

BUSINESS ANALYSIS CAPSTONE PROJECT:

RESTAURANT MANAGEMENT SYSTEM



Project by:
Rashmi Annae
Simplilearn Postgraduate Program in Business Analysis

TABLE OF CONTENTS

| | |
|--|-----------|
| 1. Project Overview..... | 3 |
| 2. Problem & Definition Solution..... | 3 |
| 3. RACI MATRIX..... | 4 |
| 4. Stakeholder Roles & Responsibilities | |
| 4.1. External Stakeholders..... | 5 |
| 4.2. Internal Stakeholders..... | 5 |
| 5. Business Requirements..... | 7 |
| 6. AS-IS Process Map | 8 |
| 7. Future (To-Be) Process Map..... | 9 |
| 8. Restaurant Management System Scope | |
| 8.1. Context Diagram..... | 10 |
| 8.2. Main Features to be Developed..... | 10 |
| 8.3. Scope Requirements..... | 11 |
| 9. Business Requirements | |
| 9.1. Functional Requirements..... | 11 |
| 9.2. Non-Functional Requirements..... | 12 |
| 10. Wireframes | |
| 10.1. Menu Creation..... | 13 |
| 10.2. Table Reservation..... | 14 |
| 11. Tableau Tasks..... | 15 |
| 12. Excel Tasks..... | 17 |

RESTAURANT MANAGEMENT SYSTEM

1. PROJECT OVERVIEW

A US celebrity chef James Oliver has his own chain of restaurants, *The Grill House*, across different cities in the USA. He wants to introduce and install a new Restaurant Management System to track the day-to-day management of his restaurant.

Currently they are operating under a paper-based system for the same and this has many issues. Currently the orders are taken by the waiters on paper and a paper-based bill is presented to the customers.

All the bills are entered into an excel sheet by the manager at EOD to know the total sales and item wise sales for the day. Then reports were generated on excel to know trends and details like daily, weekly, and monthly sales. Which dishes were popular and which weren't doing so well?

Restaurants need a system that will allow them to easily update their menu. The clients currently do not have a system that recognizes the different types of users such as managers, waiters, etc. and they would like to be able to limit the access of some options of the system to certain users.

The client invited Business Analysts trained at Simplilearn to capture the requirements for the creation of this software.

2. PROBLEM AND DEFINITION SOLUTION AS APPLIED THROUGH BUSINESS ANALYSIS CORE CONCEPT MODEL (BACCM):

TABLE 1:

| | |
|----------------------|---|
| Need | The Grill House needs a more efficient and modern restaurant management system that will allow the staff to easily update the menu, calculate sales and trends in order to run reports, manage reservations, and control user access. |
| CHANGE: | The Grill House will be updating their operations from a paper-based billing system to a software- based restaurant management system with features that allow you to enter orders, generate bills, manage reservations and seating, and run reports and control user access. |
| SOLUTION: | Building a software-based restaurant management system that will allow menu creation, bill generation, table reservations, payment processing, and reporting. |
| STAKEHOLDERS: | External Stakeholders: Supplier - Payment system host, Data Storage facility Sponsor - James Oliver Customer - Restaurant patrons End User - The Grill House management and Staff <ul style="list-style-type: none">• Manager |

| | |
|-----------------|---|
| | <ul style="list-style-type: none"> • Waiter • Management <p>Regulator - Credit card companies</p> <p>Internal Stakeholders:</p> <p>Business Analyst Domain Subject Matter Expert - Restaurant Software Consultant Tester - QA Analyst Operational Support - Operations Analyst Developer/Implementation SME - Java Engineer Project Manager</p> |
| VALUE: | <p>Adding a software-based management system will create a value stream for the company. Not only will the system modernize the current paper-based system, but it will also create a more efficient workflow across the restaurant. With improved operational efficiency, the restaurant will be able to turn over tables more quickly, effectively determine popular food items and trends, determine restaurant revenues and margins, and manage patron relationships.</p> |
| CONTEXT: | <p>The Grill House restaurant is currently operating under a paper-based restaurant management system. Waiters take orders by writing them down on paper and in turn, paper-based bills are presented to customers. All bills are manually entered into a spreadsheet by the restaurant manager at the end of each day to calculate sales and items sold. Reports are generated to determine trends in daily, weekly, and monthly sales as well as popularity of dishes.</p> |

3. RACI Matrix – RESPONSIBLE, ACCOUNTABLE, CONSULTED, INFORMED

| Task | BA | SME | TESTER | OPS | IBME | MANAGER |
|---|-----------|------------|---------------|------------|-------------|----------------|
| Requirement Gathering and Analysis | R | C | C | I | C | A |
| Software Design and Prototype | C | R/C | C | I/C | R | A |
| Coding / Development | I | I | C | I | R | A |

| | | | | | | |
|----------------------------------|------------|----------|----------|----------|----------|----------|
| | | | | | | |
| Review and Testing | R/C | C | R | C | C | A |
| Production Implementation | A | I | R | R | R | A |
| Maintenance | C | C | I | R | C | A |

