LESSON 13: DESIGNING DATA

OVERVIEW

As we move from the mechanics of JavaScript into planning a simple application a key element to consider is how the data that drives our application will be structured.

» We first need to understand the data cycle of create-read-update-delete.

» We can then consider how to design our data sources using entity-relationship diagraming.

DATA CYCLE: _____

Many applications involve a common cycle of data that includes the following stages:

» _____ - Data can be generated in the application such as through a data entry or through some form of user interaction in the system.

» _____ - Data is loaded and displayed to the user or used in the system for logical processing of some sort.

» _____ - Data is modified through use of the system.

» _____ - Some forms of data must actually be deleted to maintain an efficient system.

[Scripting]

DATA MODELING

» Data sources must be designed just as thoughtfully as the interface itself.

» The process of designing data is also called data _____.

» A common form of this is the _____-_____ _____.

ENTITY-RELATIONSHIP DIAGRAMING (_____)

» Analyzes the data needs and organizes each piece of data as a _____ of an object or entity.

» Entities are designed with cardinal relationships to each other through a process called _____.

» Entities and relationships are depicted using _____ and connecting _____ with intentional _____ to indicate relationship types and special fields known as keys.

DIAGRAMMING PART 1

» Draw a box for each entity.

» Place the name of the entity at the top of the box with an underline.

» List the _____ of the entity below the name.

» Note _____ data types in parenthesis beside the property.

» Draw lines to connect _____ entities.

_____ **RELATIONSHIPS**

» _____ - One instance of an entity is related one and only one instance of another entity and vice versa from the other direction. Rare, but most often used to create entities that are smaller and more focused.

» _____ - One instance of an entity is related to many instances of another entity; one instance of the other entity is only related to one instance of the original entity. Common, as many situations occur where there is a parent/child relationship between entities.

» _____ - One instance of an entity is related to many instances of another entity; one instance of the other entity is related to many instances of the original entity. Common and requires a lookup.

NORMALIZATION

» A process by which we ensure our data design is _____,

_____, and _____.

First Normal Form (_____)

» Each entity contains a unique _____ _____

» Each field on a given entity contains a single _____ or

_____ value

» _____ any fields that repeat a similar kind of semantic data

into separate entities

Second Normal Form (_____)

» All entities must be in 1NF.

» Reduce unnecessary _____ between instances by

creating _____ entities that encapsulate such data.

Third Normal Form (_____)

» All entities must be in 2NF.

» Separate distinct _____ _____.