Schema Example for Photo Archive

This schema shows the relation between general contexts and attributes. Their relationships are stored in the Context_Attribute table. Through this parent-child model a context will be chosen and the respective attributes filled in by the user. An image saved with this schema will have many rows in the ICAV table listing the image id, context, attribute, and value. For the Context_Attribute and ICAV table, no unique meaningful string ID exists, so Azure generates a necessary random String ID.

Take for example the following:

An image of our 6 team members having a Sunday meeting in the Library

Assume this image is tagged with the "Meeting" and "Project" Context. As a result the following data will be stored in the database after the image is uploaded.

Image:

id*	user	lat(#)**	lon(#)
fvega/groupmeeting.png	fvega	100.0	111.0

User:

id	email	password	firstName	lastName
fvega	Fvega3@calstatela.edu	Fasd;lkfj182u31kjhklkbncx897	Felipe	Vega

Attribute:

id	question
Number of People	How many people are in the image?
Topic	What was the topic discussed/worked on?
Location	Where was the image taken?
Due Date	When is the due date?

Context:

Id	descriptor
Meeting	The image depicts a meeting between multiple people
Project	An image depicts work done on a project between a group of people

Context-Attribute:

id **(Random String ID)**	context	attribute
Alsdkfjas;ldfk102932109	Meeting	Number of People
Asdasldkfj209481-0239	Meeting	Topic
23941-0afskdfjasd;lkfj	Meeting	Location
Asldkfjaiow3ueopi2u3	Project	Topic
Opiewurpqoiweu091	Project	Due Date
10923p1o2;kl;kjasfl;kj	Project	Number of People

ICAV (Image-Context-Attribute-Value):

id **(Random String ID)**	image	context	attribute	value

213p941alksdfja;sdlkfj	fvega/groupmeeting.png	Meeting	Number of People	6
123948120-3;lksDJFA	fvega/groupmeeting.png	Meeting	Topic	Azure Database Schema
Oqwpeiurxmcnxz2134	fvega/groupmeeting.png	Meeting	Location	CSULA Library
Aksdjfopiawuer09	fvega/groupmeeting.png	Project	Topic	Senior Design
,NMV,.zxmcnv091238	fvega/groupmeeting.png	Project	Due Date	May 5, 2017
Alskdfja;lk029384	fvega/groupmeeting.png	Project	Description	Photo Archive Mobile Application
Weoirua;isfjl;askdjf	fvega/groupmeeting.png	Project	Number of People	6

*** The id value in the Image Table is created dynamically based on the user's ID and the name of the image file separated by a ' / '. This value is then used to store the full image and thumbnail in the container.***

***** All column datatypes are Strings unless denoted by (#) which indicates a floating point numerical value.***

Benefits	**Things to Consider**
• The schema allows for Attributes to be unique across the entire table, no two attributes should represent the same thing. • The inclusion of a Context_Attribute lookup table allows for all the attributes associated with a context to be gathered by simply knowing the context id and vice-versa for contexts that contain the respective attribute • Attributes are general so that they can be used with multiple contexts • Contexts are general so that users can easily choose appropriate contexts for their images.	• The schema may allow for some images to not benefit from all the attributes associated with a particular context. With this in mind, all attributes applied to a context must be integral in that context's definition. A meeting **must** have a topic, an event **must** have a location, etc. • A secondary issue would be the creation process for new contexts as the DB admin or, potentially future user, would have to cycle through possibly thousands of unique attributes to find the appropriate ones for a new context. This issue can be handled by making sure attributes are general enough to be used by multiple contexts, thus relieving the need to create new attributes for each context.

Rule of Thumb:

Make sure contexts and attributes are as general as possible, and allow for the attribute's description, which will be shown to the user, to work for multiple contexts. Attributes should be intrinsically tied to their contexts. If an image has context A **most (90%) if not all** of A's attributes should apply to the image, to minimize empty attributes.