4. STAKEHOLDER ROLES AND RESPONSIBILITIES

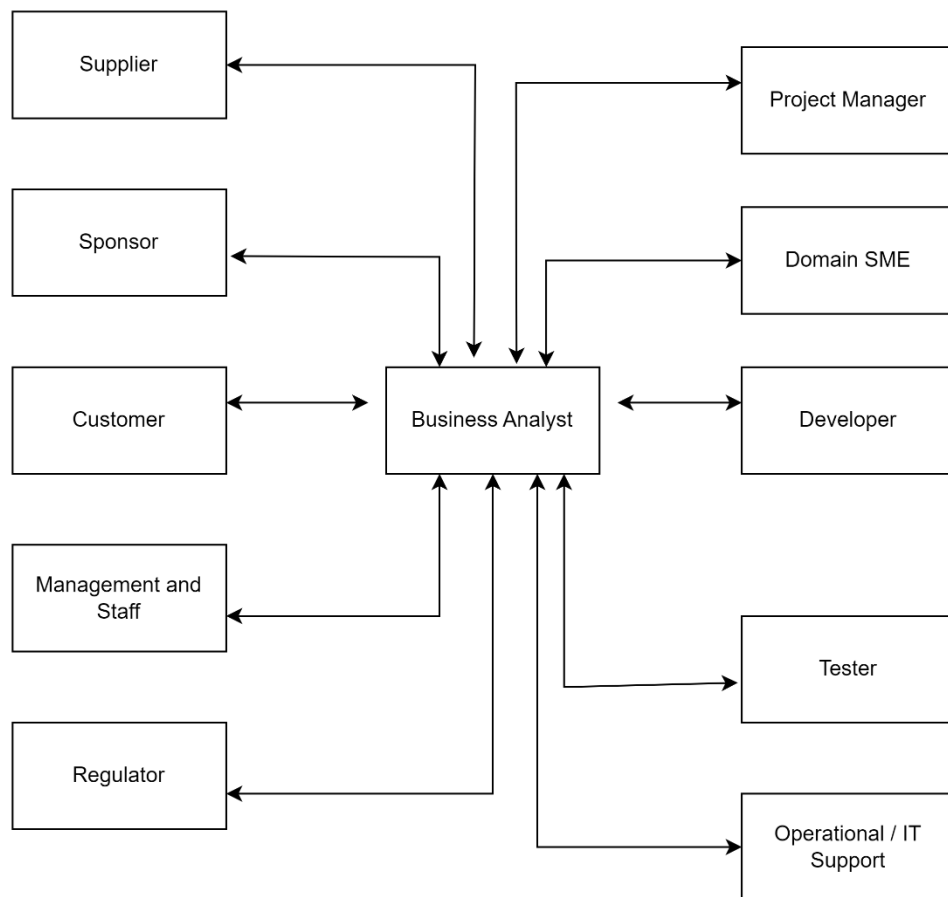
4.1 EXTERNAL STAKEHOLDERS:

| | |
|--|--|
| Suppliers: | The chosen payment system host will facilitate cash and credit card transactions withing the Restaurant Management System. The suppliers will provide James Oliver and the executive information about the data storage facility to store restaurant management system data. |
| Sponsor: James Oliver | James Oliver authorized The Grill House restaurant management system based on business needs. He has set the project budget and business objectives. |
| Customer | The customer indirectly benefits from the restaurant management system. They would pay easily via Credit/debit cards and receive computer generated bills and can provide feedback in the form of surveys that are input into the system. |
| End user: The Gill House Management and Staff | <ul style="list-style-type: none"> • The restaurant management and staff – Managers and Waiter – will all have unique logins to access the system at a variety of user levels. • Management team – will use the system to reserve tables, create menus, edit menus, generate reports and input customer feedback surveys. • Waiters and staff – will use the system to review table reservations, generate bills and run transactions. |
| Regulator | The Grill House and its patrons are subject to adhering to credit an banking regulations when using the restaurant management system. |

4.2 INTERNAL STAKEHOLDERS:

| | |
|-------------------------|---|
| Business Analyst | Overseas and Executes responsibilities that include planning an monitoring, elicitation and collaboration, requirements lifecycle management, strategy analysis, requirement analysis and design and solution evaluation. |
| Domain SME | James Oliver will be overseeing the hiring of a team that is experience with overseeing the build out of restaurant management system applications and features. They will be involved at most levels of |

| | |
|------------------------|---|
| | business analysis activities including planning and monitoring, elicitation and collaboration, requirements life cycle management, strategy analysis, requirements analysis and design, and solution evaluation. |
| Tester | The tester/QA Analyst verifies that the solutions meet the requirements and quality standards. They will verify the solutions and work towards identifying risks and minimizing system failures |
| Support | Support/Operations Analyst will ensure the restaurant management systems across all locations run smoothly day to day and will oversee maintenance of the system when needed. |
| Developer | Developers/Java Engineers will build the restaurant management system according to the business and solution requirements laid out by Business Analysis Stakeholders. They will impart their expertise to develop an efficient, user friendly and cost-effective software solution. |
| Project Manager | Project Manager ensure the business objectives are met by overseeing scope, budget, schedule, resources, quality, and risks. |

