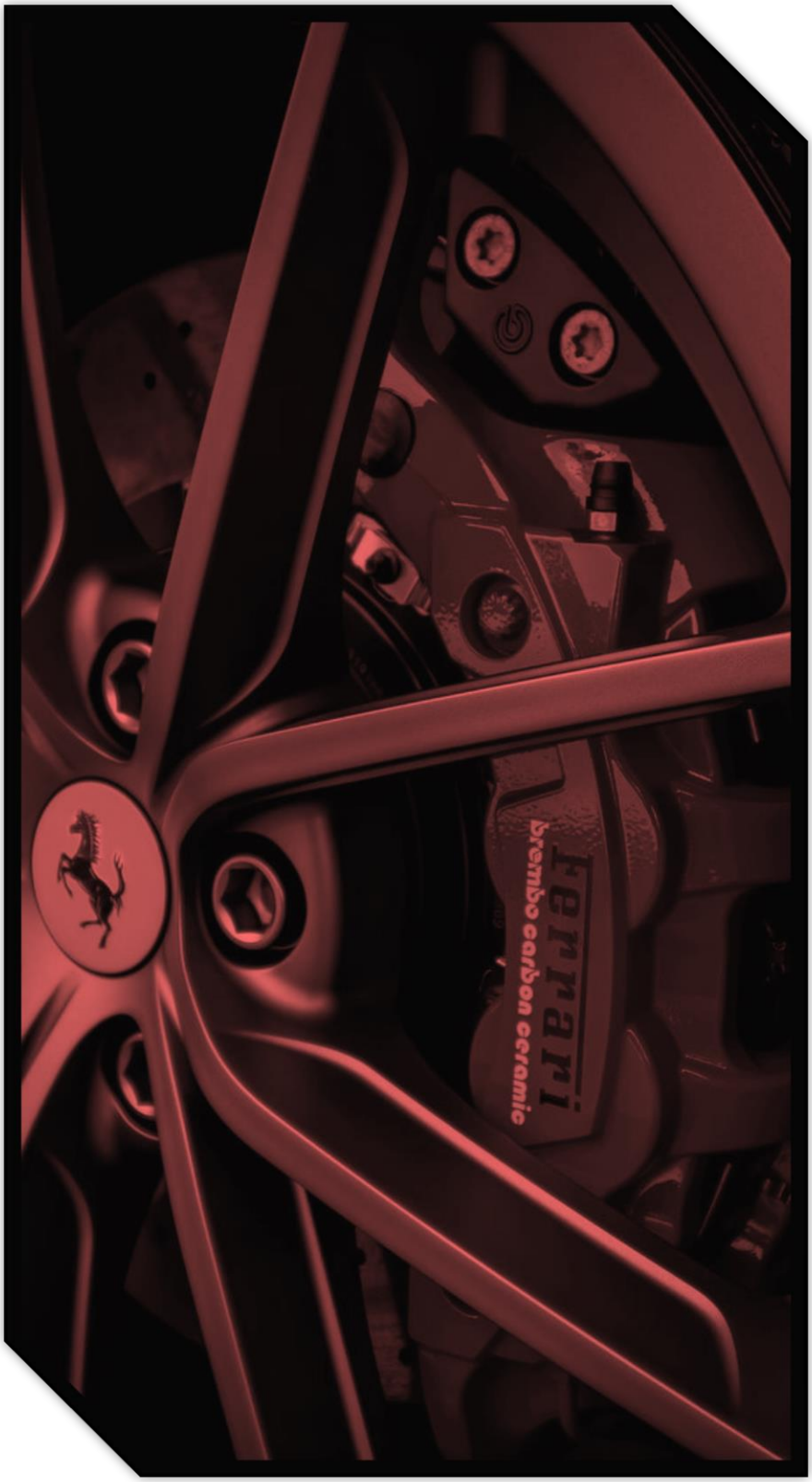
Ferrari

Niwhar Amin / AMI23589889 / Databases / 26/02/2024



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MY INITIAL PLAN

Summary:

In my coursework, I've chosen to spotlight the iconic Ferrari brand for a fresh perspective on business dynamics, focusing specifically on its operational breakdown from production to customer delivery. Ferrari, renowned for its Italian luxury and engineering excellence, offers a captivating case study within the automotive industry.

Founded by Enzo Ferrari in 1939, the company evolved from Auto Avio Contusion to the Ferrari marque in 1947, with the introduction of the legendary 125 S. This marked the genesis of a brand synonymous with automotive perfection.

