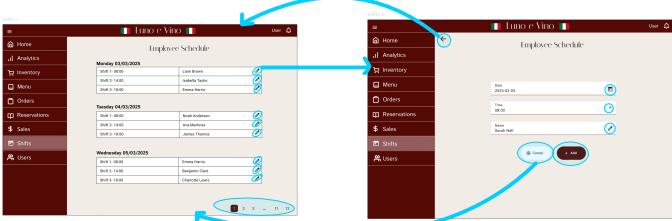
The Reservations page starts by showing a calendar. There are buttons on the calendar - Clear, Cancel and Ok. By clicking clear, the calendar clears the date that the user selected. By clicking cancel the action is cancelled and by clicking Ok, the date is selected. The hostess can select the date and click ok to be directed to the next page, which shows the current reservations at the restaurant for the date selected. This page is scrollable to view all of the reservation cards. There is a search icon that can be used by users to find reservations under specific names. The View Floor Plan button at the bottom of the screen which will direct you to the next page. At the bottom of this screen is a Make Reservation button which displays a New Reservation sheet. On this pop-up are text inputs and selection fields with the respective information. The Submit button at the bottom adds the order to the scrollable reservations page, and a notification is displayed to show the success of the updated information. The Back to Reservations button will direct the user back to the Reservation cards page. The Waitlist button on the reservation for Barnett is interactive. When the button is clicked, Barnett is taken off the waitlist and the colour of his booking card changes.

## Sales:



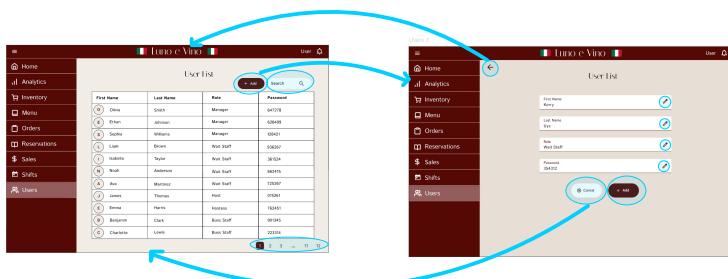
The Sales page shows a list of all of the months and years of sales in the restaurant. By clicking on the month you are interested in, the user is taken to the next page that shows all the dates of sales within the chosen Month and Year. When the user selects the date that they want to view, they are directed to the next page which shows the time of each sale and the amount. There are page numbers at the bottom of each page which allow the user to view other list items on each respective page. There is a search button that allows the users to search for what they are interested in finding.

## Shifts:



The Shift page shows lists of the employee shifts for that week. There is an edit button indicated by a pencil icon that directs you to the Employee Schedule edit page. Here there are input text boxes with various information needed for the lists. The Cancel button at the bottom of the screen will void the action and direct you back to the first Shifts page. The Add button will add those details to the Shifts lists and display a Success notification as indicated on screens above. The background will still be the Shifts edit page. Here the employee can choose to go back to the employee Shifts page by clicking the button or to stay on the edit page by clicking the x.

## Users:



The Users page displays a table of all users on the system and is used by managers to control the uses of their employees. There is an Add button above the Table. Clicking either of these buttons will take you to the Add user page. Here, there are text input boxes to insert the necessary information for the table. By clicking the Cancel button at the bottom, the manager will be redirected back to theUsers page. By clicking the Add button at the bottom of the page, a notification will appear on the page to indicate that the action was successful. By clicking the Back to List button on the notification, the user will be redirected back to the Users Page. By clicking the x the user will remain on the Add users page but remove the notification. When you click the search button above the table, a keyboard appears for the user to search an item. By clicking the search icon, the table is filtered to display only items that match the user's search. The various page numbers at the bottom of the screen takes you to the respective page of the list items.

## Customer Menu and a Reservations:



The Customer view is on the internet rather than the internal intranet and is therefore laid out differently than other pages. The initial page has two interactive buttons - one for viewing the Menu and one for making reservations online. By clicking the Menu button the customer is redirected to a menu page that shows 5 button for each course on the menu. These interactive buttons direct you to the respective page for each course. The Course Menu is displayed as a digital image of the physical menus. There are no interactions except for the back button to control user navigation through pages. When you click the reservations button on the landing page for customers, you are redirected to a calendar page. There are buttons on the calendar - Clear, Cancel and Ok. By clicking clear, the calendar clears the date that the user selected. By clicking cancel the action is cancelled and by clicking Ok, the date is selected. The customer can select the date that they want to make a reservation on and click Ok to be directed to the next page. This page shows text input fields and drop down menus for the customer to fill in the necessary information. By clicking the x on the right corner of the card, the customer is taken back to the customer landing page. By clicking the Submit button at the bottom of the card, it adds this information to the Restaurant Management System that is used by the staff, and can be viewed under the Reservations tab. A notification is displayed to indicate the success of the reservation on the system. The Customer can click the Back to reservations Button to be redirected to the first reservations calendar page, or they can click the x to remove the notification but remain on their current page.

