

## Exercise 2

The initial table is **already in 1NF** because it has single(atomic) valued attributes, stores values in the same domain and no some repeating in the column's names.

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For moving to 2NF I notice that some columns have **Partial Dependency** such as *school & teacher & room* (info about teacher); *customerId & customerName & city* (info about customer); *itemId & itemName & price* (info about item).

Therefore, I decided to separate initial table into four tables for **2NF**:

**Teacher** (*school*, *teacher*, *room*, *grade*)

**Course** (*teacher*, *course*, *book*, *loanDate*)

**Book** (*book*, *publisher*)

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In order for the table to become 3NF, shouldn't have **Transitive Dependency**. 2NF is also a 3NF because I am not found any Transitive Dependency.

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## Query for each of the requirements:

1. SELECT T.school as SC, B.publisher as P, COUNT(\*)  
FROM Course as C  
JOIN Book as B on C.book = B.book  
JOIN Teacher as T on C.teacher = T.teacher  
GROUP BY P, SC
2. SELECT T.school as SC, B.book as BK, B.publisher as P  
FROM Course as C  
JOIN Book as B on C.book = B.book  
JOIN Teacher as T on C.teacher = T.teacher  
GROUP BY P, BK, SC  
HAVING MIN(C."loanDate") = C."loanDate"