Business Idea:

My focus lies in dissecting Ferrari's business operations, from the intricacies of production in Maranello to the meticulous processes involved in delivering a Ferrari to its discerning customers worldwide. By unravelling the inner workings of Ferrari's business model, I aim to gain insights into how this legendary brand navigates the complexities of the automotive industry, from conception to customer satisfaction.

Work Objectives:

In this coursework, I aim to explore how Ferrari meticulously crafts its legendary cars in Maranello and ensures their safe delivery to customers worldwide. To tackle this question, I will approach it methodically, breaking down the problem into manageable steps to develop an Entity-Relationship Diagram (ERD) for Ferrari's car production and delivery process. Firstly, I will carefully review the information provided about Ferrari's operations, focusing on key aspects such as car production, component sourcing, shipment logistics, and customer delivery.

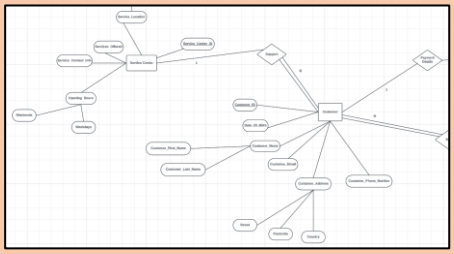
Next, I will identify the main entities involved in this process. These entities may include "Car Model," "Production Facility," "Component," "Supplier," "Customer," "Shipment," among others. Once I have identified the entities, I will determine the key attributes for each entity. For example, for the "Car Model" entity, key attributes might include "Model ID" and "Model Name," while for the "Supplier" entity, key attributes could be "Supplier ID" and "Supplier Name."

After defining the entities and their key attributes, I will establish relationships between them. This involves understanding how entities are related and interconnected in the context of Ferrari's operations. For instance, there may be relationships indicating which production facility manufactures which car models, or which suppliers provide components for specific car models.

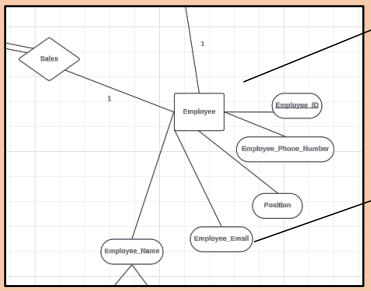
After creating the ERD diagram, my next step is to develop a physical data model that mirrors the structure outlined in the diagram. This physical data model serves as a direct representation of the ERD, translating abstract entities and relationships into concrete database tables, columns, and constraints. By meticulously crafting the physical data model, I ensure that it accurately reflects the conceptual design and provides a solid foundation for implementing the database schema in a specific database management system.

ERD DIAGRAM

ERD Design:



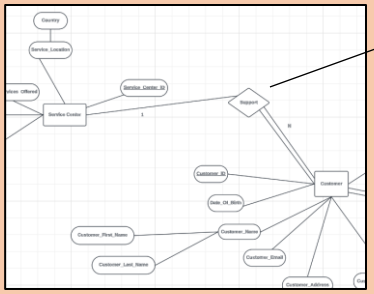
Entity Set:



Entity Set name

Attributes

Linking to Entity Sets:



"One to Many" relationship between two entities

Final Design:

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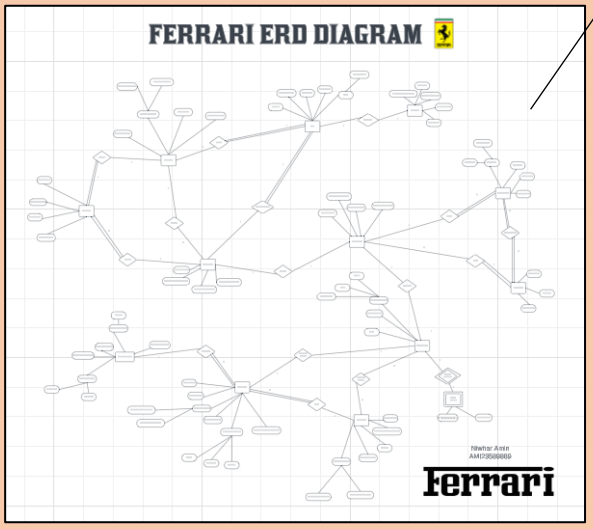


PHYSICAL DATA MODEL

TABLE DESIGN:

Warranty		
PK	Warranty_ID	int (20)
	Warranty_Type	VARCHAR (20)
	Warranty_Duration	VARCHAR (20)
	Coverage	VARCHAR (20)
	Warranty_Contact_Info	VARCHAR (20)
FK	Part_ID	int (20)

