



Restaurant Management Database

Joseph Severe

Outline

Abstract:

- Business wants and needs for a new implementation of a database management system

Statement of Problems:

- Learning about the importance, relevance, and significance of a real-time database management system

Objectives of Study:

- Learning about the restaurant business wants on maintaining customer satisfaction, being time friendly, having security, and having analytical information retrieved from query tools.

Solution Process

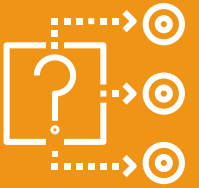
- Learn about the process of normalization and how the restaurant organizes their data accordingly and how it prevents data redundancy using junction table. Also, viewing the physical, conceptual, and logical database design.

Business Solutions

- Learn how the restaurant use query retrieval tools to learn about the demographic about their Customers



Abstract

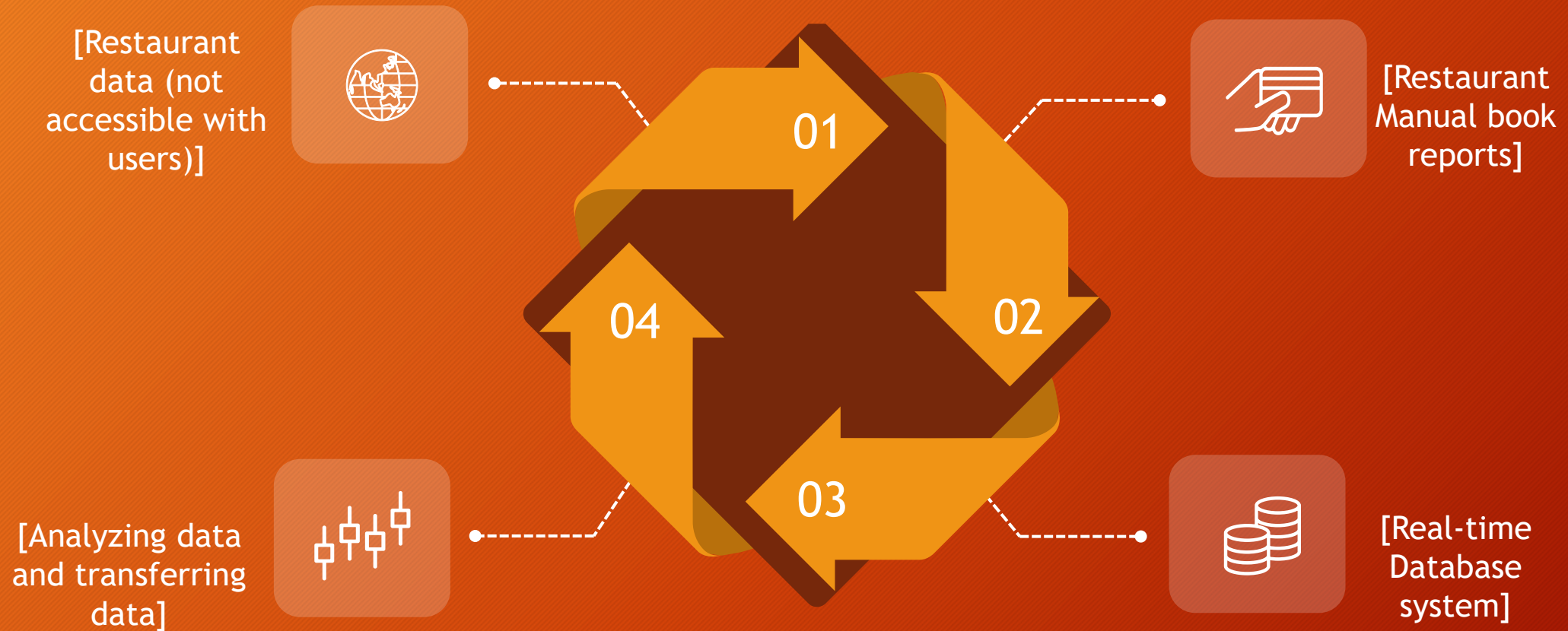


What is a restaurant looking for in a management system?



Abstract

- A new restaurant named Farmer's restaurant wants to implement a management system that allows for them to view their inventory and daily invoices instead of entering them manually onto a physical report or spreadsheet. This is for them to keep track of expenses and allows them to be audited by financial reports. They want to maintain their database which keeps tab on the customer spending and learn more about their demographic both online including their physical location.



