

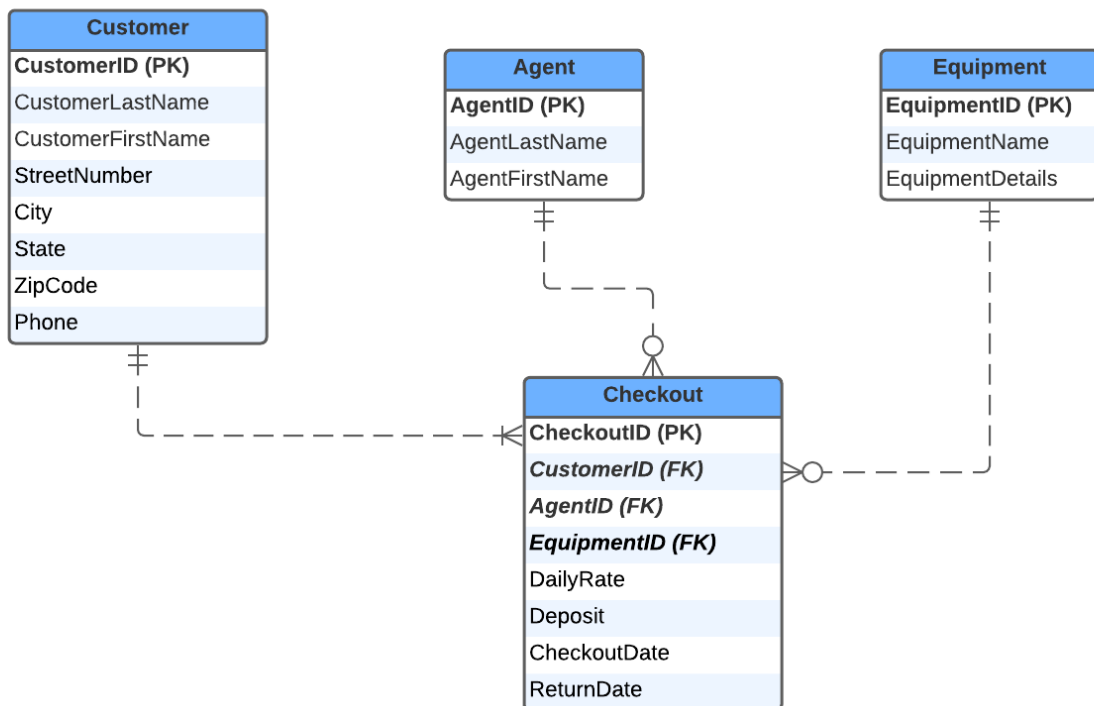
Lab 1 Submission

Kashyap Datta Kovvali - 001098717

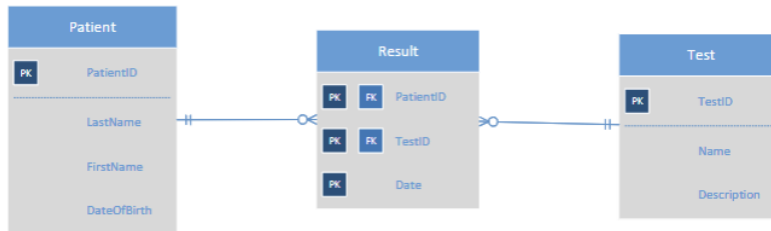
PART 1

LAB1 ERD

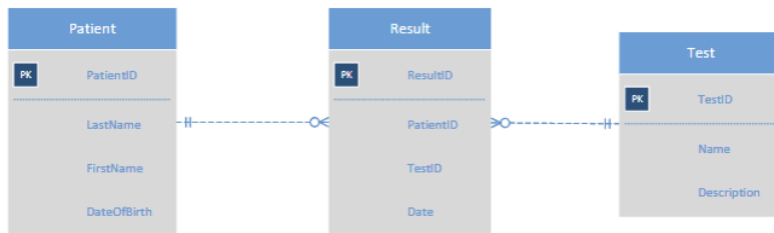
Kashyap Datta Kovvali | February 10, 2022



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

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Project 0 Atlas Realm Charts