Data Types:

PRIMARY KEY AND DATA TYPES:

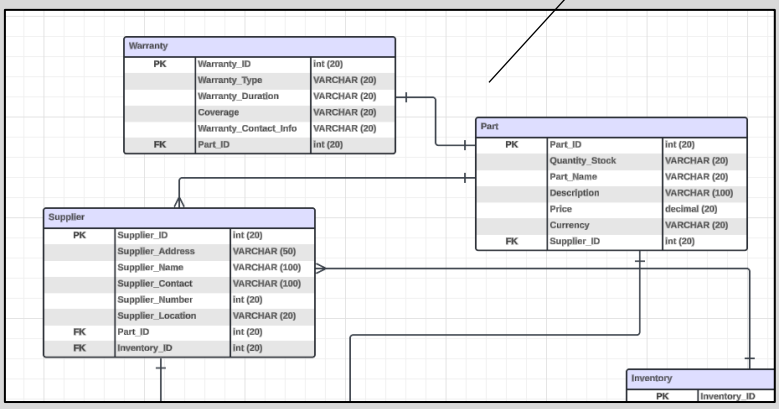
Warranty	
PK	Warranty_ID
	Warranty_Type
	Warranty_Duration
	Coverage
	Warranty_Contact_Info
FK	Part_ID

int (20)
VARCHAR (20)
VARCHAR (20)
VARCHAR (20)
VARCHAR (20)
int (20)

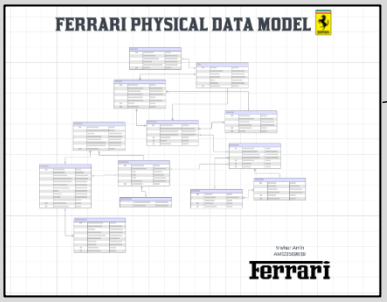
Primary Key:

"One to One" Entity Link

LINKING TO ENTITIES:



FINAL DESIGN:



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HOW MY PLAN WENT

Post Initial plan:

My initial coursework plan underwent significant refinement as I sought to enhance the effectiveness of my database schema. Utilizing Lucidchart, I embarked on crafting comprehensive designs, beginning with an Entity-Relationship Diagram (ERD). This ERD encompassed 13 entity sets, including pivotal components such as Dealership, Customer Service, and Warehouse. Leveraging Crow's notation, I meticulously linked these entities, elucidating their relationships and paving the way for a coherent database structure.

ERD to physical data model:

Transitioning from ERD to the physical data model marked the next phase of my coursework journey. Although initially daunting, transferring data into tables and incorporating foreign keys proved manageable, thanks to my detailed design work and prior planning. By aligning my physical data model with the intricacies of the ERD, I ensured the seamless integration of entity sets and attributes, laying a solid foundation for database implementation.

Before diving into the digital realm, I meticulously planned my database schema on paper, carefully sketching out entity sets and relationships. This preliminary step allowed me to clarify my thoughts and identify potential areas for improvement.

Planning method:

Additionally, I diligently reviewed lecture notes, leveraging key concepts and methodologies shared in class to inform my design decisions. Seeking further guidance, I turned to online resources such as YouTube videos, which offered invaluable insights and practical tips for structuring my charts and designs effectively. By combining traditional planning methods with contemporary digital tools and supplementary resources, I ensured a comprehensive approach to developing my coursework.

Overall, the coursework proved both rewarding and enlightening. By meticulously planning on paper and seamlessly translating ideas into Lucidchart designs, I streamlined the development process. This approach not only saved valuable time but also facilitated a smoother progression from conceptualization to implementation, culminating in the successful realization of a robust and effective database schema.

I chose these specific entity sets based on their perceived suitability for fulfilling the project's requirements and objectives. Considering the current relationships within the system, I determined that these entity sets would best facilitate the desired functionality and data flow.

DOCUMENT LINKS:

ERD DIAGRAM : https://lucid.app/lucidchart/642b037b-d139-48ae-899e-89697bbd8b80/edit?viewport_loc=-1856%2C-1313%2C5375%2C2296%2C0_0&invitationId=inv_4380f685-4994-4b56-93ec-8ae07ec8155e

PHYSICAL MODEL : https://lucid.app/lucidchart/79132bd5-ef4a-440d-ad63-6e275eecd61e/edit?viewport_loc=-2715%2C-1168%2C7226%2C3086%2C0_0&invitationId=inv_9347dd76-f28f-4471-b2fb-df2023128639