Statement of Problem





Importance

- One of the issues of maintaining a physical report is not being able to pull up valuable information immediately and wasting time. Also, the records can be damaged in a catastrophic event or stolen.

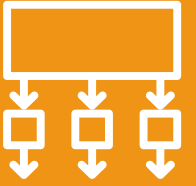
Relevance

- There's relevance in having a real-time management system because it prevents the waste of paper and unreasonable effort in finding the information needed.

Significance

- This is important because when users have access to the management system, they can scan a bar code to pull up the online menu and see what meals and drinks are available.

Objectives of Study



- Customer Satisfaction



- Time-friendly



- Security



- Query analytical tools



Objectives of Study

Customer Satisfaction

- Allowing customers to peruse over the menu with the swipe of a finger and making the user design user-friendly and easy to navigate.

Time-friendly

- This management system will increase the process of ordering food for the customer and ingredients for the business balancing the supply and demand chain.

Security

- Being able to win customer trust with putting in their personal information to order food and build our brand through security.

Search-up tools

- Being able to use search tools to query and analyze data to understand the customer and find information based upon business problems and solutions



Solution Process

Normalization

Importance

We need to normalize a database to minimize redundancy or duplicate fields.

It prevents any errors when it comes to inserting, deleting, or updating stored data.

Steps

The first steps to normalize a database is to remove any repeating groups of data.

Create separate tables for groups of attributes of similar data or fields.