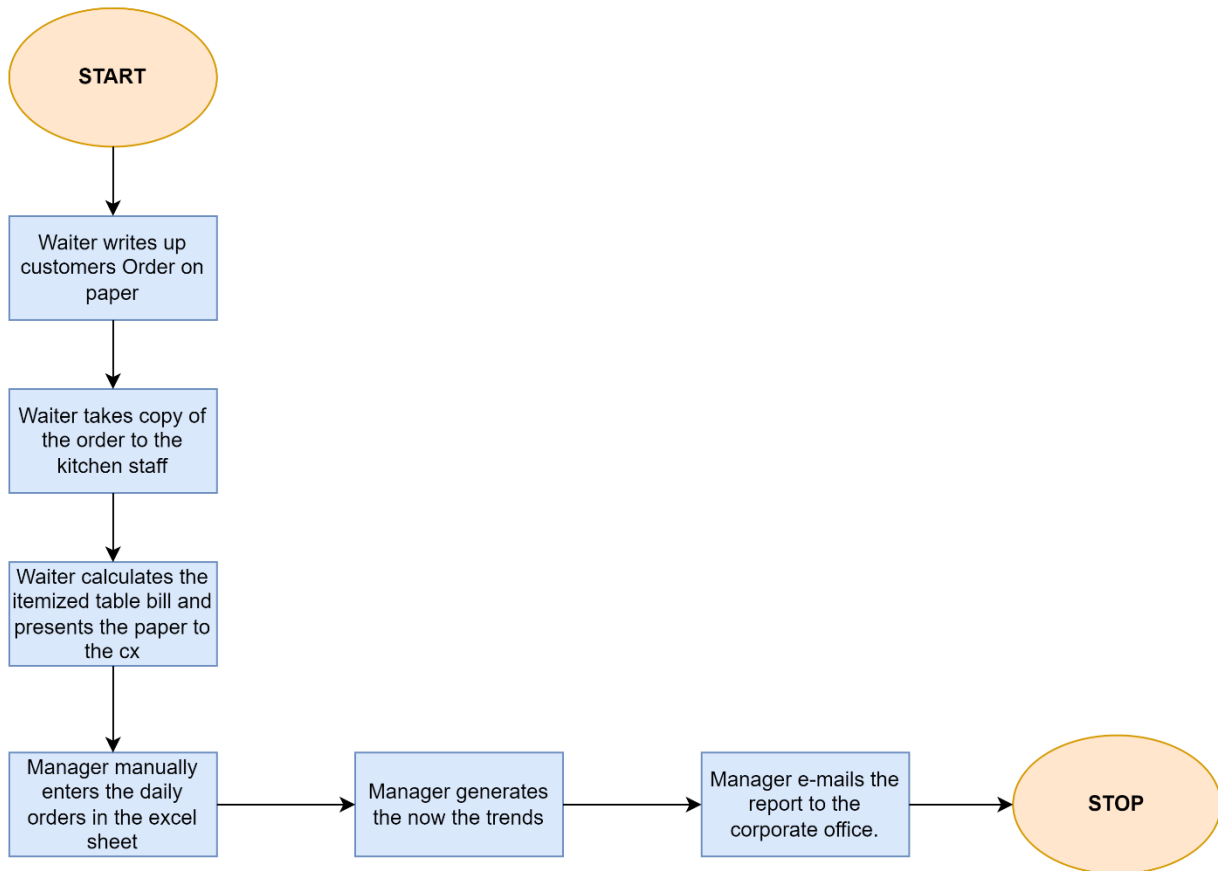


5. BUSINESS REQUIREMENTS:

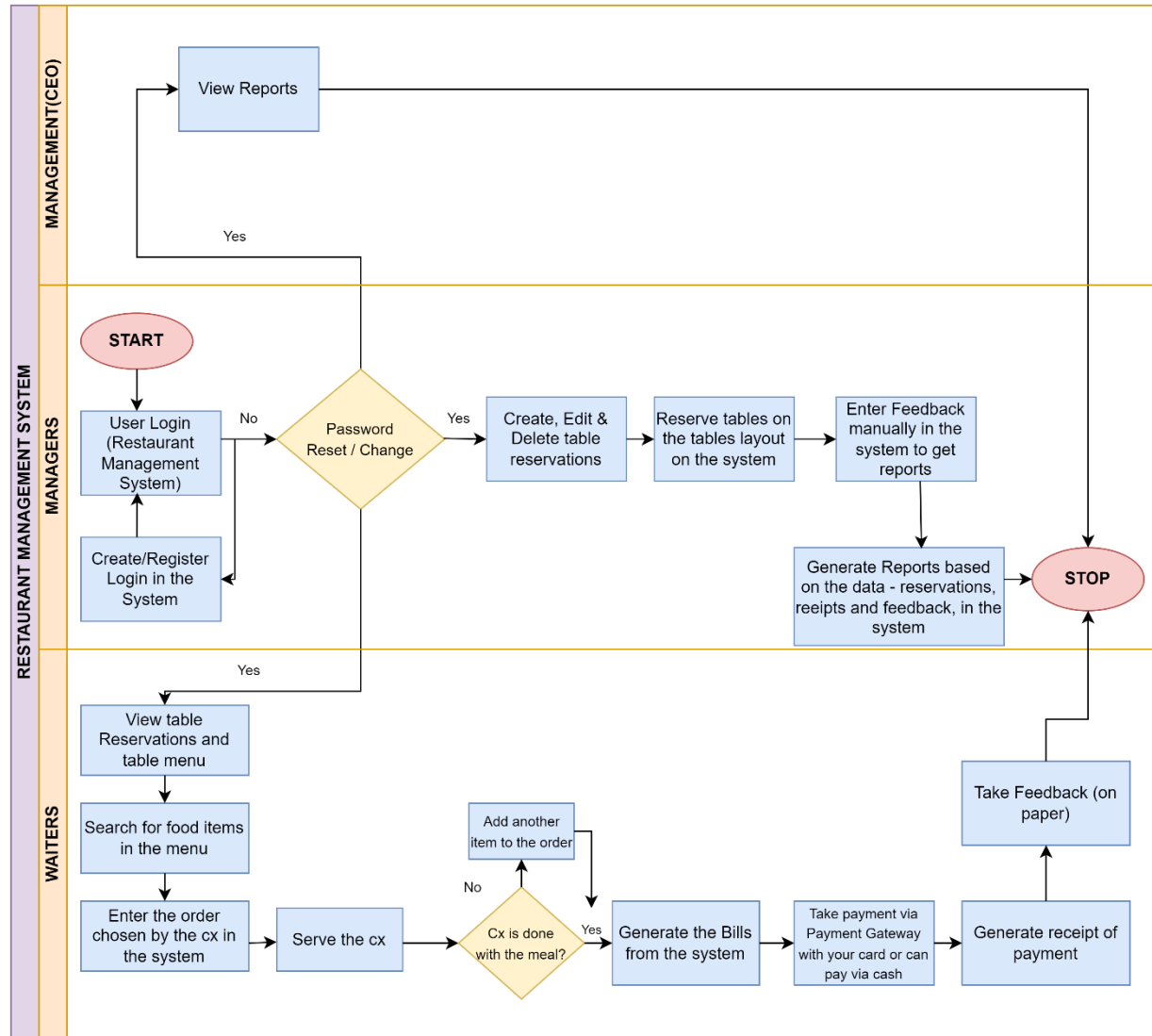
5.1 STAKEHOLDER REQUIREMENTS:

1. The menu should be categorized into the following sections:
 - Starters
 - Soups
 - Main Course
 - Desserts
 - Drinks
2. Each item should be saved in the system along with its price.
3. This menu should be created and edited by the managers only.
4. Managers should be able to add new items, delete existing items, as well as create new menus from scratch.
5. Every waiter and manger should have access to the software.
6. Waiters cannot edit the menu.
7. Waiters shall use the system only to generate bills.
8. Waiters will use the system to generate the bills table wise, and every bill shall be tagged to the waiter generating it along with the table number.
9. Only Managers can have access to the table reservation system.
10. The system should be able to reserve tables and this reservation would be done by managers *only*.
11. The waiters shall not seat anyone on the tables reserved.
12. The waiters shall investigate the software to determine which tables need to be reserved and the table layout is to be stored in the system.
13. The system shall be configured to generate the following reports:
 - a. Total sales of the day by dine in customer.
 - b. Total sales of the day by home delivery customers
 - c. Total sales of the day (home delivery and dine in customers consolidated)
 - d. Name the top 10 most sold dishes for the day
 - e. Total sales every weekend (to be done by inputting the dates)
 - f. Total sales every month (to be done by inputting the dates)
 - g. List of dishes not sold in the current month (this is to phase out dishes that customers are not ordering)
 - h. Total sales across all cities
 - i. Total sales for each city.
14. The system shall create a unique login for each user.
15. The system shall offer a change password function.
16. The system shall have a payment gateway that can process cash and credit cards.
17. The system shall be able to generate a bill per table and split bills.
18. Managers shall be able to enter data into the system manually, like customer feedback and demographics and run reports on such information.

6. CREATE AS-PROCESS MAP:

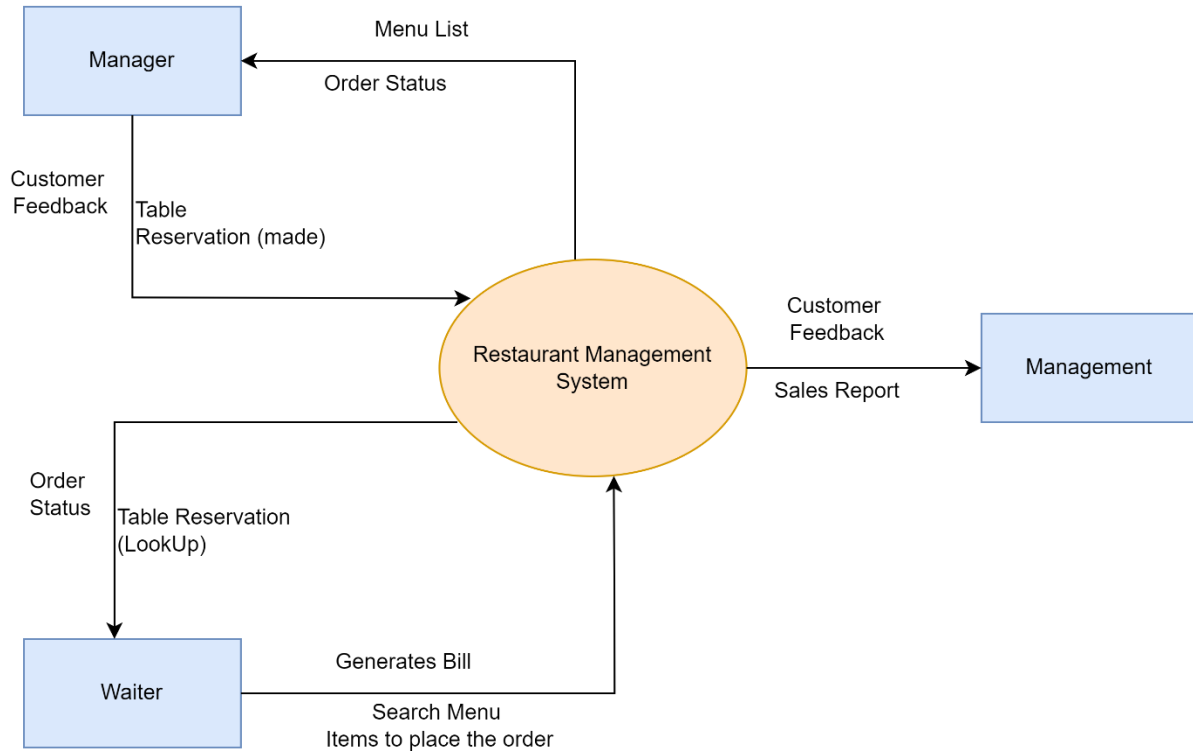


7. FUTURE (To-Be) PROCESS MAP:



8. RESTAURANT MANAGEMENT SYSTEM SCOPE:

8.1 SCOPE OF THE RESTAURANT MANAGEMENT SOFTWARE (CONTEXT DIAGRAM):



8.2 MAIN FEATURES TO BE DEVELOPED:

- Menu Creation feature
- Menu editing and deleting functionality.
- Menu item editing, pricing, and deleting functionality.
- Menu search option.
- Menu categorization based on: Starters, Soups, Desserts, Main Course & Drinks
- User roles with levels of permissions.
- Login ID Creation.
- Password Reset Facility.
- Table reservation
- Table seating interface.
- Bill generation by the system.
- Feedback screen.

8.3 SCOPE REQUIREMENTS FOR THE RESTAURANT MANAGEMENT SYSTEM:

| In Scope | Out of Scope |
|--|----------------------|
| 9 Reports formats | Inventory Management |
| Menu Creation: 1. Create a Menu from scratch. 2. Add a new item. 3. Delete any item. 4. Food item should be categorized as Starters, Soups, Desserts, Main Course and Drinks 5. View Menu | Mobile Application |
| Payment Gateway | Offers/Discounts |
| Generate Bill | Prepaid card |
| Table reservation | |
| Customer Feedback | |

9. BUSINESS REQUIREMENTS (FUNCTIONAL & NON-FUNCTIONAL):

9.1 FUNCTIONAL REQUIREMENTS:

1. Login Screen – Waiters, Managers and CEO can login in the system and see the relevant data that they have access to.
2. Password Reset Facility: One can change or reset their password.
3. System can generate bills in full or even split bills, with the waiter's name, ID and table number tagged along with it, when the customer is ready to check out.
4. Only the Manager can reserve tables, create and update the menu and the order.
5. The waiter can check available tables and select a table for dine in customers to be seated.
6. The waiters and the manager can search the menu for a specific dish.
7. Payments must be taken by either cash or a card.
8. The waiter or manager needs to give the feedback form.
9. Managers enter the feedback manually into the system along with demographics and run reports on such information.
10. The system shall be configured to generate the following daily reports at the end of the day:
 - Total sales of the day by dine in customers.
 - Total sales of the day by home delivery customers.
 - Total sales of the day (home delivery and dine in customers consolidated)
 - Name the top 10 most sold dishes for the day
 - Total sales every weekend (to be done by inputting the dates)
 - Total sales every month (to be done by inputting the dates)