## 6. Conclusion

### a. Summarize the work completed thus far

The Restaurant Management System's design and development process was focused on developing an automated, intuitive, and interactive solution to improve inefficiencies in the existing manual operations. We developed a user-friendly system that aims to improve communication and coordination between employees as well as streamline the restaurant's processes. The automated system facilitates smooth communication and efficient management through real-time updates, easy navigation, and controlled access, enabling the restaurant to expand while maintaining excellent service standards.

Our brainstorming process was an iterative approach which took into consideration many factors, such as colour palettes, icons, and typography. In particular, our colour palette took many iterations before we reached a final decision which both suited the brand identity of the restaurant, was accessible, and suited our design intentions for the aesthetics of the restaurant management system. Additionally, we took into account various design elements and theories as the rationale behind our design decision, these included visual hierarchy, size, position, density, background colour, rhythm, emphasising small items, and alignment and grid.

The process of converting wireframes into digital prototypes involved starting with low-fidelity wireframes to define our layout and system functionality, refining them based on feedback, and then transitioning to high-fidelity prototypes. This stage focused on enhancing aesthetics and usability, resulting in a realistic prototype that effectively represents key system features. The final restaurant management system was designed with a strong focus on usability, accessibility, and efficiency. By maintaining consistency in colours, typography, and layouts, the interface remains intuitive and easy to navigate. Accessibility considerations, such as colour-blind friendly indicators, ensure inclusivity for all users. Features like clear navigation, user control over actions, and informative feedback help streamline interactions and reduce frustration. Additionally, principles like simplicity, visual hierarchy, and error prevention contribute to a clean and organised experience. These design principles work together to create a system that enhances usability, minimises errors, and improves overall restaurant operations.

The system incorporates multiple navigation types, including direct button-based redirection, dropdown selections, interactive icons, and search functionalities. Users navigate between pages using dedicated buttons such as back arrows, exit buttons, and menu-based selections, maintaining consistency across the system. Interactive elements, such as clickable table

layouts, inventory lists, and order management tools, allow seamless transitions between related sections. Notifications provide real-time updates on system activities, while confirmation messages ensure user actions are acknowledged. Input fields, checkboxes, and dropdown menus facilitate data entry and modifications, with clear success indicators confirming changes. The system balances efficiency and usability, enabling restaurant staff to manage orders, reservations, inventory, and sales with minimal friction while providing an intuitive online interface for customers.

b. Reflect on the design process and any challenges faced

Throughout the design process of the Digital Restaurant Management System, we were met with numerous challenges that required adjustments to our original plan. One of the main challenges that we faced was the access card authorisation. This presented multiple technical issues that made it slightly unrealistic. To resolve this, we implemented a secure intranet and internet system and decided to opt for a login page for all employees.

Another challenge that we faced was managing the cognitive load of our pages. We aimed to present essential information without overwhelming users. We therefore, balanced the number of images and distributed content across separate pages. The goal of this was to ensure that our system would run smoothly as well as meet the needs of our users. For instance, we separated the Sales and Analytics pages for better data management and system efficiency.

Navigating the system's information architecture proved to be more complex than we had expected, as each employee role required distinct functionalities while maintaining a cohesive user experience. We addressed this by incorporating consistent design elements throughout the system while ensuring each section was tailored to specific user needs. Additionally, we overlooked the importance of including real time notifications for employees but soon realised that this was a crucial step to ensure seamless workflow. Therefore, we integrated automated notifications to ensure that employees were informed at all times.

We then modified the customer menu view page. We decided to change it from a table list layout to a more visually appealing and spaced out design. This change improved readability and usability, making it easier and clearer for customers to browse our menu options.

User management also presented a challenge, prompting us to develop a dedicated users page that would only be accessible to the managers and owners. This feature allows them to efficiently add, edit, and search for staff details, ensuring controlled access and system security.