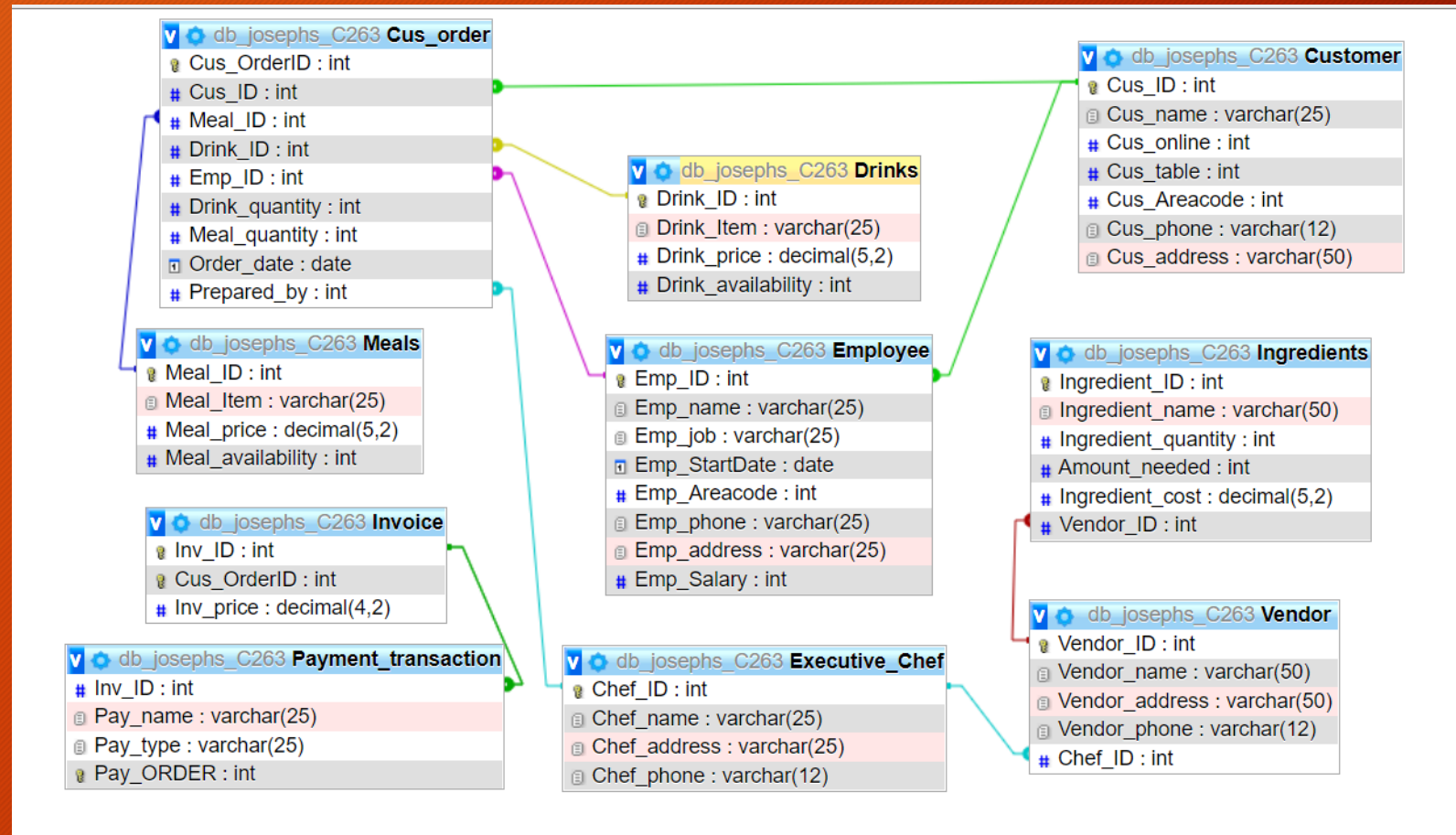
Method of use

One common normalization technique is 1NF (First normal form) which allows you to minimize redesign of the database.

Solution Process: Conceptual Database Design

Here we have 10 entity tables with all 10 primary keys.

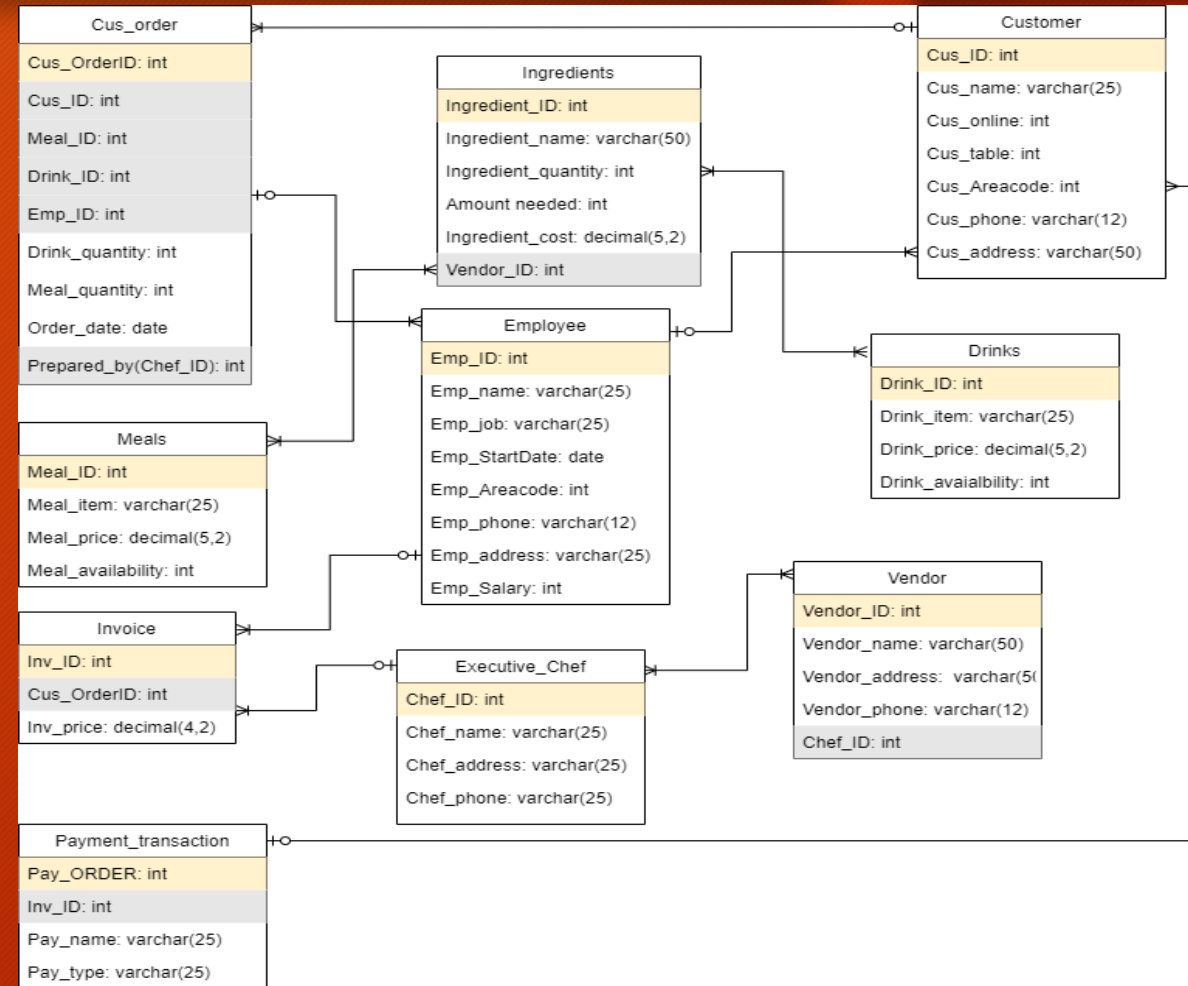
We also have the Areacode junction table that links the Employee with the Customer.