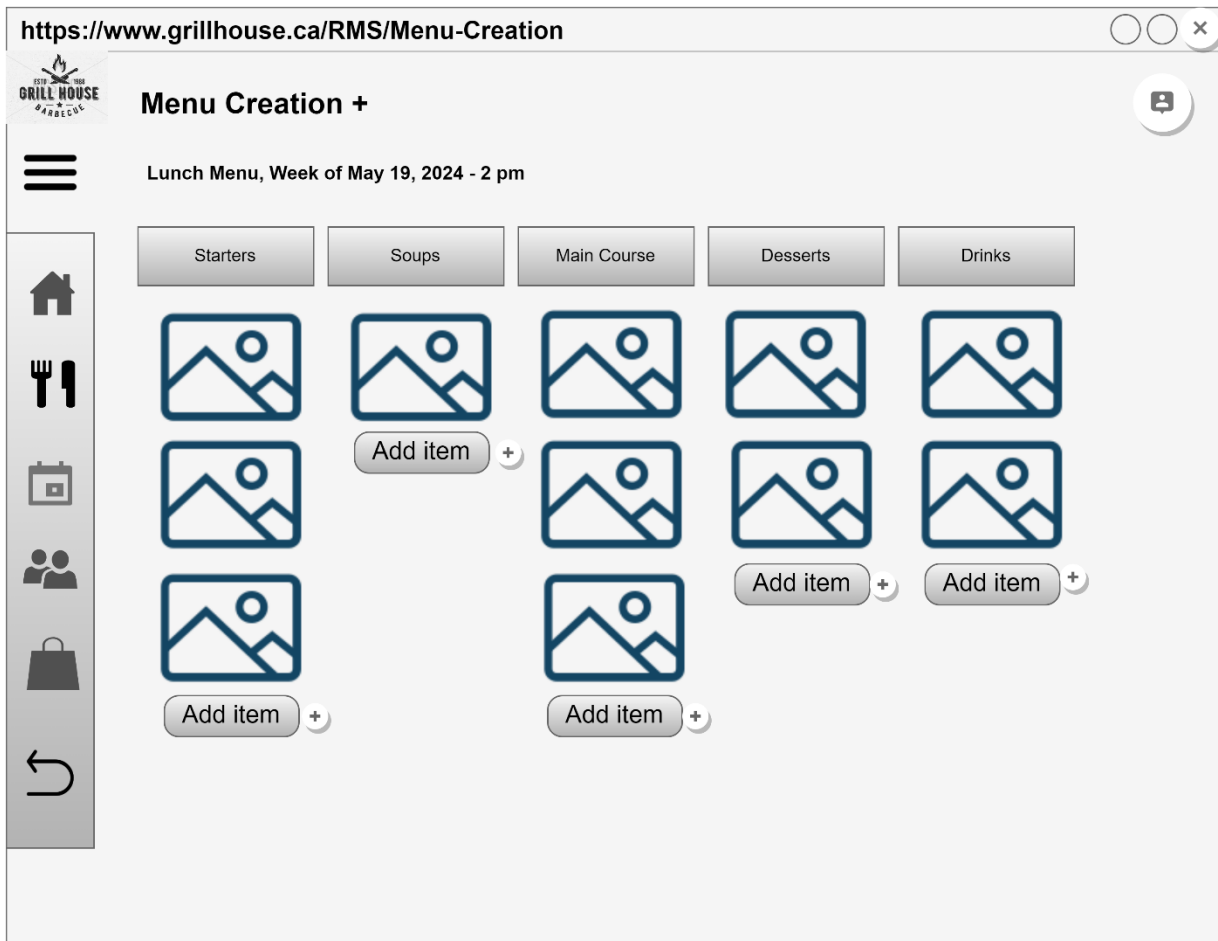
- List of dishes not sold in the current month (this is to phase out dishes that customers are not ordering)
- Total sales across all cities
- Total sales for each city

9.2 NON-FUNCTIONAL REQUIREMENTS:

1. **Security:** System should be secure from external factors and unauthorized accesses and personnel internally.
2. **Scalability:** System should be scalable to on-board new restaurants, waiters, and restaurants.
3. **Maintainability:** The system is created and maintained in Java, as it is chosen for its Low maintenance, which means it would not change much over time.
4. **Availability:** System should be available during business hours.
5. **Usability:** The interface, that is, the UI/UX should be user-friendly.
6. **Compliance:** The payment system should comply with banking and financial Regulations.

10. WIREFRAMES:

10.1. MENU CREATION:



10.2.TABLE RESERVATION:

www.grillhouse/RMS/Table-Reservation

Table Reservation + Add Reservation Modify Reservation

Lunch, Week of May 19, 2024 - 2 pm Seating

The floor plan is divided into several sections:

- Bar Area (Top Left):** Contains a bar icon and a menu icon. It has two rows of three tables each. The top row has 2 reserved (green) and 1 selected (yellow) tables. The bottom row has 3 reserved (green) tables.
- VIP Seating Area (Middle Left):** A rectangular area with a fork and knife icon. It contains two rows of four tables each. The top row has 2 reserved (green) and 2 available (white) tables. The bottom row has 4 available (white) tables.
- Plants / Aquarium (Bottom Left):** A rectangular area with a plant icon. It contains two rows of four tables each. The top row has 2 reserved (green) and 2 available (white) tables. The bottom row has 4 reserved (green) tables.
- Kitchen (Top Right):** A rectangular area with a chef icon and the text "KITCHEN".
- Billing / Reception Area (Middle Right):** A rectangular area with the text "Billing /Reception Area".
- Entrance (Bottom Right):** A rectangular area with the text "ENTRANCE" and an arrow pointing left.

