***EXERCISE 8***🡪 <https://online.visual-paradigm.com/diagrams/templates/use-case-diagram/grocery-cart-system-/>

**PROMPT:** The following should be textually analyzed and a use case diagram created containing several use cases. Identify the actors, use cases and associations. Please give me the PlantUML code for the use case diagram corresponding to the following text:

***The Grocery Cart System use case diagram provides a comprehensive visualization of the key functionalities and interactions within an online grocery shopping platform. The diagram offers a clear representation of the actions that customers can perform while utilizing the system, ensuring a seamless and intuitive shopping experience. The use case diagram encompasses a range of essential actions that customers can undertake. Users are able to add items to their cart, allowing them to conveniently gather all the desired grocery products in one place. Moreover, customers have the option to remove items from their cart, enabling them to modify their shopping selections as needed. The diagram also highlights the ability to view the contents of the cart, ensuring transparency and facilitating efficient decision-making during the shopping process. The diagram further illustrates the checkout process, which is a pivotal stage in the online grocery shopping experience. Customers are able to proceed to checkout, initiating the necessary steps to finalize their purchase. These steps include calculating the total price of the items in the cart, ensuring accurate pricing information is provided to the customer. Once the total price has been determined, the system proceeds to process the payment, ensuring a secure and reliable transaction. Finally, the system sends a confirmation to the customer, providing reassurance and acknowledging the successful completion of the purchase.***

ChatGPT

**ChatGPT**

**Actors:**

1. Customer

**Use Cases:**

1. Add Items to Cart
2. Remove Items from Cart
3. View Cart Contents
4. Proceed to Checkout
5. Calculate Total Price
6. Process Payment
7. Send Confirmation

**Associations:**

1. Customer can add items to their cart.
2. Customer can remove items from their cart.
3. Customer can view the contents of their cart.
4. Customer can proceed to checkout.
5. During checkout, the system calculates the total price.
6. The system processes the payment.
7. The system sends a confirmation to the customer.

Now, let's create the PlantUML code for the use case diagram:

@startuml

left to right direction

actor Customer

rectangle "Grocery Cart System" {

usecase "Add Items to Cart" as UC1

usecase "Remove Items from Cart" as UC2

usecase "View Cart Contents" as UC3

usecase "Proceed to Checkout" as UC4

usecase "Calculate Total Price" as UC5

usecase "Process Payment" as UC6

usecase "Send Confirmation" as UC7

}

Customer --> UC1

Customer --> UC2

Customer --> UC3

Customer --> UC4

Customer --> UC7

UC4 --> UC5

UC5 --> UC6

UC6 --> UC7

@enduml

This PlantUML code represents the use case diagram with actors, use cases, and associations based on the provided text. It captures the essential actions and interactions within the Grocery Cart System during an online grocery shopping experience. Adjustments can be made according to your specific needs or preferences.

**PROMPT:** Shouldn’t we include a payment system or gateway as a support actor for the "process payment" use case?

ChatGPT

**ChatGPT**

Yes, you're absolutely correct. In a more detailed and realistic representation, it would be appropriate to include a Payment System or Gateway as a support actor for the "Process Payment" use case. Let's modify the PlantUML code to include this actor:

@startuml

left to right direction

actor Customer

actor "Payment System" as PaymentSystem

rectangle "Grocery Cart System" {

usecase "Add Items to Cart" as UC1

usecase "Remove Items from Cart" as UC2

usecase "View Cart Contents" as UC3

usecase "Proceed to Checkout" as UC4

usecase "Calculate Total Price" as UC5

usecase "Process Payment" as UC6

usecase "Send Confirmation" as UC7

}

Customer --> UC1

Customer --> UC2

Customer --> UC3

Customer --> UC4

Customer --> UC7

UC4 --> UC5

UC5 --> UC6

UC6 --> PaymentSystem : <<Include>>

@enduml

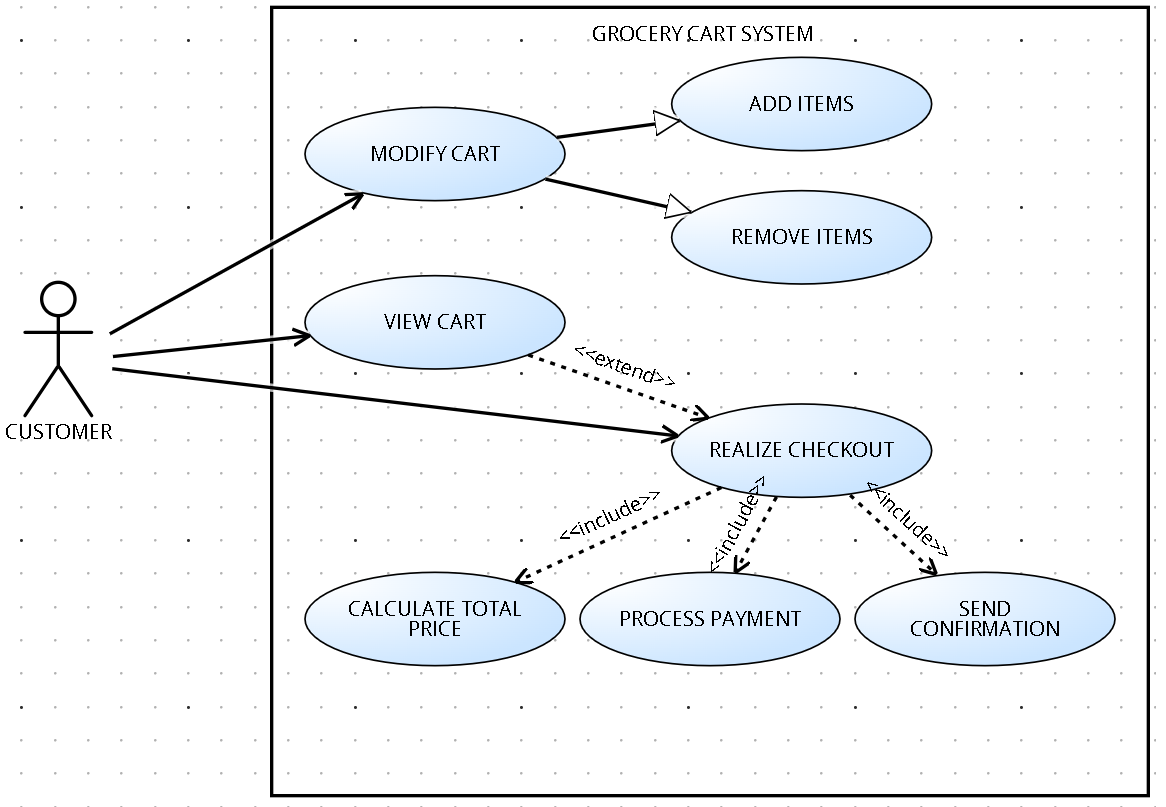
**Analysis:**

This exercise, when examined rapidly, might appear more complex than it truly is. It serves as a valuable test for assessing ChatGPT's capabilities in extracting essential information for creating a Use Case Diagram (UCD). Furthermore, when comparing the provided UMLPlant code, it is evident that the diagram generated is identical to the one given in the exercise. This reaffirms ChatGPT's capacity to produce comparable outcomes when provided with a correct and precise prompt.

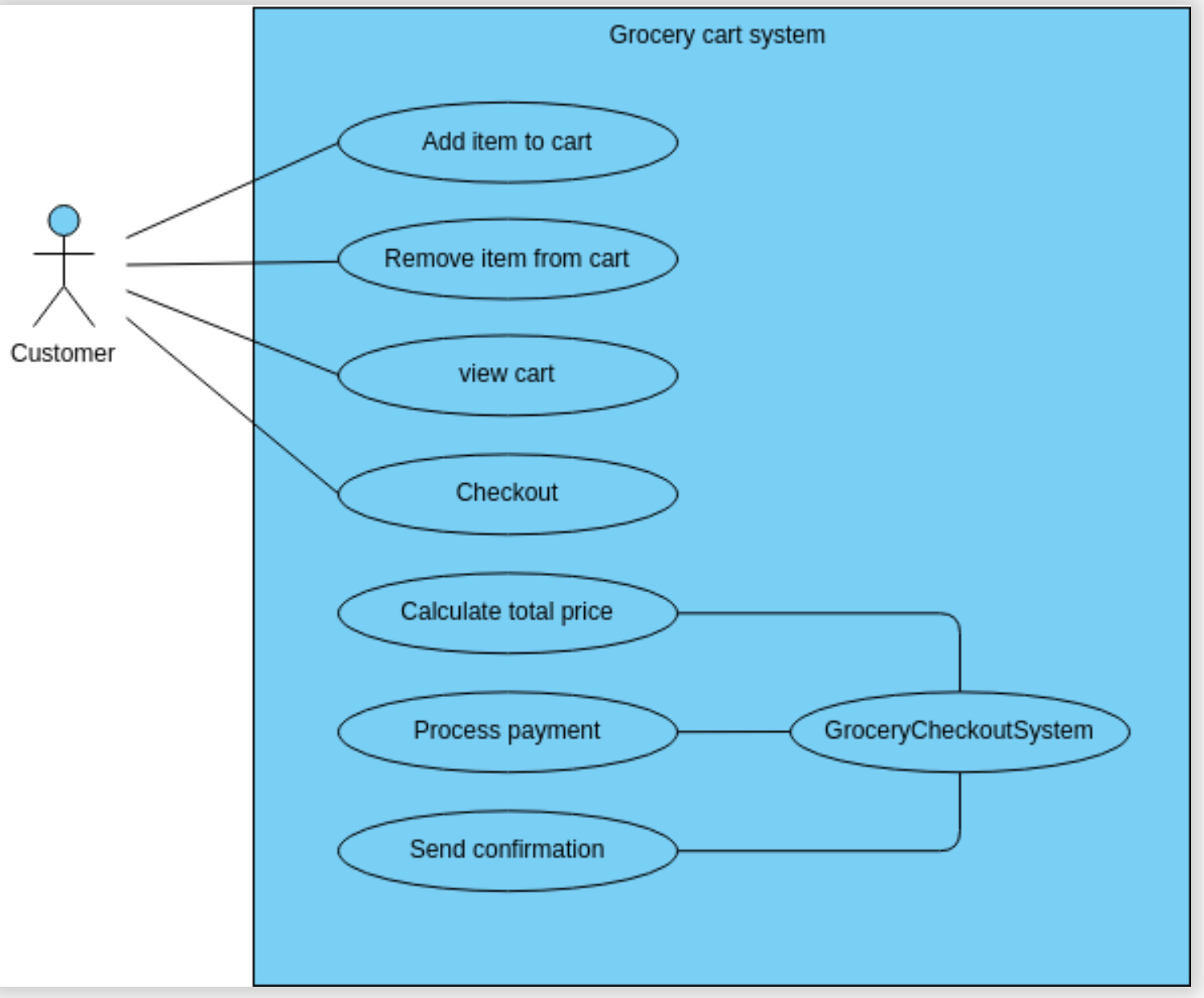
The diagram generated by the AI is enhanced when we understand that the associations between "proceed to checkout," "calculate total price," "process payment," and "send confirmation" are all "include" associations. It is easy to infer that to proceed with the checkout, a customer must calculate the total price, process the payment, and confirm the transaction. One limitation is apparent in the absence of a payment gateway as a secondary or supporting actor for the "process payment" use case. Despite this, the overall correctness of the diagram is maintained.