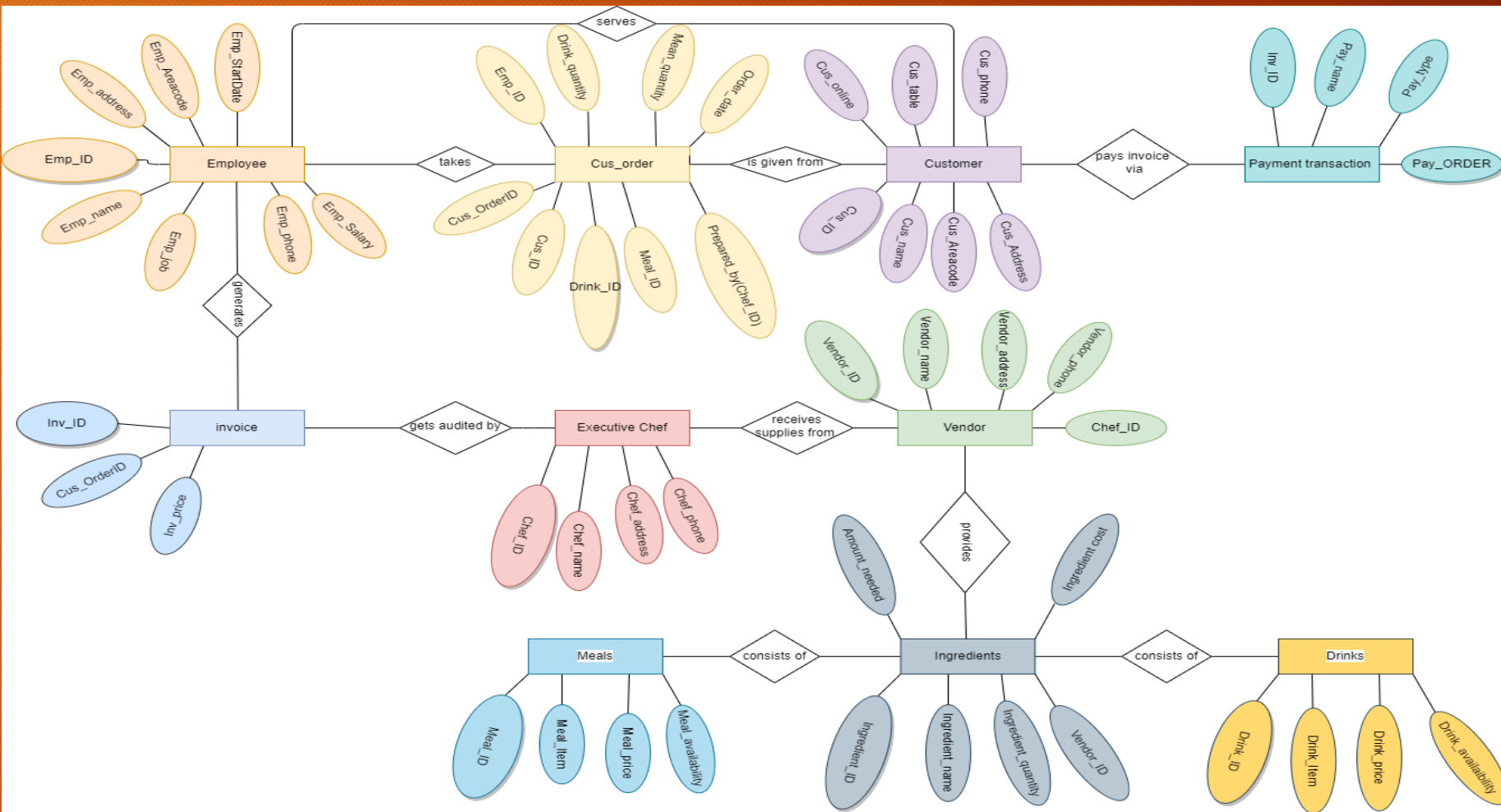
Solution Process: Logic Database

Relationships (Cardinality and Modality)

	Zero or More
	One or More
	One and only One
	Zero or One



Solution Process: Conceptual Design



The attributes that are shaded are primary keys.