Legend:

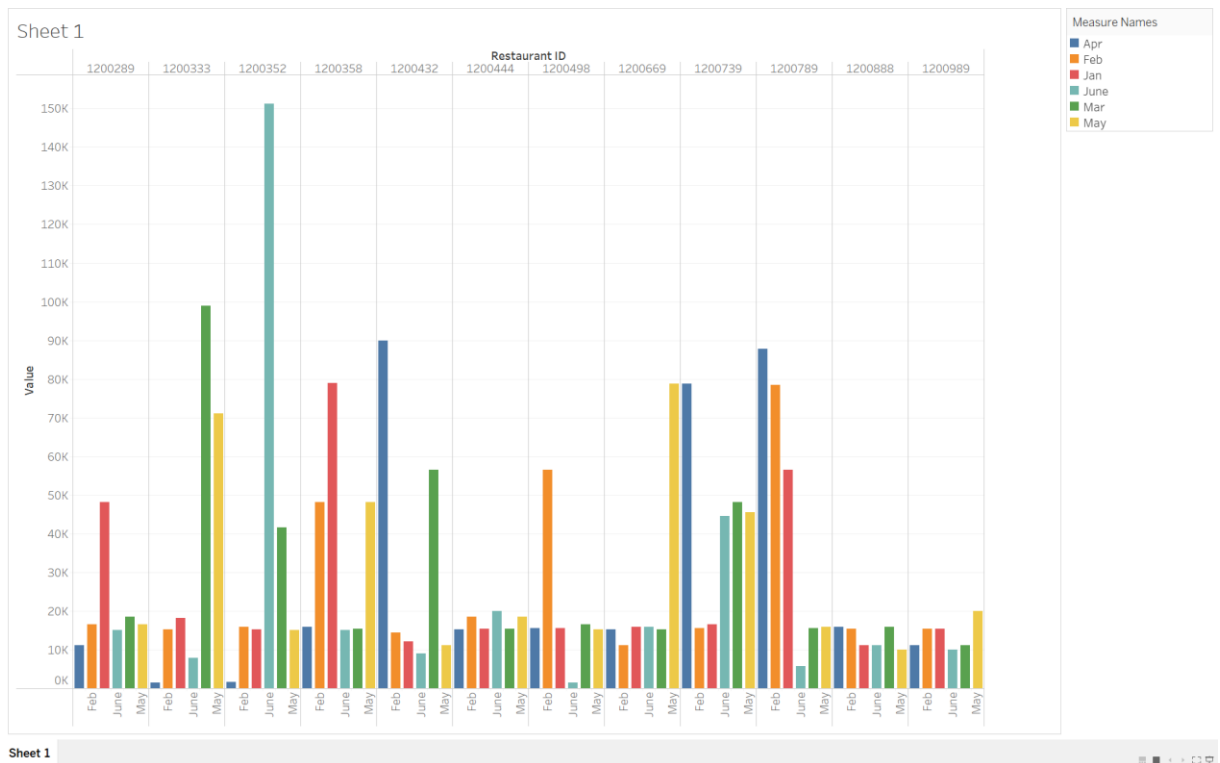
- Reserved
- Selected
- Available

11. TABLEAUS TASKS:

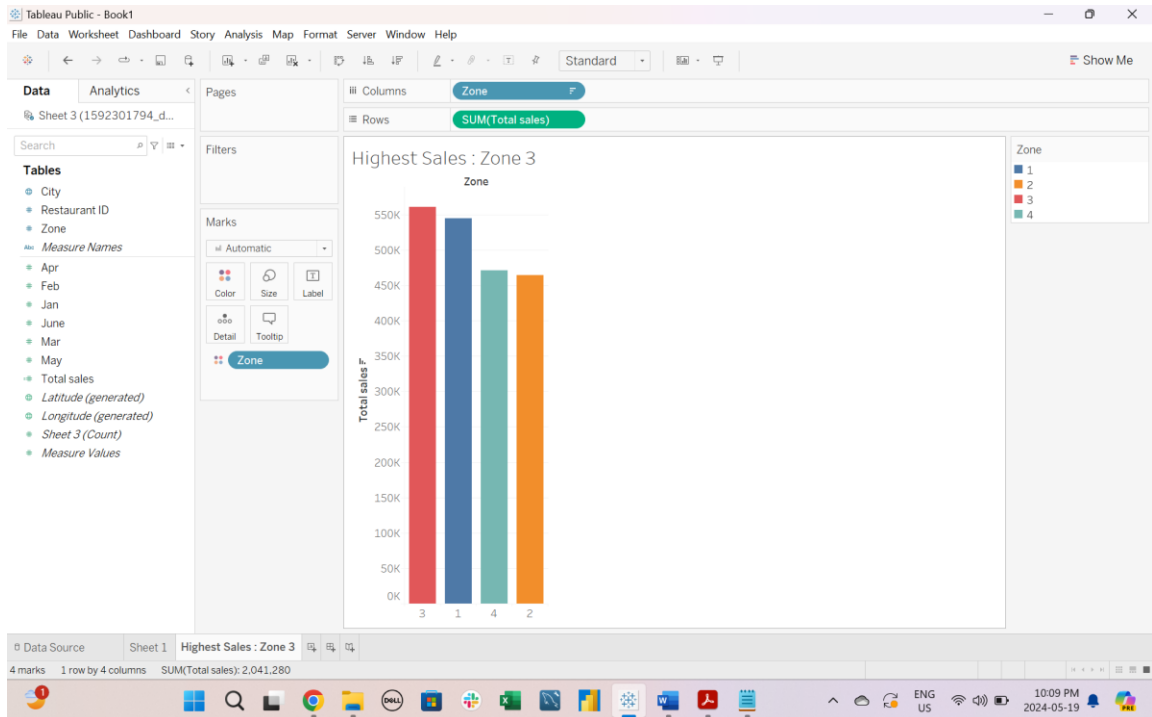
Tableau Public profile link for this dashboard:

https://public.tableau.com/views/BACapstoneFinal-Rashmi/Salesforthelast6months?:language=en-US&publish=yes&:sid=&:display_count=n&:origin=viz_share_link

1. Create a dashboard for senior management to view sales of restaurants for the last six months. Make assumptions as appropriate and create the dashboard using your own mock data.

