# Project Requirement Details

What follows here are a detail description of each phase or component of the project. Each requirement references the flowchart for this assignment and the requirement number on that flowchart.

## CSP1

The data in your database must be in at least 3rd normal form. Before you can design an ER Diagram to accept the data, you need to know how many tables, columns, and relations the existing data has. Since normalizing data changes these things, you need to ensure that your data is normalized first before creating your ERD.

## CSP2

You must create an ER Diagram for the database that you will design. The diagram **MUST** be created in either draw.io or DIA and you must (this time) submit the source file for that diagram (see submission details document for complete details on how to do this).

Your diagram will need to be complete. It will need to include all entities, attributes, and relations. You will need to be certain that you have used the correct entity types (weak vs strong, etc) as well as attribute and relation types. Your diagram must also be fully resolved (no many-to-many relations).

You will need to be certain that your diagram is correct, because the database that you build will need to match your diagram.

## CSP3

Building the database should be relatively straight forward, if not a bit tedious, if your design is complete and accurate. You should just build your database to match your design (and the data).

## CSP4

The customer has specified two custom SQL functions/procedures that are required.

1. Using the GeolMinOcc table and the Commodity column, create a custom function/procedure that takes as input a two strings (or acceptable datatype) to identify the records that match the given combination and return a table based on those results.
   1. Example inputs for commodity column might include “cobalt”, “copper”, or “nickel”.
   2. Example inputs for ftr\_type column might include “deposit” or “prospect”
   3. So the user would input two values at the same time like (copper, deposit) and the function/procedure would display only the records where the commodity is copper and the feature type is a deposit.
      1. The customer has specifically requested that you display the Site\_ID, Ftr\_name, commodity, ftr\_type, last\_updated, and value\_mat columns only.
2. Create a function/procedure that cleans the USGS indicator values from the Resources table. Indicator values are shown at the end of any value by appending a decimal value of 111 to the end of a number. Example, 0.05 would become 0.05111. The customer would like a function/procedure that displays the columns ‘contained’ without the indicator value. The final function/procedure should display the columns site\_id, ftr\_id, rsrc\_datecontained, cont\_units.

## CSP5

You will need to create an application that displays some of the tables to the end user as well as the results of the two functions/procedures that the client has requested. The method by which these tables are select (buttons, drop-down-menu, etc) and while the client does not expect an expert GUI, a certain level of functionality and professionalism is expected. See past projects for examples of expected work.

The tables (from the initial dataset) that the client wishes to be displayed are: Loc\_pt, GeolMinOcc, Loc\_Poly, Production, and Resources.

Note that these are the tables from the original datasets. If (and perhaps when) the data is normalized, new (smaller) tables will be created from these tables. The client would like all the data from these tables included in the application so if Resources is split into two smaller tables (called T1 and T2) then you will need to include T1 and T2 in the application’s ability to display these tables.

### CSP5a

This is a subrequirement for the application. It is not possible to fully complete the application requirement (CSP5) without completing this requirement.

This requirement is to connect your application to your database via a network connection. Like we covered in class, we have one of three choices: Driver Managers, Data Sources, and Connection Pooling.

Your client understands that this application might not be used in the final product and so is willing to accept any connect type but would greatly prefer it if your application used industry standard connection methods.

### CSP5b

This requirement also requires that you use embedded SQL to send messages to your database to both send and retrieve information from it. This requirement represents the completeness of your application and my ability to assign partial credit to this part of your assignment.

## CSP6

Once all of your work is completed, you will need to package it all and submit it. There is some additional documentation that you need to create and a video that you need to record of project. The documentation and video are both there to help ensure that I completely, accurately, and fairly grade your project based on how you built it, not based on my ability to understand it (since you will not be able to properly explain it to me in person). Complete details about this are provided in the submission details document.

## PLP

You are allowed to use either Java or Python in your application without the need for any prior approval. Other languages (such as but not limited to C# or HTML) might be acceptable but require prior approval from me (the professor, not the client). This is to ensure that I am able to both acquire and install all the needed languages and IDEs needed to run your proposed application and that I have the knowledge to appropriately and fairly grade your assignment (I don’t know every language and stack system in existence). Most common languages will be approved without issue but since I can not provide an exhaustive list of all possible languages, you will need to get prior approval for any that is not part of the original two.