Take Home Quiz / Activity 2

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1) *Draw an E-R diagram for the following situation (state any assumptions you believe you have to make in order to develop a complete diagram):*

   A university has a large number of courses in its catalog. Attributes of COURSE include Course_Number (identifier), Course_Name, and Units. Each course has subjects, each subject may have one or more different subjects as prerequisites, or may have no prerequisites. Similarly, a particular subject may be a prerequisite for any number of subjects, or may be prerequisite for any other course.
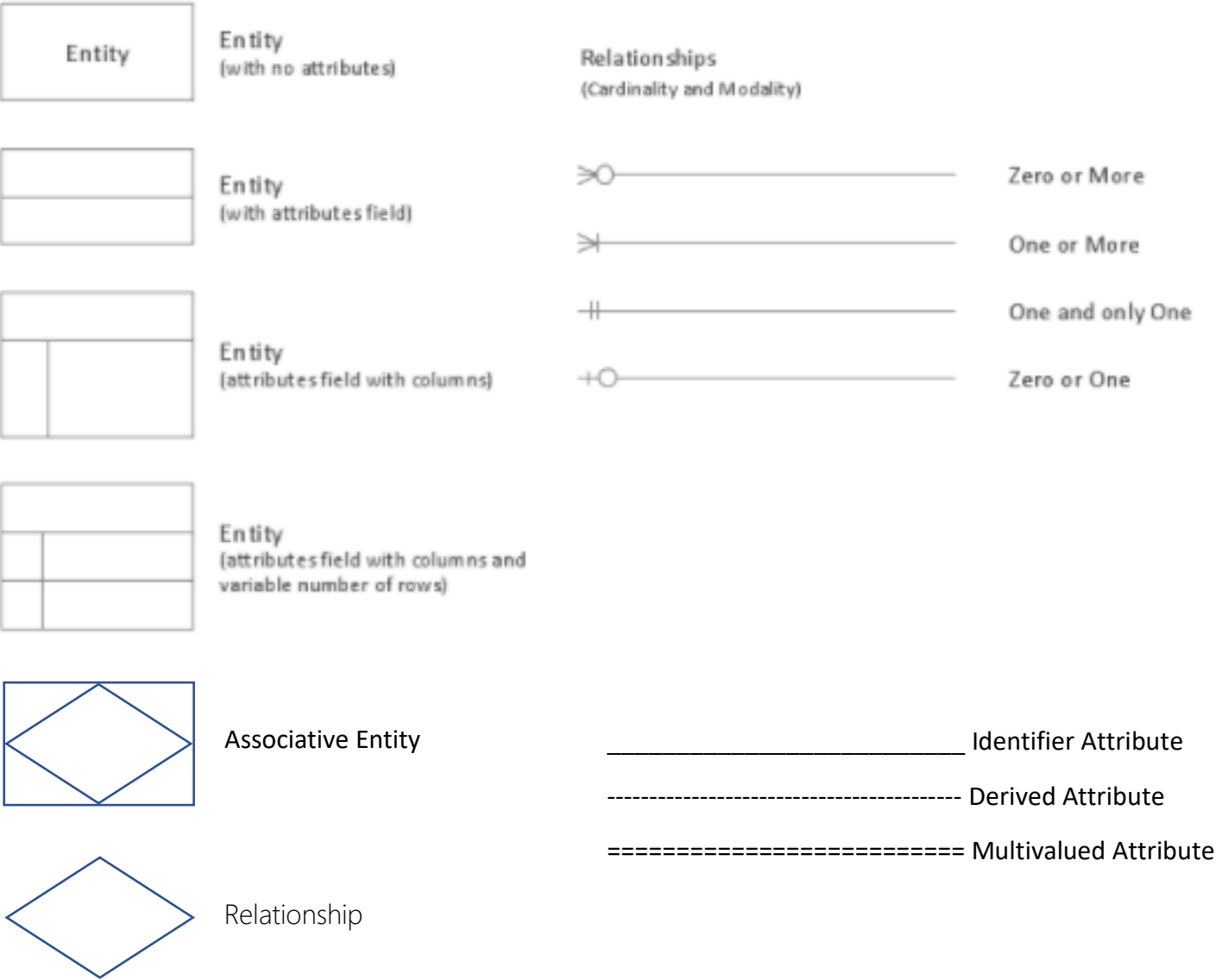
2) *Prepare an E-R diagram for a real estate firm that lists property for sale. Also prepare a definition for each entity type, attribute, and relationship on your diagram. The following describes this organization:*

   - The company has a number of sales agencies in several states. Attributes of sales agencies include Agency_Number (identifier) and Location.
   - Each sales agency is assigned one or more employees. Attributes of employee include Employee_ID (indentifier) and Employee_Name. An employee must be assigned to only one sale office.
   - For each sale agency, there is always one employee assigned to manage that agency. An employee may manage only the sales agency to which she is assigned.
   - The company lists property for sale. Attributes of property include Property_ID (identifier) and Location. Components of Location include Address, City, State, and Zip_Code.
   - Each unit of property must be listed with one (and only one) of the sales offices. A sales office may have any number of properties listed, or may have no properties listed.
   - Each unit of property has one or more owners. Attributes of owners are Owner_ID (identifier) and Owner_Name. An owner may own one or more unites of property. An attribute of the relationship between property and owner in Percent_Owned.

3) *Draw an E-R diagram for the following situation (state any assumptions you believe you have to make in order to develop a complete diagram):*

   JAC Vintage Shop, buys and sell one-of-a-kind old items / antiques of all kinds (for example, furniture, jewelry, china, and clothing). Each item is uniquely identified by an item number and is also characterized by a description, asking price, condition, and open-ended comments. JAC Vintage shop works with many different individuals, called clients, who sell items to and buy items from the store. Some clients only sell items to JAC Vintage shop, some only buy items, and some others both sell and buy. A client is identified by a client number and is also described by a client name and client address. When JAC Vintage shop sells an item in stock to a client, the owners want to record the commission paid, the actual selling price, sales tax (tax of zero indicates a tax-exempt sale), and date sold. When JAC Vintage shop buys an item from a client, the owners want to record the purchase cost, date purchased, and condition at time of purchase.

Symbols to use:

| Entity | Entity (with no attributes) |

Entity (with attributes field)

Entity (attributes field with columns)

Entity (attributes field with columns and variable number of rows)

Associative Entity

Relationship

Relationships
(Cardinality and Modality)

>O——————— Zero or More

>|——————— One or More

—||——————— One and only One

—+O——————— Zero or One

_____ Identifier Attribute

--- Derived Attribute

========================= Multivalued Attribute

Relationship Cardinality

Mandatory One

Entity Name
Identifier
Derived
Multivalued
Basic Attribute 1
Basic Attribute 2

Optional One

Mandatory Many

Optional Many