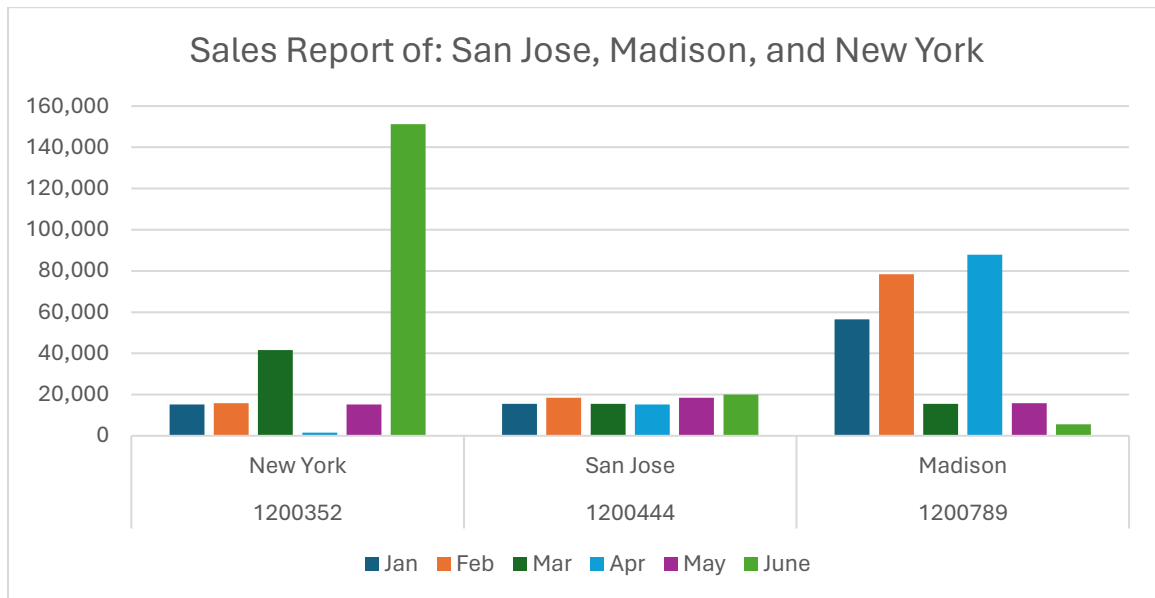


2. Create a dashboard to show which zone (Zone 1, 2, 3, or 4) has highest sales. Make assumptions as appropriate and create the dashboard using your own mock data.

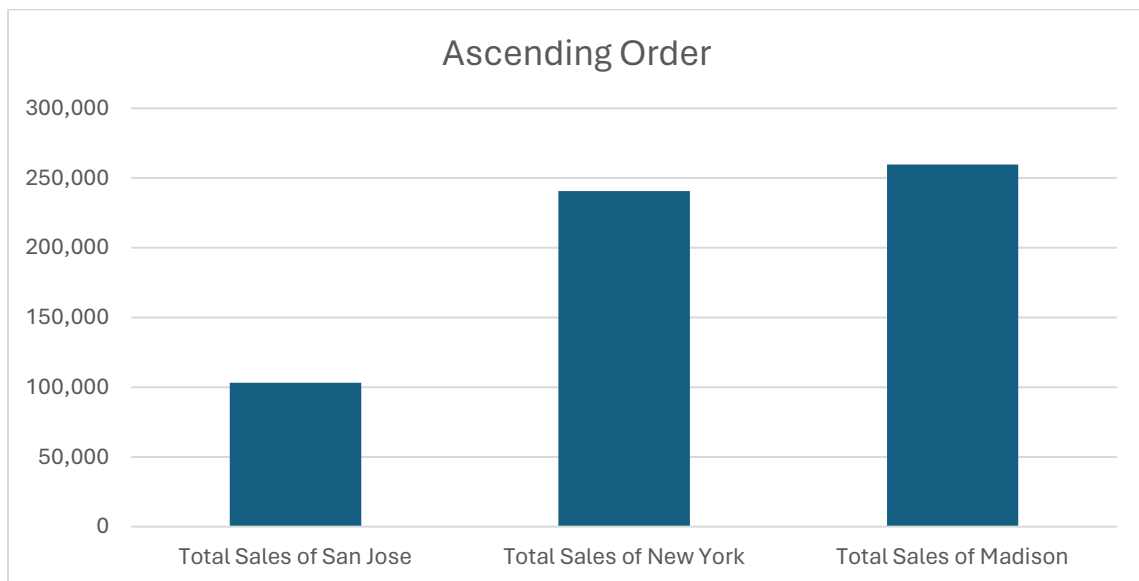


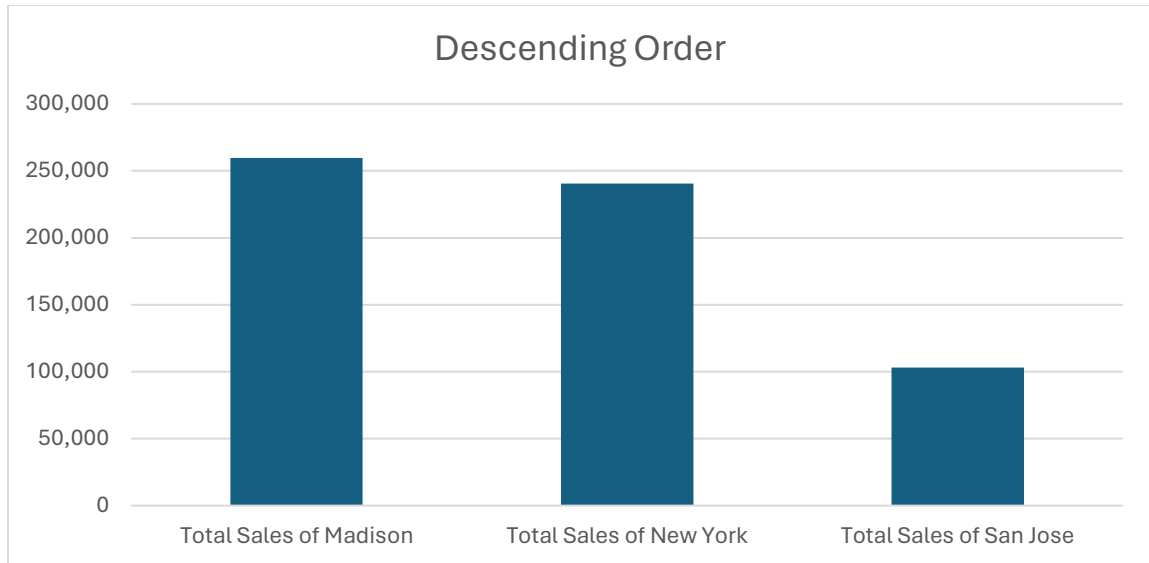
12.EXCEL TASKS:

