Schema Example for Photo Archive

*This schema shows the relation between general contexts and attributes. Their relationships are stored in the **Context_Attribute** (C-A) 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 **Image-Context-Attribute-Value** (ICAV) table listing the image id, context, attribute, and value. For the **C-A** 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 taken by user **fvega** tagged with the **"Meeting"** and **"Project"** Contexts. 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

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/for a project between multiple 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	SQL 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.***

General Context – Attribute Relationship (Matrix Model)			
	Contexts:		
Attributes:	*Meeting*	*Project*	**…**
Number of People	✓	✓	**…**
Location	✓	✓	**…**
Topic	✓	✓	**…**
Due Date	×	✓	**…**
…	**…**	**…**	**…**

Utilizing This Schema:

This schema provides two main components as show in the matrix model above, Attributes and Contexts. When dealing with **Contexts** for images they must be thought of as an *"image of"* relationship. By that we mean this image, of our group meeting, is an **image of** a Meeting, and an **image of** a Project. **Attributes** must then be considered as *"has a"* relationships. A Meeting **has a** Topic, Number of People, and Location, as do Projects, but a Project (generally) **has a** due date, while a Meeting does not.

Due to this we are provided the following benefits:

- The schema allows for Attributes to be unique across the entire database, 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.
- Contexts are self-explanatory and it should be easy for the user say "yes, my image is an **image of ____".**

Additionally, we must consider the following:

- Allow for attribute descriptions, which will be seen by the user, to be as generic as possible, so as to clearly describe what the user should fill in regardless of which Context it is a part of.

- Not all images who are “images of” a context will benefit from every attribute of that context, but, as a general rule, when designing your contexts, the attributes must be integral to the definition of the context. The attributes must reinforce the reasons **why** the user thinks “this picture is an image of ____”.