The background is a solid orange color with a subtle gradient. In the upper right corner, there are three interlocking gear icons of different sizes, rendered in a darker shade of orange. A horizontal bar with a dark grey center and orange ends is positioned across the middle of the slide.

Physical Design

Physical Design : Customer

Cus_ID	Cus_name	Cus_online	Cus_table	area_code ▲ 1	Cus_phone	Cus_address
5	Tristin Case	0	26	716	716-785-9372	20 Nixon St.
6	Kali Davis	1	NULL	716	716-765-9875	90 Bowdoin St.
10	Kelvin Randolph	0	32	716	716-543-2134	78 Safe St.
14	Jeramiah Mcpherson	0	33	716	716-987-3452	45 Curry Rd.
3	Jasper Macdonald	1	NULL	765	765-876-9054	54 Crispus Ave.
11	Chris Berger	1	NULL	765	765-234-6572	34 Walker St.
2	Dean Morgan	0	23	781	781-234-5468	23 Hunter Rd.
9	Ignacio Booker	0	31	781	781-543-6789	83 Garner Ave.
1	Lane Hansen	1	NULL	795	795-456-8345	451 Union St.
13	Rubi Moreno	1	NULL	795	795-234-9087	86 Dove Lane
4	Averi Hodge	1	NULL	978	978-432-0987	34 Layover St.
7	Cassius Kemp	0	29	978	978-654-2356	321 Beacon St. #12
8	Baylee Jenkins	1	NULL	978	978-654-2452	56 Bodouin St.
12	Mayra Murphy	0	29	978	978-654-324	21 Jester Rd.
15	Derick Crosby	1	NULL	978	978-093-6527	65 Von Lane

Here we have the Customer Table. We have the customers name, area code, phone, and address. We also have indicators to see if the customers are purchasing their meals online or in-person at the physical location.

Physical Design: Employee

Emp_ID	Emp_name	Emp_job	Emp_StartDate	area_code	Emp_phone	Emp_address	Emp_Salary
121	Isaias Pace	Restaurant Manager	2022-04-08	716	716-543-2345	234 Fenway Ave.	100000
140	James Serrano	Chef	2022-04-08	765	765-876-9036	541 Hanover St.	60000
212	Piper Jensen	Sous Chef	2022-04-12	781	781-234-8768	333 Huntington Ave.	68000
243	Quintin Olson	Waitress	2022-04-08	978	978-456-9876	65 Stanton St.	35000
321	Melany Howard	Delivery driver	2022-04-15	795	795-098-4352	45 Stoneholm St. #71	44000
380	Garrett Warner	Delivery driver	2022-04-15	765	765-098-3456	200 Train St. #23	31000
423	Rashad Blackburn	Sanitation Worker	2022-04-08	978	978-654-8765	23 Harvard St.	35000
478	Rhianna Carlson	Delivery driver	2022-04-14	781	781-543-9086	43 Columbia Rd.	41000
520	Ibrahim Murray	Waitress	2022-04-08	716	716-564-0987	65 Chandler St.	47000
589	Zachary Cowan	Delivery driver	2022-04-10	978	978-654-8734	23 Waltham St.	40000
623	Jacqueline Salas	Sanitation Worker	2022-04-13	781	781-432-7654	34 Windsor St.	29000
670	Logan Whitaker	Delivery driver	2022-04-16	716	716-876-4532	32 Mora St.	35000
705	Ahmed Shields	Chef	2022-05-06	781	781-456-3462	26 Boston St.	45000
710	Yael Tanner	Sous Chef	2022-05-09	765	765-543-7834	49 Hanover Rd.	55000
735	Dominick Foley	Chef	2022-05-10	978	978-435-0987	21 Houston Lane	40000

