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**Database Systems project:**

**Database for Mineral Collectors**

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**Introduction**

This work designs a database that contains information about College Data. It intends to capture basic information needed for collection management. It’s based on following assumptions:

* Each sample can contain one-to-many minerals (e.g. quartz + calcite) and comes from one and exactly one locality, founder of the sample can sometimes be unknown.
* Each sample can be captured on several photos, each photo in turn is taken by one person.
* Each sample can be a subject of transaction (bought/sold)
* Person can be a founder or an author of photographs in this content, the entities are differentiable only by their roles in relationship
* Each location/person

This project does not address the problem of storage (where are the samples currently placed), it also ignores several important attributes that would be required in real world system.

**Outline**

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# Possible use cases for the model

* Find specific sample based on selection criteria (locality, founder, year)
* Find all the samples from locality
* Find all the localities in collection where a mineral was found
* Find all photos of a mineral
* Get all minerals found by certain person
* Get all samples purchase from certain person

# Entity relationship diagrams

Following section captures the proposed structure of database using entity relationship diagram. The diagrams were created in Visual Paradigm 15.1.

## Conceptual ERD

Figure 1: Conceptual ERD

## Logical ERD

Figure 2: Logical ERD

## Physical ERD

Figure 3: Physical ERD

# SQL Implementation

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## DDL : Defining the database objects

**Constraints:**

## DML: Inserting the data (examples)

## SQL Queries

# Conclusion

This project contains a basic proposal for a database, which can be used in a collection management system. It contains definitions of essential database objects, and examples of possible use cases realised in the form of SQL queries. This project is an essential part of a possible implementation of full scale systems.