

Bases de Dados $\begin{array}{c} \text{L.EIC} \\ 2023/2024 \end{array}$

Group Project First Submission

Group 703:

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1 Domain Definition

We are developing the database for the logistics of a paper bag company. The company makes sales, and from each sale an order is created. From that order, we want to save many things. We want to save the client, the items, quantities, prices, identification number, employee that produced each item, machine where each item was produced, date, status, and delivery method.

The items are paper bags, and each type of bag has a paper type, dimensions and a list of machines where it can be produced.

We need to keep track of the employee that produced the items and the machine where it was produced, so that in case a problem arises with the bags, it is possible to know who and where the mistake was made.

From employees, we only want to save their name and identification number. From clients, we want to save that, plus their phone number, e-mail address and physical address.

The company has various warehouses, and each warehouse has certain machines and paper types in stock. We can select in what warehouse a certain item can be produced based on the machines where it can be produced and on the paper type it needs.

2 Conceptual Modelling

What follows is the UML diagram we developed for the defined problem domain. We did not use AI tools to help develop this diagram.

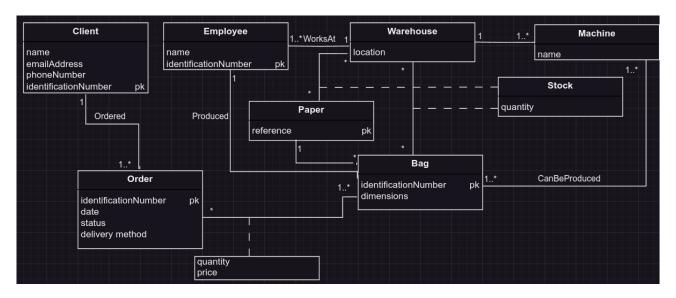


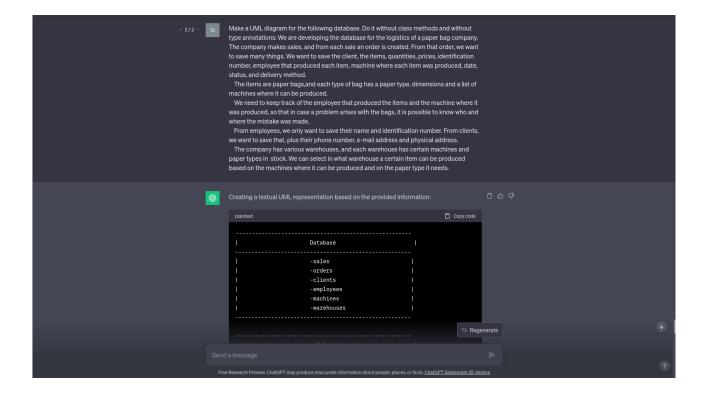
Figure 1: UML diagram, designed using draw.io

3 Generative AI Integration

3.1 AI Tool Used

For this task, we chose to use ChatGPT. Chatbot GPT-3.5, often referred to as ChatGPT, is a language generation model developed by OpenAI. GPT (Generative Pre-trained Transformer) is a type of machine learning model based on a transformer architecture, and GPT-3.5 is one of the latest and most advanced versions.

3.2 Prompts and Answer



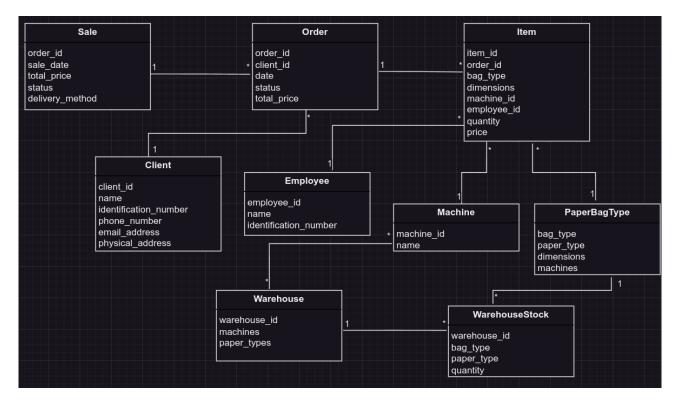
SI	You forgot to represent the relationships			
6	I apologize for the oversight. Let's include the relationships in the Urepresentation:	JML textual		
	plaintext	Copy code		
	Database			
	-sales orders			
	-clients -employees			
	-machines -warehouses			
	Sale			
	-order_id -sale_date			
	-total_price -status -delivery_method			
	1-to-many order_id -> Order			
	Order	- □ Rege	nerate	
Sence				
Fre	e Research Preview. ChatGPT may produce inaccurate information about people, places, c	or facts. <u>ChatGPT September 25 Ver</u>	sion	?

	1	Order			
	-order_id				
	-client_id				
	-date				
	-status				
	-total_price				
	many-to-1 client_id	-> Client			
	1-to-many order_id -	> Item			
	1	Item			
	-item_id				
	-order_id				
	-bag_type				
	-dimensions				
	-machine_id				
	-employee_id				
	-quantity				
	-price				
	many-to-1 order_id -	> Order			
	many-to-1 bag_type -	> PaperBagType			
	many-to-1 machine_id	-> Machine			
	many-to-1 employee_i	d -> Employee			
	1	Client	l ∜ Rege	nerate	
Send					
Free	Research Preview. ChatGPT may prod	uce inaccurate information about people, places, or	facts. <u>ChatGPT September 25 Ver</u>	sion	

				_
	Client			
	-client_id			
	-name			
	-identification_number -phone_number			
	-email_address			
	-physical_address			
	physical_addiess			
	1-to-many client_id -> Order			
	Employee			
	-employee_id			
	-name			
	-identification_number			
	1-to-many employee_id -> Item			
	Machine			
	-machine_id			
	-name			
	1-to-many machine_id -> Item			
	many-to-many machine_id <-> Warehouse			
		12 B		
		. S Reg	enerate	
	PaperBagTvpe			
Send				
Free	Research Preview. ChatGPT may produce inaccurate information about people, places, or	r facts. <u>ChatGPT September 25 Ve</u>		

	PaperBagType			
	-bag_type			
	-paper_type -dimensions			
	-dimensions -machines			
	-macrifies			
	1-to-many bag_type -> Item			
	T to many bag_type . Item			
	WarehouseStock			
	-warehouse_id			
	-bag_type			
	-paper_type			
	-quantity			
	many-to-1 warehouse_id -> Warehouse			
	many-to-1 watenouse_id -> watenouse many-to-1 bag_type -> PaperBagType			
	many-to-1 bag_type -> rapelbaglype			
	Warehouse			
	-warehouse_id			
	-machines			
	-paper_types			
	1-to-many warehouse_id -> Machine			
	many-to-many warehouse_id <-> Machine	l ≒ Rege	enerate	
	1-to-many warehouse_id -> WarehouseStock			
0				
Send				
Free	Research Preview. ChatGPT may produce inaccurate information about people, places, or fa	facts. ChatGPT September 25 Ver		

With this, we were able to create a UML diagram also using draw.io for this AI generated model.



3.3 Critical Assessment

With the prompts that were given to ChatGPT, it produced a diagram in many ways different to our own.

One of the most notable problems with GPT's model is the different naming conventions for class names and attribute names. If camelCase is used in one, it should also be used in the other.

Some classes that it created would make more sense as association classes instead of normal classes, ike WarehouseStock.

At last, there were some attributes that could be ommitted because of the relations between classes, such as Item having an order_id attribute. This does not make much sense, as the relation between Order and Item already exists.