Employee table has the Employee's name, ID, and StartDate, etc

Physical Design: Cus_order

Cus_OrderID	Cus_ID	Meal_ID	Drink_ID	Emp_ID	Drink_quantity	Meal_quantity	Order_date	Prepared_by
1128	1	103	107	321	2	1	2022-04-30	131
1143	5	145	212	520	1	2	2022-04-30	151
1234	1	145	301	321	1	2	2022-04-30	151
1270	7	145	NULL	243	0	1	2022-05-03	161
1324	15	124	150	589	2	1	2022-04-30	151
1432	6	129	107	670	1	1	2022-04-30	131
1569	2	129	107	520	1	1	2022-04-30	161
1867	10	135	212	243	1	1	2022-04-30	161
2103	3	223	NULL	380	0	1	2022-04-29	131
2134	4	231	225	589	1	1	2022-04-30	131
2144	8	203	NULL	589	0	2	2022-04-30	151
2248	2	203	200	243	1	1	2022-04-30	131
2290	10	223	NULL	243	0	1	2022-04-30	151
2319	8	211	200	520	1	1	2022-04-30	161
2320	7	211	150	243	2	2	2022-04-30	131
2341	1	223	150	321	2	1	2022-05-02	151
2386	5	223	150	520	1	1	2022-05-03	161
2402	11	231	125	670	1	1	2022-05-01	151
2443	14	203	NULL	243	0	1	2022-04-30	131
2509	15	211	212	589	1	1	2022-04-30	151
2546	12	211	150	520	1	1	2022-05-02	161
2584	2	231	200	243	1	1	2022-05-03	131
2658	2	211	150	520	1	1	2022-05-03	151
2980	12	223	NULL	243	0	1	2022-04-30	161
2992	12	203	321	243	1	1	2022-04-30	131
3025	5	332	250	243	1	1	2022-05-02	151
3093	7	332	NULL	520	0	1	2022-05-03	161
3234	9	332	NULL	243	0	2	2022-05-01	131

In the Cus_order table, the restaurant has received 50 orders from their online and in-person customers. It also specifies the executive chef that has prepared the meal for each customer. In this case, we have three executive chefs with id's of "131", "151", and "161".

Physical Design: Meals & Drinks

Drink_ID	Drink_Item	Drink_price	Drink_availability
107	Coffee	1.99	200
125	Black Tea	3.00	200
150	Green Tea	3.50	150
200	Orange Juice	2.00	100
212	Apple Juice	2.50	100
225	Cranberry Juice	2.90	200
250	Prune Juice	3.25	100
301	Snickers Smoothie	3.25	150
321	Cookies & Cream Milkshake	2.75	100
330	Caramel Ice Cream	3.00	150

For the Drinks entity, our “100 IDs” is our caffeinated drinks. “200 IDs” is for juice, and “300 IDs” for our smoothie and milkshake.

Meal_ID	Meal_Item	Meal_price	Meal_availability
101	Silver Dollar Pancakes	4.00	200
103	Buttermilk Pancakes	5.00	300
124	Belgian Waffles	9.00	200
129	French Toast	9.00	150
135	Blueberry Pancakes	8.00	150
145	Hearty Breakfast	17.00	100
203	American Grits	3.50	100
211	Biscuits & Gravy	8.50	200
223	Frying Pan Special	7.00	100
231	Chicken Fried Steak	7.50	200
245	Eggs Benedict	8.50	150
321	Scrambled Eggs	5.25	230
332	Mini French Toast	3.25	100
421	Blueberry Muffin	3.50	100
445	Bagel and Cream Cheese	3.75	210
450	Granola	3.25	0
463	Fruit	3.25	50
470	Yogurt	3.25	130
480	Oats	3.35	200
504	Veggie Omelet	5.00	130
510	Cheese Omelet	8.00	120
534	Western Omelet	5.99	200
540	Senior Omelet	6.49	120
550	Cheese Omelet w/Ham	7.00	100

When comparing the Meals table with ingredients you may have noticed that each meal is organized within various sections of a menu. For our “100 ID’s” its the main menu section. Specialty for the “200 IDs”, “300 IDs for the kid's menu”. Snacks and fruits for the “400 IDs”. Lastly, our omelets special for our “500 IDs”.

Physical Design: Ingredients

Ingredient_ID	Ingredient_name	Ingredient_quantity	Amount_needed	Ingredient_cost	Vendor_ID
105	Carton of Eggs	20	30	1.83	250
121	Butter (Per 1lb)	80	100	0.10	250
126	Flour (Per 4 oz)	10	12	1.54	222
130	Gallon of Milk	10	10	3.59	305
135	Organic Sugar (24 oz bags)	16	12	5.99	129
137	Blueberries (8oz)	15	15	0.30	129
139	Coffee (Per 8oz)	100	80	1.46	135
140	Black Tea (Per 8oz)	100	100	0.55	150
145	Green Tea (Per 8oz)	100	100	0.55	150
203	Quaker 5-min Grits 24 oz box (2 oz)	20	15	0.18	211
204	Bisquick box of 96 0z (2 oz)	3	5	0.14	121
206	Gravy (24 oz)	20	15	0.10	232
213	Steak (8 oz)	100	100	11.00	245
216	Orange Juice (8oz)	14	13	0.88	205
218	Apple Juice (8 oz)	12	11	0.65	205
220	Cranberry Juice (8 oz)	12	12	0.46	205
223	Prune Juice (8 0z)	12	13	0.70	265
302	Granola pack (120 ct)	0	2	1.20	121
305	Four Fruits (Per 1lb)	12	25	1.67	129
315	Yogurt (24 ct)	5	6	2.15	121
320	Cheese (24 ct)	8	7	0.17	245
330	Hood Cookies & Cream Ice Cream	23	30	1.80	305
332	Caramel Ice Cream	23	32	1.80	305
401	Bell Peppers(1/2 serving)	50	60	0.75	250
410	Spinach (2 oz)	100	110	1.50	250
412	Tomato (2 oz)	100	110	0.71	250

