

## Exercise 1

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orderId	date	custId	custName	city	itemId	itemName	quant	price

### 1NF (First Normal Form) Rules

- Each table cell should contain a single value.
- Each record needs to be unique.

Hence, the table itself is 1NF

### 2NF (Second Normal Form) Rules

- Rule 1- Be in 1NF
- Rule 2- Single Column Primary Key that does not functionally dependant on any subset of candidate key relation.

Table 1:

orderId	date	custId	custName	city	quant	price

Table 2:

orderId	itemId	itemName
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### 3NF (Third Normal Form) Rules

- Rule 1- Be in 2NF
- Rule 2- Has no transitive functional dependencies

Table 1:

orderId	date	custId	custName	city	quant

Table 2:

orderId	itemId	itemName
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Table 3:

custId	itemId	price
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### SQL Queries:

1. SELECT COUNT(itemId), SUM(price)  
FROM table2  
INNER JOIN table3 ON table2.itemId=table3.itemID  
GROUP BY orderId

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2. SELECT s.custName
   FROM (
     SELECT SUM(s.price) AS sum
     FROM table2
     INNER JOIN table3 ON table2.itemId=table3.itemID
     GROUP BY orderId
   ) AS s

   INNER JOIN table3 ON table1.custId=table3.custID
   GROUP BY orderId
   WHERE s.sum = MAX(price)
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