

<b>Course</b>	6160 – Summer 2022
<b>Group and Members</b>	Group 6
<b>Members</b>	Kate Burdyey   Kaylla Richardson   Hamed Taj
<b>Assignment</b>	HW Assignment Group: Entity Relationship Diagramming and Normalization
<b>Due Date</b>	June 12

We have considered the following three normalization forms in our proposed design:

- 1) 1NF - Each data field holds a single scalar value (no repeating values / columns). For instance, for Address, separate attributes are introduced (Street, Zip, City, and Country) and for Name similarly (separate First and Last Name fields).
- 2) 2NF – Adds to 1NF that redundant stored data should be reduced in rows. We move columns that don't depend on the entire primary key to another table and then establish a relationship between the two tables.
- 3) 3NF – Adds to above that to transitive dependency for non-prime attributes (no non-primary key attribute has transitively dependent relationships to the primary key) to ensure we won't have anomalies based on data change (i.e., insert, update, delete) when normal operational procedures take place. For instance, Supplier info and Product info are moved to separate entities from the Components entity and relationships are accordingly established. In Suppliers and Products tables, every non-key column depends only the primary key.

ComponentsDetails	
PK	<b>Component_ID</b>
	Name
	Description

Components	
PK	<b>Component_ID</b>
FK	Supplier_ID
FK	Product_ID

Prodcuts	
PK	<b>Product_ID</b>
	Product_Name
	Quantity

Suppliers	
PK	<b>Supplier_ID</b>
	Supplier_Name
	Address
	Zip_Code
	Email

SupplierTypes	
PK	<b>SupplierType_ID</b>
FK	Supplier_ID

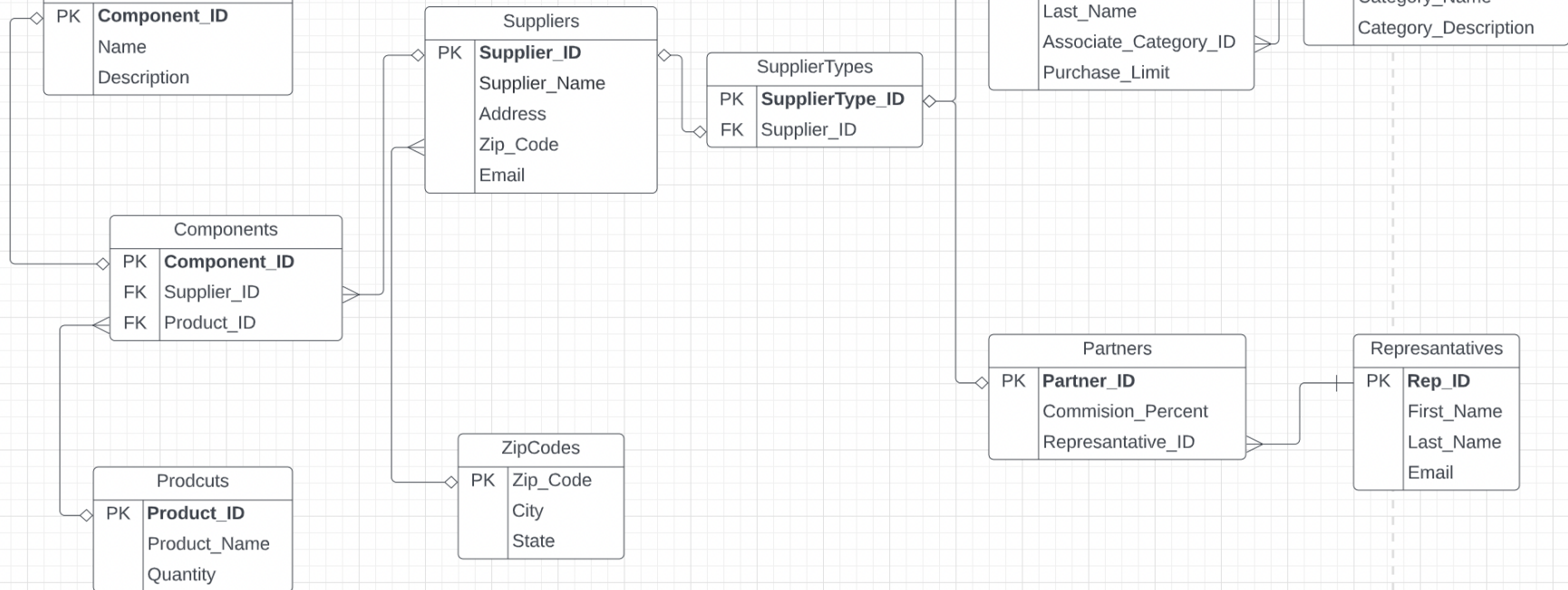
ZipCodes	
PK	<b>Zip_Code</b>
	City
	State

Associates	
PK	<b>Associate_ID</b>
	First_Name
	Last_Name
	Associate_Category_ID
	Purchase_Limit

AssociateCategories	
PK	<b>Category_ID</b>
	Category_Name
	Category_Description

Partners	
PK	<b>Partner_ID</b>
	Commision_Percent
	Representative_ID

Representatives	
PK	<b>Rep_ID</b>
	First_Name
	Last_Name
	Email



## Manufacturer

A manufacturing company produces products. The following product information is stored:

- product name,
- product ID (primary key) and
- quantity on hand.

These products are made up of many components and components are in many products.

Each component can be supplied by one and only one supplier.

Suppliers can supply zero to many components to the company.

The following component information is kept:

- component ID,
- name,
- description,
- suppliers who supply them as a foreign key,
- and products in which they are used.

For suppliers, we keep

- SupplierID,
- Name, Address,
- and email.

Supertype/Subtypes (Generalization-Specialization):

Suppliers are of two types: Partner or Associate. Suppliers have to be one or the other, but not both. The Subtypes are keyed by the SupplierID and Partner includes Commission\_Percent and Representative. Associate includes Purchase\_Limit and Associate\_Category.

Create an ERD to show how you would track this information.

Show entity names, primary keys, attributes for each entity, and relationships between the entities. Use a combination of Normalization and Entity Relationship Diagramming to create a diagram (your choice of tool for diagramming) that is [normalized to third normal form](#).

## Assumptions

- A supplier can exist without providing components.
- A component does not have to be associated with a supplier.
- A component does not have to be associated with a product. Not all components are used in products.
- A product cannot exist without components.

TURN IN: Fully Normalized (to third normal form) [Crows Foot Entity Relationship Diagram](#) with Many to Many Relationships resolved (add Associative or Linking Table) and Generalization-Specialization Included. Use Drawing Tool of your Choice. TURN IN PDF.