Here we have a list of ingredients with the Vendor that they belong to. This is where the restaurant manages inventory control. We have the current quantity of each ingredient and the amount needed to satisfy the supply and demand chain.

Also, in our previous table we touched upon normalizing our data through our IDs. In the Ingredients table it organizes the ingredients for our Drinks and Meal table through the level IDs. Keep in mind since we have a Carton of Eggs for our “100 IDs” we don’t need to specify it for “500”

Business Solutions:

- List of customers with their first and last names
- List of employees with their hiring data
- List of available meals
- List of available drinks
- List of employees with their salary
- List of ingredients of each meal (join)
- List of customers with their orders
- List of chefs with orders prepared
- List of suppliers with chef that with them
- List of customers with their first and last names
- List of customers with their first and last names



Business Rules: Simple

Each Customer can have one or may Orders

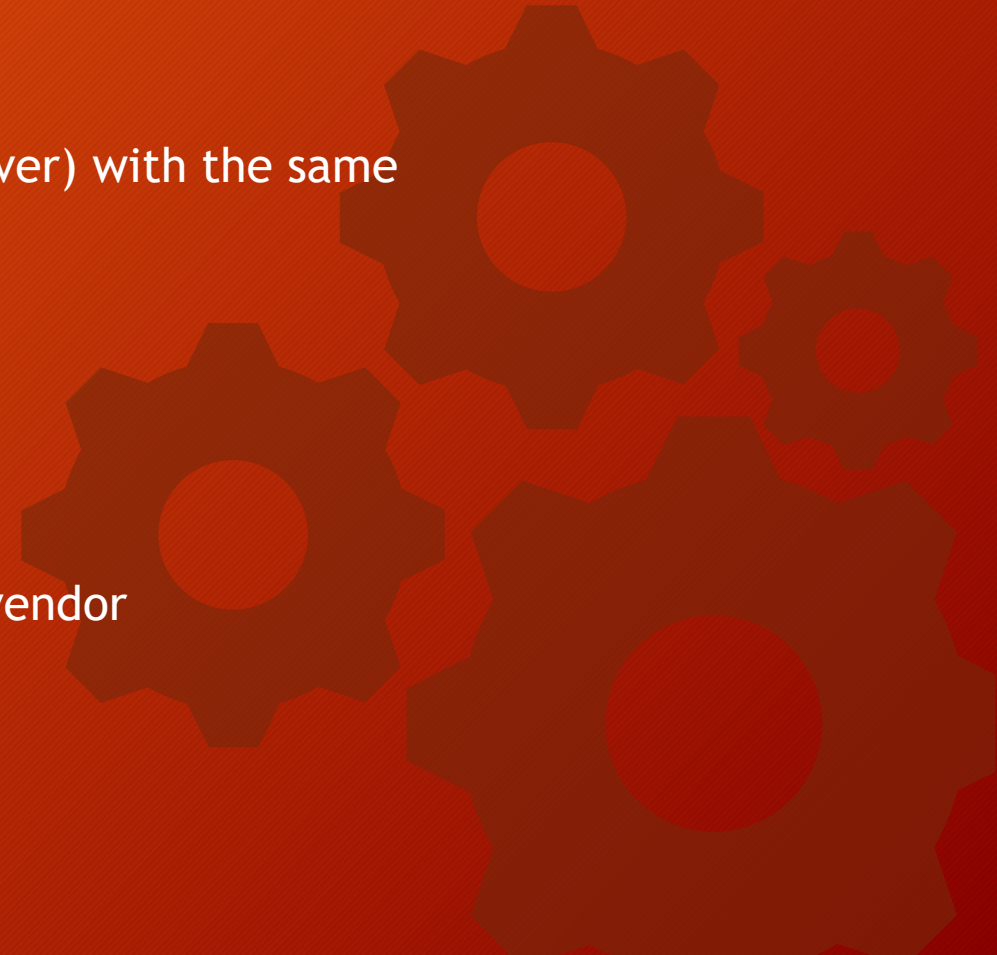
Each online Customer must have an Employee(Delivery Driver) with the same area code