1. Create a bar graph for San Jose, Madison, and New York showing the sales. Label the chart drawn correctly so that senior management gets a clear report of sales.



2. Arrange the data above in excel in an ascending and descending order for each city.





Question 2:

1. In the above chart for restaurant ID 1200789, find the sales for the month of June.

| B18 : ✕ ✓ <i>fx</i> =VLOOKUP(A11,A1:H13,8,) | | | | | | | | | |
|---|---|-------------|--------|--------|--------|--------|--------|---------|------|
| | A | B | C | D | E | F | G | H | I |
| 1 | Restaurant ID | City | Jan | Feb | Mar | Apr | May | June | Zone |
| 2 | 1200289 | Miami | 48,211 | 16,595 | 18,498 | 11,112 | 16,595 | 15,151 | 1 |
| 3 | 1200333 | Chicago | 18,225 | 15,184 | 98,984 | 1,500 | 71,111 | 7,889 | 2 |
| 4 | 1200352 | New York | 15,184 | 15,845 | 41,545 | 1,622 | 15,151 | 151,184 | 4 |
| 5 | 1200358 | Dallas | 78,888 | 48,211 | 15,454 | 15,845 | 48,211 | 15,000 | 3 |
| 6 | 1200432 | Jersey City | 12,121 | 14,414 | 56,451 | 89,894 | 11,112 | 8,985 | 1 |
| 7 | 1200444 | San Jose | 15,454 | 18,498 | 15,455 | 15,184 | 18,498 | 20,000 | 2 |
| 8 | 1200498 | Phoenix | 15,487 | 56,451 | 16,595 | 15,487 | 15,184 | 1,515 | 3 |
| 9 | 1200669 | Seattle | 15,845 | 11,112 | 15,184 | 15,184 | 78,787 | 15,845 | 4 |
| 10 | 1200739 | New Orleans | 16,595 | 15,487 | 48,211 | 78,787 | 45,484 | 44,544 | 1 |
| 11 | 1200789 | Madison | 56,451 | 78,451 | 15,487 | 87,844 | 15,845 | 5,655 | 2 |
| 12 | 1200888 | Washington | 11,112 | 15,455 | 15,845 | 15,845 | 10,000 | 11,112 | 3 |
| 13 | 1200989 | Kansas City | 15,455 | 15,454 | 11,112 | 11,112 | 20,000 | 10,000 | 4 |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | 1. In the above chart for restaurant ID 1200789, find the sales for the month of June | | | | | | | | |
| 18 | | 5655 | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

ANSWER: 5655

2. In the above chart for restaurant ID 1200739, find the sales for the month of April.

[illegible]

ANSWER: 78787

3. In the above chart for restaurant ID 1200352, find the sales for the month of January.

| | | | | | | | | | | |
|-----|--|-------------|--------|--------|--------|--------|--------|---------|---|--|
| B24 | | | | | | | | | | |
| | | | | | | | | | | |
| | A | B | C | D | E | F | G | H | I | |
| 3 | 1200333 | Chicago | 18,225 | 15,184 | 98,984 | 1,500 | 71,111 | 7,889 | 2 | |
| 4 | 1200352 | New York | 15,184 | 15,845 | 41,545 | 1,622 | 15,151 | 151,184 | 4 | |
| 5 | 1200358 | Dallas | 78,888 | 48,211 | 15,454 | 15,845 | 48,211 | 15,000 | 3 | |
| 6 | 1200432 | Jersey City | 12,121 | 14,414 | 56,451 | 89,894 | 11,112 | 8,985 | 1 | |
| 7 | 1200444 | San Jose | 15,454 | 18,498 | 15,455 | 15,184 | 18,498 | 20,000 | 2 | |
| 8 | 1200498 | Phoenix | 15,487 | 56,451 | 16,595 | 15,487 | 15,184 | 1,515 | 3 | |
| 9 | 1200669 | Seattle | 15,845 | 11,112 | 15,184 | 15,184 | 78,787 | 15,845 | 4 | |
| 10 | 1200739 | New Orleans | 16,595 | 15,487 | 48,211 | 78,787 | 45,484 | 44,544 | 1 | |
| 11 | 1200789 | Madison | 56,451 | 78,451 | 15,487 | 87,844 | 15,845 | 5,655 | 2 | |
| 12 | 1200888 | Washington | 11,112 | 15,455 | 15,845 | 15,845 | 10,000 | 11,112 | 3 | |
| 13 | 1200989 | Kansas City | 15,455 | 15,454 | 11,112 | 11,112 | 20,000 | 10,000 | 4 | |
| 14 | | | | | | | | | | |
| 15 | | | | | | | | | | |
| 16 | | | | | | | | | | |
| 17 | 1. In the above chart for restaurant ID 1200789, find the sales for the month of June | | | | | | | | | |
| 18 | | 5655 | | | | | | | | |
| 19 | | | | | | | | | | |
| 20 | 1. In the above chart for restaurant ID 1200739, find the sales for the month of April | | | | | | | | | |
| 21 | | 78787 | | | | | | | | |
| 22 | | | | | | | | | | |
| 23 | 1. In the above chart for restaurant ID 1200352, find the sales for the month of January | | | | | | | | | |
| 24 | | 15184 | | | | | | | | |
| 25 | | | | | | | | | | |

ANSWER: 15184

END OF PROJECT