Upon introducing a new prompt inquiring about this limitation, ChatGPT addressed the issue in the above transcript. It emphasized that for a more realistic and detailed solution, the payment system support actor should be included. The subsequent PlantUML code provided by ChatGPT incorporated this refinement.

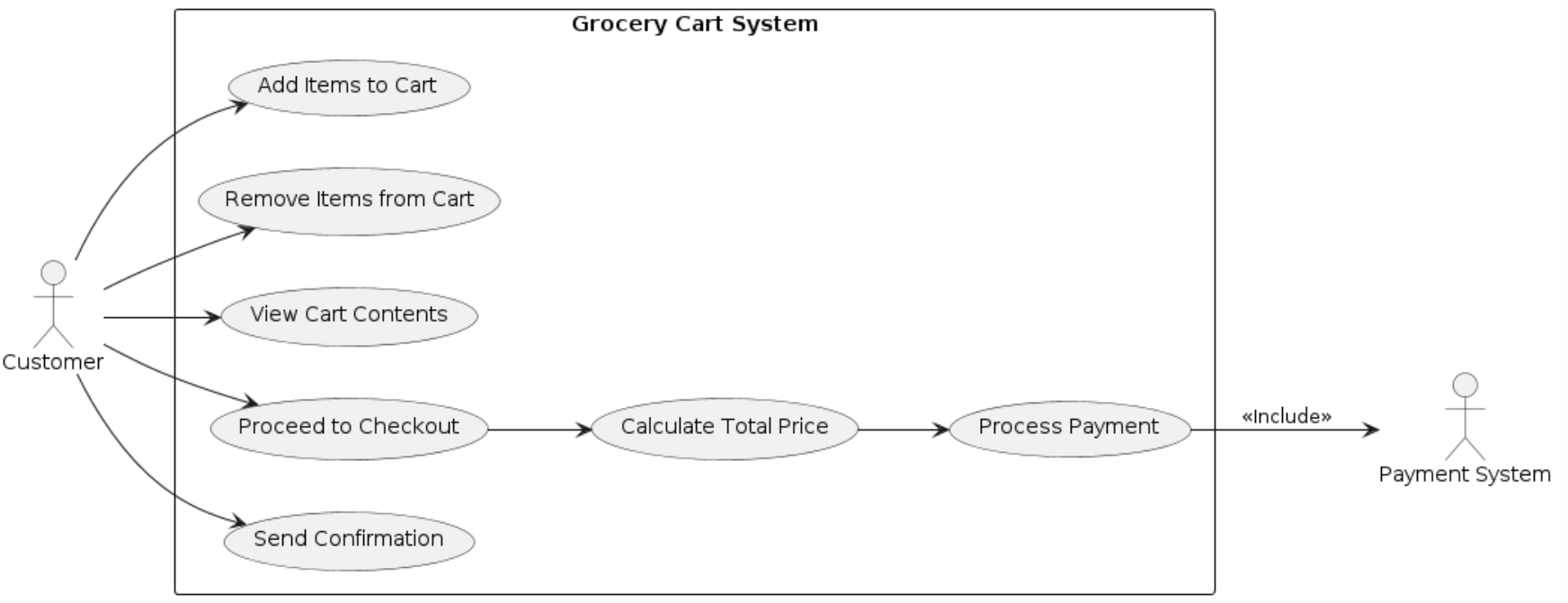
**MY SOLUTION:**

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**REFERENCE SOLUTION:**

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**LLM SOLUTION:**

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