

### Part 1 (5 points)

- Enter the normalized entities and attributes from the first part of the Normalization Exercise 6 in your design tool. Do not add any extra entity or attribute. (20% of grade)
- Establish the relationships between entities using the Crow's Foot notation. Please make sure each relationship line is completely visible and don't cross lines. (80% of grade)

Note: Don't add any unnecessary relationship. An unnecessary relationship clutters the design and may degrade the database and application performance.

- Upload the ERD as an image or in the pdf format to here.

## Done with Normalization

Address
<b>*AddressID</b>
StreetNumber
City
State
ZipCode

Applicant
<b>*ApplicantID</b>
ApplicantLName
ApplicantFName
Phone
Email

Job
<b>*JobID</b>
JobDescription

Referral
<b>*ApplicantID</b>
<b>*JobID</b>
ApplicationDate
EmployeeID
ApplicationStatus
ReferralBonus

ApplicantAddress
<b>*ApplicantID</b>
<b>*AddressID</b>

Employee
<b>EmployeeID</b>
EmployeeLName
EmployeeFName
EmployeeDepartment

## What To Do Next?

- Create entities in Design Tool
- Don't add any additional entity or attribute
- Establish relationships between entities
- Pay attention to Multiplicity
- Pay attention to type of relationship
  - Identifying vs Non-Identifying
- Avoid unnecessary relationships
- Label PKs and FKs

Watch this video for Part 1's instructions.

[Normalization Exercise 6 Video](#)

## Part 2 (4 points)

Our data usage pattern is to find the total sold quantity of a product regardless of the customer. Use the referencing design technique and the data provided below to design a MongoDB database. Create the database on MongoDB Atlas that includes document(s) reflecting the provided data. (50% of grade)

Then use the MongoDB Compass, JavaScripts and MongoDB Aggregation Pipeline to calculate the total sold quantity of a product regardless of the customer. (50% of grade)

Submit screenshots of the created document(s) and calculation in the pdf format.

Provided data:

CustomerID	LastName	FirstName	EmailAddress	ProductID	TotalOrderQuantity
30000	McCoy	James	james12@adventure-works.com	867	14
30000	McCoy	James	james12@adventure-works.com	868	11
30000	McCoy	James	james12@adventure-works.com	869	53
30000	McCoy	James	james12@adventure-works.com	894	18
30002	McGuel	Alejandro	alejandro1@adventure-works.com	875	1
30004	McLin	Nkenge	nkenge0@adventure-works.com	868	2
30005	McPhearson	Nancy	nancy3@adventure-works.com	889	1
30005	McPhearson	Nancy	nancy3@adventure-works.com	892	2

The following files were posted on the class website. They will help you prepare for the lab.

How to Get Started with MongoDB Atlas and MongoDB Compass

MongoDB-Calculate Total (Using Referencing)

MongoDB-Calculate Average (Using Embedding)