DEPLOYMENT

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Database Access

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Advanced

QUERY RESULTS 1-12 OF 12

```
{
  "_id": ObjectId("62856c8f647a1da05089f4e"),
  "CustomerID": 1305,
  "OrderValue": 3729,
  "SalesOrderID": 41704,
  "TotalQuantityInOrder": 1
}
```

```
{
  "_id": ObjectId("62856d36647a1da05089f43"),
  "CustomerID": 1105,
  "OrderValue": 2619,
  "SalesOrderID": 51612,
  "TotalQuantityInOrder": 4
}
```

```
{
  "_id": ObjectId("628573a6647a1da05089f43"),
  "CustomerID": 1105,
  "OrderValue": 2634,
  "SalesOrderID": 51761,
  "TotalQuantityInOrder": 1
}
```

```
{
  "_id": ObjectId("628573b6647a1da05089f4e"),
  "CustomerID": 1106,
  "OrderValue": 3757,
  "SalesOrderID": 41813,
  "TotalQuantityInOrder": 1
}
```

```
{
  "_id": ObjectId("628573c6647a1da05089f43"),
  "CustomerID": 1106,
  "OrderValue": 2689,
  "SalesOrderID": 51139,
  "TotalQuantityInOrder": 3
}
```

```
{
  "_id": ObjectId("628578b6647a1da05089f4e"),
  "CustomerID": 1106,
  "OrderValue": 2634,
  "SalesOrderID": 51807,
  "TotalQuantityInOrder": 1
}
```

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Project 0 Atlas Realm Charts

DEPLOYMENT

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```
{
  "_id": ObjectId("628574a6647a1da05089f43"),
  "CustomerID": 1107,
  "OrderValue": 1757,
  "SalesOrderID": 41743,
  "TotalQuantityInOrder": 1
}
```

```
{
  "_id": ObjectId("62857d95647a1da05089f4e"),
  "CustomerID": 1107,
  "OrderValue": 2643,
  "SalesOrderID": 51181,
  "TotalQuantityInOrder": 5
}
```

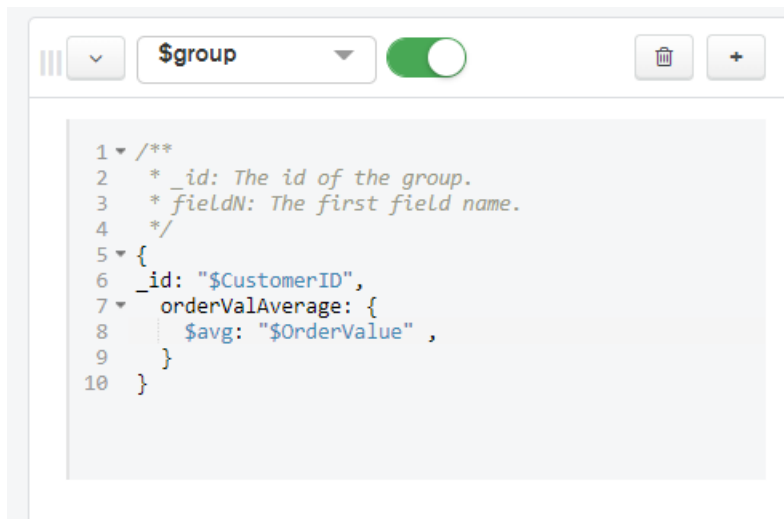
```
{
  "_id": ObjectId("62857d76647a1da05089f4e"),
  "CustomerID": 1107,
  "OrderValue": 2673,
  "SalesOrderID": 51705,
  "TotalQuantityInOrder": 2
}
```

```
{
  "_id": ObjectId("62857d79647a1da05089f4e"),
  "CustomerID": 1108,
  "OrderValue": 3729,
  "SalesOrderID": 41826,
  "TotalQuantityInOrder": 1
}
```

```
{
  "_id": ObjectId("62857d3a647a1da05089f4e"),
  "CustomerID": 1108,
  "OrderValue": 2555,
  "SalesOrderID": 51282,
  "TotalQuantityInOrder": 4
}
```

```
{
  "_id": ObjectId("62857d67647a1da05089f4e"),
  "CustomerID": 1108,
  "OrderValue": 2673,
  "SalesOrderID": 51765,
  "TotalQuantityInOrder": 2
}
```

Grouping and averaging order values



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: 3024.333333333335`