

**NOVA**

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Information  
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# Minimarket Management

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## Description of the Fictitious Business Process

The project presents a fictitious business process involving the management of a minimarket chain named “Bom Preço”, located in Portugal. To support the objectives of the project, each table of the Entity Relationship Diagram (ERD) was populated with a sufficient amount of information to complete the proposed exercises. However, the design and implementation of the ERD allows for its application in real-world scenarios, where the number of entries in the different tables would be much larger than in the current study.

The minimarket chain "Bom Preço" has six locations spread across three regions in the country: "Sul", "Centro", and "Norte". The relationship is one-to-many, as a single region may be associated with multiple minimarkets, but each minimarket can only be located in one region. Similarly, a minimarket may be associated with multiple outsourcing costs, but each cost can only be charged to a single minimarket, creating a one-to-many relationship between minimarkets and outsourcing costs. These costs can include both recurrent expenses such as rent and electricity bills, as well as non-recurrent costs like punctual maintenance services.

The relationship between minimarkets and employees is one-to-many, with multiple employees being associated with a single minimarket. Within a minimarket, there is a many-to-many relationship between roles and employees, as an employee can hold multiple roles and a role can be held by multiple employees. For example, a cashier may also serve as the manager of their minimarket, but there can be several cashiers across different minimarkets. This relationship structure allows for flexibility and versatility within the minimarket's workforce.

The warehouse, located to efficiently serve the minimarkets, receives batches of unique products from international suppliers, including wine, tuna cans, vinaigrette, and honey. These products are distributed to the inventories of the various minimarkets, with each product having a unique entry in each inventory. The relationship between minimarkets and inventory is one-to-many, as each minimarket has its own inventory with several product entries. Each product in the different inventories is associated with a single warehouse, while the warehouse is associated with multiple products across all the inventories, creating a one-to-many relationship between warehouse and inventories. Each batch received by the warehouse is assigned a sell price for different ranges of dates, allowing the warehouse to effectively respond to market fluctuations and ensure that the minimarkets it serves are stocked with the products their customers want at competitive prices.

In the case of sales and inventory, the relationship is many-to-one, as each sale is associated with a product from the inventory, but a product may be associated with multiple sales as we track the quantities of each product that are still in the inventory. This allows us to ensure that we have enough stock to meet customer demand. It is worth mentioning that, in instances where the customer has previously used the product, they are asked to provide a rating out of ten for it. This customer feedback can be used to improve the quality and selection of products offered by the minimarkets. Each invoice is associated with a single employee, but an employee may be responsible for the issuance of multiple invoices, and so the relationship between employees and invoices is one-to-many. Typically, the employee associated with an invoice is the cashier who processed the transaction.

Finally, the relationship between promotions and invoices is one-to-many. Each invoice can only be linked with the promotion that is applicable on the date of the sale, but a promotion can be linked with multiple invoices. A customer may be associated with multiple invoices, but each invoice is only associated with a single customer, a relationship of many-to-one between invoice and customers. The only way to make purchases at the minimarket is through in-person transactions. Currently, the minimarket only accepts two forms of payment: cash and debit card.

The final cost presented in each invoice is determined by multiplying the quantity of each product bought by the customer by their price at the time of the purchase, and then applying any applicable discounts from the promotions table. This results in the total amount that the customer has to pay at the time of the purchase and issuance of the invoice.