Each Meal can have one or may ingredients

Each Drink can have one or many ingredients

Each executive chef has a collaboration with one or many vendor

Each executive chef has a collaboration with one or many vendor



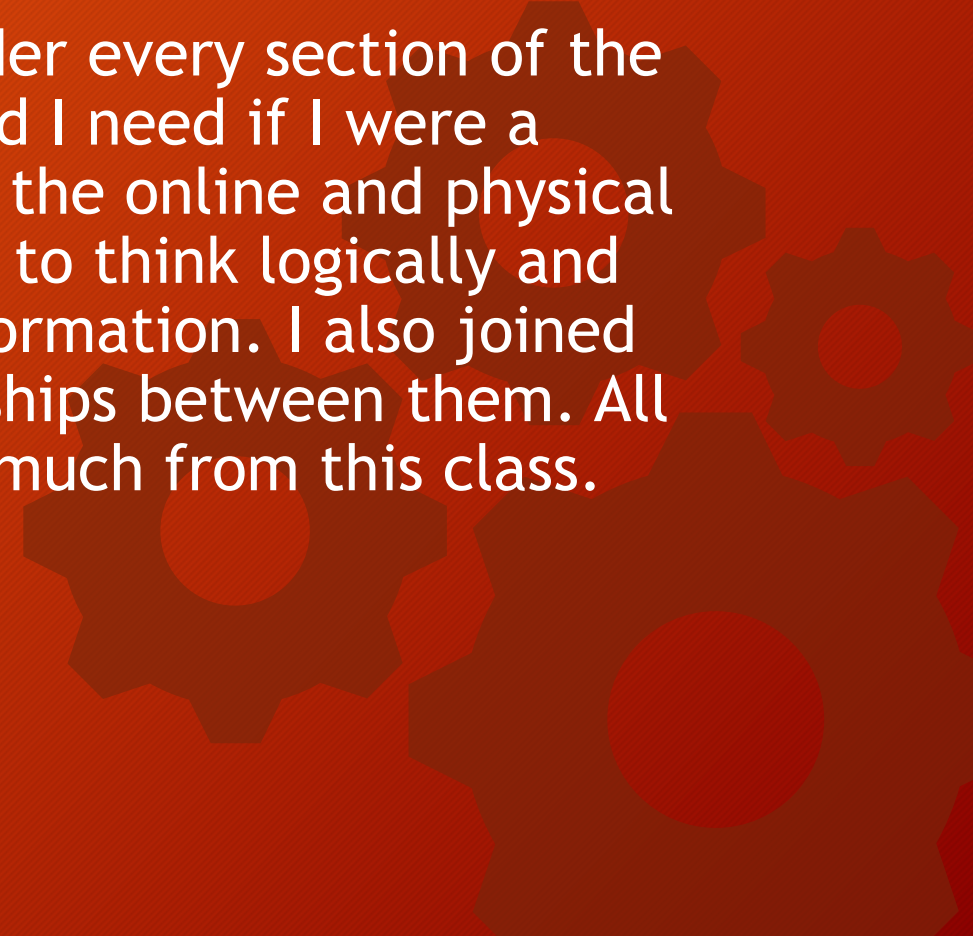
References

Bladoszewski, K. (2020, April 21). *How to join 3 tables (or more) in SQL*. LearnSQL.com. Retrieved April 26, 2022, from <https://learnsql.com/blog/how-to-join-3-tables-or-more-in-sql/#:~:text=%20How%20to%20Join%203%20Tables%20%28or%20More%29,look%20at%20the%20schema%20and%20select...%20More%20>

SQL: Where Statement. SQL where clause. (n.d.). Retrieved April 26, 2022, from https://www.w3schools.com/SQL/sql_where.asp

Conclusions

When I was designing my project, I had to consider every section of the business. I thought about what information would I need if I were a small business (restaurant) owner. So, I consider the online and physical aspect of the business. This project allowed me to think logically and pull valuable information from the Customer information. I also joined different tables by creating meaningful relationships between them. All in all, I enjoyed the process and I've learned so much from this class.





Any Questions?

