Analysis of Design Process and Use Cases

During my database proposal, I choose a topic about minerals. My initial idea is about helping collectors to identify their mineral and its locality. So, based on this, I choose a lot of entities that indicate the properties of minerals. For example, minerals’ physical and chemical properties, their optical data, photos and the localities.

Because I limited my database as a tool to gain information only on the properties of minerals, so things like mineral store, mineral museums, and time and locations of mineral conventions will not be in the scope of my project. Basically, the database is only design for academic uses.

**Use-cases**

Gallery

* User View the mineral gallery
* Select the photo of a mineral base on its localities
* see the description of the specimen
* Description will include the name of the uploaders and the mineral locality details

As a user, I want to able to view a mineral gallery so I know what they look like.

As a user, I want to able to view a mineral’s photos base on its localities so I know where it is from.

As a user, I want to able to see a description of the photo about the mineral so I can understand the of the specimen.

As a user, I want to able to see who upload the photo, so I can view his profile to see more of his work.

Users

* Able to create account
* Able to upload photos of minerals and this description
* Able to add new locality and its detail
* Able to see his profile with his upload history

As a user, I want to create an account so I can upload photo.

As a user, I want to able to input the locality and the detail of the photo so other users will know the specimen’s locality.

As a user, I want to able to add new locality into the database so other user can know about this location.

As a user, I want to have a profile so I can see the history of my uploaded photos, and localities.

Mineral information

* Able to search the details of minerals by its name
* A mineral’s information will be divided into different sections base on different properties

As a user, I want be able to search the detail of the mineral by its name so I can see the mineral information.

As a user, I want to able to see different information are separate into different section, so it is easier for me to gain the information.

Locality information

* Photo of the locations
* All the minerals that were found in this location
* The characteristic of minerals found in this location

As a user, I want to able see photos of the locations so where I go there, I can locate it.

As a user, I want to see all the minerals that can be find there so I know what I expect.

As a user, I want to know what characteristic of the mineral that produce in this locality so it help me to identify my specimen.

The process of building my system will start with the database. First, I will need to list all the entities. There, I separate the database into 7 entities.

* **General information about the mineral**

**Mineral name (Primary key string)**

Formula

Hardness

Specific gravity

Crystal system

Type locality (Location of the minerals when they first being discover.)

* **Physical properties**

**Mineral name (Foreigner key string)**

Luster (String)

Transparency (String)

Color (String)

Streak (String)

Hardness (Float)

Tenacity (String)

Cleavage (String)

Fracture (String)

Specific gravity (float)

Radioactivity (String)

Luminescent (String)

Electromagnetism (String)

* **Chemical properties**

**Mineral name (Foreigner key string)**

Formula (String)

Common Impurities (String)

Solubility (string)

Blowpipe tests (String)

Acid reaction (String)

* **Crystallography**

**Mineral name (Foreigner key String)**

Crystal system (String)

Cell Parameters (float)

Morphology (Block)

Twinning (String)

Crystal forms (String)

* **User (Two tables)**

**User name (String Primary key)**

**User upload picture ID (Integer foreigner key)**

* **Photo (Two table**

**Photo ID (Integer Primary key)**

**Location ID (Integer foreigner key)**

**User name (String Foreigner key)**

**Mineral name (String foreigner key)**

Description (string)

* **Location (Two tables)**

**Locality ID (integer Primary key)**

I have also identified the attributes and its type, and including the primary and foreigner keys in each entity. I have removed the optical data entity and also some of the attributes from crystallography. This is largely because these measurements can not or having being done on most mineral.

I have also added a entity called the “general information of mineral”, the reason for this is to avoid to duplicate identical primary key, in this case is the mineral name.