Homework 4

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I have adhered to the Honor Code on this assignment.

Part 1

1. http://sql.cs.oberlin.edu/emeltzer/dbForm.html
2. http://sql.cs.oberlin.edu/emeltzer/hw4-1-2.html

Make sure that you are using eduroam or the Oberlin VPN to access!

Part 2

1.

- Fuzzy search over all attributes, or by category/label
- Combine said above searches with logical operators (AND, OR, NOT)
- Proper date search: exact and approximate modes, single or range input. When in exact mode, only works with exact dates will be returned.
- Proper dimension search. User can filter for 2D vs. 3D, and enter ranges for up to 3 dimensions with measurements in cm or in. Can also have rough size categories (tiny, small, medium, large, huge) based on quintiles, standard deviation, or simply opinion.
- Dropdown boxes for non-unique attributes (enums), especially highly repeated ones like Culture.

This system should be picked over alternatives for its flexible precision. Want a rough keyword search? Yup, type anything in the dumb box and we'll scour the database for anything that matches. Want a painting that was completed in either date range A or date range B with these specific dimensions? We can handle that too.

2.

- ObjectID: int,
- Accession Number: counterintuitively, a string
- Date acquired: int, derived from Accession Number
- Department: int/foreign key to Department table
- Classification: int, foreign key to classification table
- Aquisition Method: int, foreign key to Aquisition method table
- Object Status: Currently all objects in database are in permanent collection, but could change in future. Will create an attribute for it.
- Artist/Maker: string
- Title: string
- Object Name: this could be an enum with a lot of options, or just stored as a string. Ideally, the search field for this could be an autocomplete box, like what is commonly implemented for doing something like selecting a country.
- Start Date: int
- End Date: int

In the event of multiple date ranges, their union will be taken. Significant parsing will be neccesary to get proper integers for each piece.

- Materials/Techniques: We'll split these entries on preposition/articles to isolate keywords, setup a many-many relationship between materials and artworks.

NOTE: We'll store dimensions in cm and convert to in. application side/on user request. We'll need to pad out the bounds of ranges to account for conversion error. Dimension Category and Area/Volume are derived and can be calculated at time of insertion.

- Dimension_X: float
- Dimension_Y: float
- Dimension_Z: opt float
- Description: long string / text block
- Credit Line: string (not worth dev time to implement comprehension for)

NOTE: need to sanitize culture column for comprehension. One typo and at least one bad/missing entry found.

- Culture: int, foreign key to culture entity
- Period/Dynasty: int, foreign key to dynasty entity? OPTIONAL Separate the included date ranges and add an appropriate date filter? This is redundant behavior.
- eMuseum Label Text: long string/text block

3. Relations:
   - Object has Department (*:1)
   - Object has Classification (*:1)
   - Object has Acquisition Method (*:1)
   - Object has Name (*:1)
   - Object has Materials/Techniques (*:*)
   - Object has Culture (*:1) (OPTIONAL)
   - Object has Dynasty (*:1) (OPTIONAL)

4.