

# Interaction\_with\_LLM

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We provided ChatGPT with the schema for our database tables and a list of SQL queries we wanted it to generate. Below are the queries that ChatGPT did not generate completely correctly:

## 1. Sorting products by whether promotion is applied or not

### 3. Sorting and filtering products

#### (a) Filter by price, color, gender, category, promotion applied

```
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SELECT P.*
FROM Product P
LEFT JOIN Promotion PR ON P.Product_ID = PR.Product_ID
WHERE P.Price BETWEEN 100 AND 1000
AND P.Colour = 'Black'
AND P.Gender = 'Unisex'
AND P.Category = 'WATCH'
AND PR.Promotion_ID IS NOT NULL;
```

Here, ChatGPT initially did not account for the fact that promotions are only valid within a specific start and end date, as defined in the `Promotion` table. To correct this, we added the following condition:

```
AND CURDATE() BETWEEN PR.Start_Date AND PR.End_Date;
```

## 2. Add product to cart with discount calculation

### 4. Cart operations (Add, Update, Remove) considering promotions and membership

#### (a) Add product to cart with discount calculation

```
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INSERT INTO Cart (Product_ID, Customer_ID, Quantity, Price)
SELECT P.Product_ID, 2001, 2, P.Price * (1 - IFNULL(PR.Discount_Percentage, 0)) / 10
FROM Product P
LEFT JOIN Promotion PR ON P.Product_ID = PR.Product_ID
JOIN Customer C ON C.Customer_ID = 2001
WHERE P.Product_ID = 101;
```

In this case, ChatGPT made two errors:

1. It did not consider that if a product is already in the cart, adding it again would create a duplicate entry. Instead, the quantity of the existing product should be updated.
2. It incorrectly assumed that customers with a membership receive an additional 10% discount, which is not part of our system.

To fix these issues:

1. We removed the membership discount calculation.
2. We added the following condition to handle duplicate entries correctly:

ON DUPLICATE KEY UPDATE

Quantity = Quantity + 2,  
Price = VALUES(Price);