Lab 1 Submission

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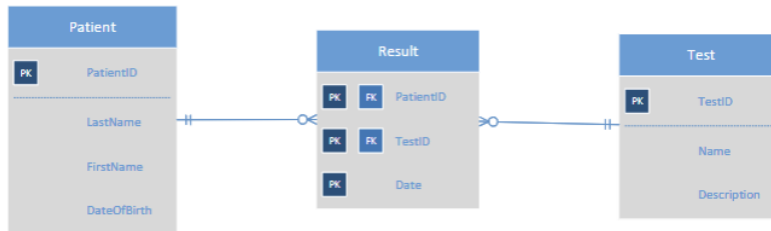
PART 1

LAB1 ERD

Kashyap Datta Kovvali | February 10, 2022

Customer

CustomerID (PK)
CustomerLastName
CustomerFirstName
StreetNumber
City
State
ZipCode
Phone

Agent

AgentID (PK)
AgentLastName
AgentFirstName

Equipment

EquipmentID (PK)
EquipmentName
EquipmentDetails

Checkout

CheckoutID (PK)
CustomerID (FK)
AgentID (FK)
EquipmentID (FK)
DailyRate
Deposit
CheckoutDate
ReturnDate
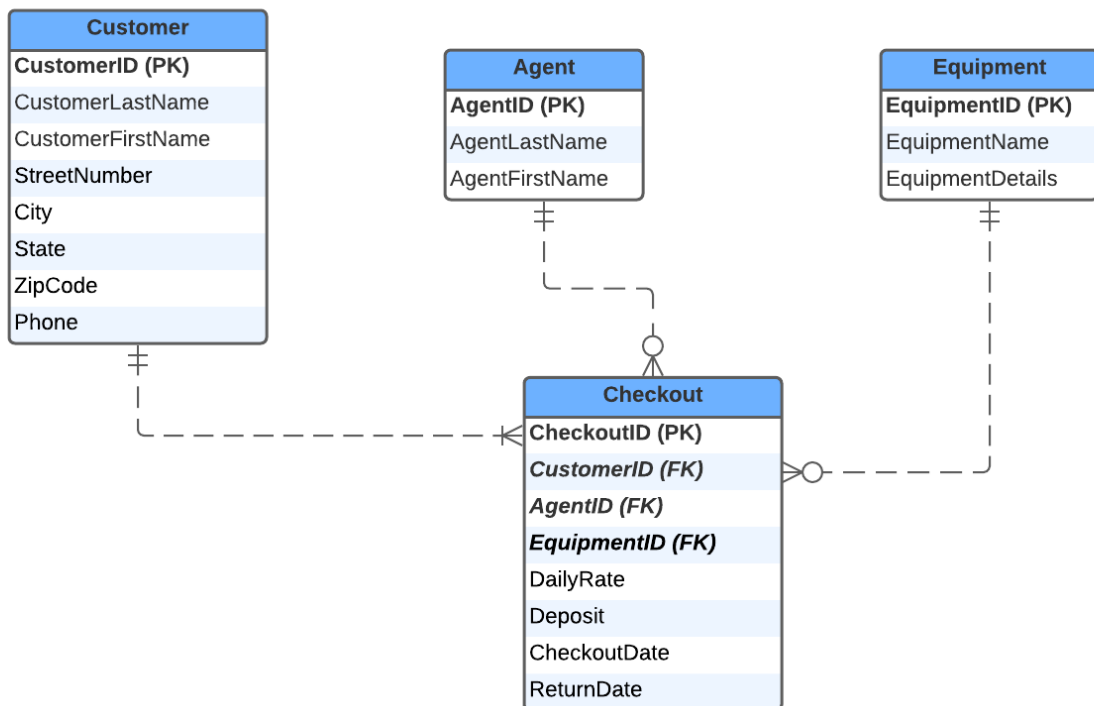
Part 2

The above design has two identifying relationships for Result. When we change the design to the model below, what else do we need to do to ensure the business rules can still be maintained? Please elaborate.
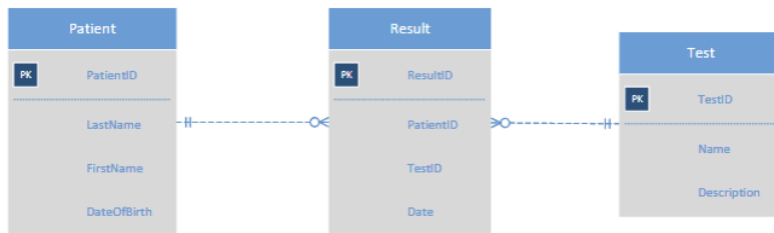
Answer:

1. We must make the original key attributes of Result i.e; PatientID, TestID and Date **mandatory**. Specifically, when a tuple is entered in Result, we must ensure PatientID, TestID and Date are entered.

2. We must set up the **referential integrity** for the original key attributes. Which means whenever the original key attribute is entered, we should look up the value in the related parent entity to ensure it's a good value. So, PatientID, TestID and Date values should be referencing their entities respectively.

3. We must make sure the combination of the original key attributes - PatientID, TestID and Date – are **unique**. We can create a unique index on a combination of these key attributes to enforce it.

Part 3

Created Collection

Grouping and averaging order values


```
1 ▾ /**
2    * _id: The id of the group.
3    * fieldN: The first field name.
4    */
5 ▾ {
6    _id: "$CustomerID",
7 ▾  orderValAverage: {
8       $avg: "$OrderValue" ,
9    }
10  }
```
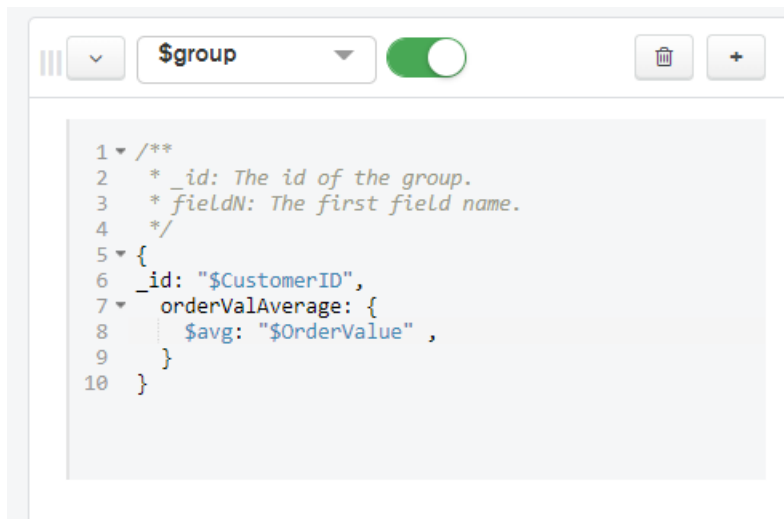
Results

Output after $group stage ⓘ (Sample of 4 documents)

_id: 1108
orderValAverage: 2985.6666666666665

_id: 1106
orderValAverage: 2990.3333333333335

```
  _id: 1105
  orderValAverage: 2991
```

```
  _id: 1107
  orderValAverage: 3024.3333333333335
```