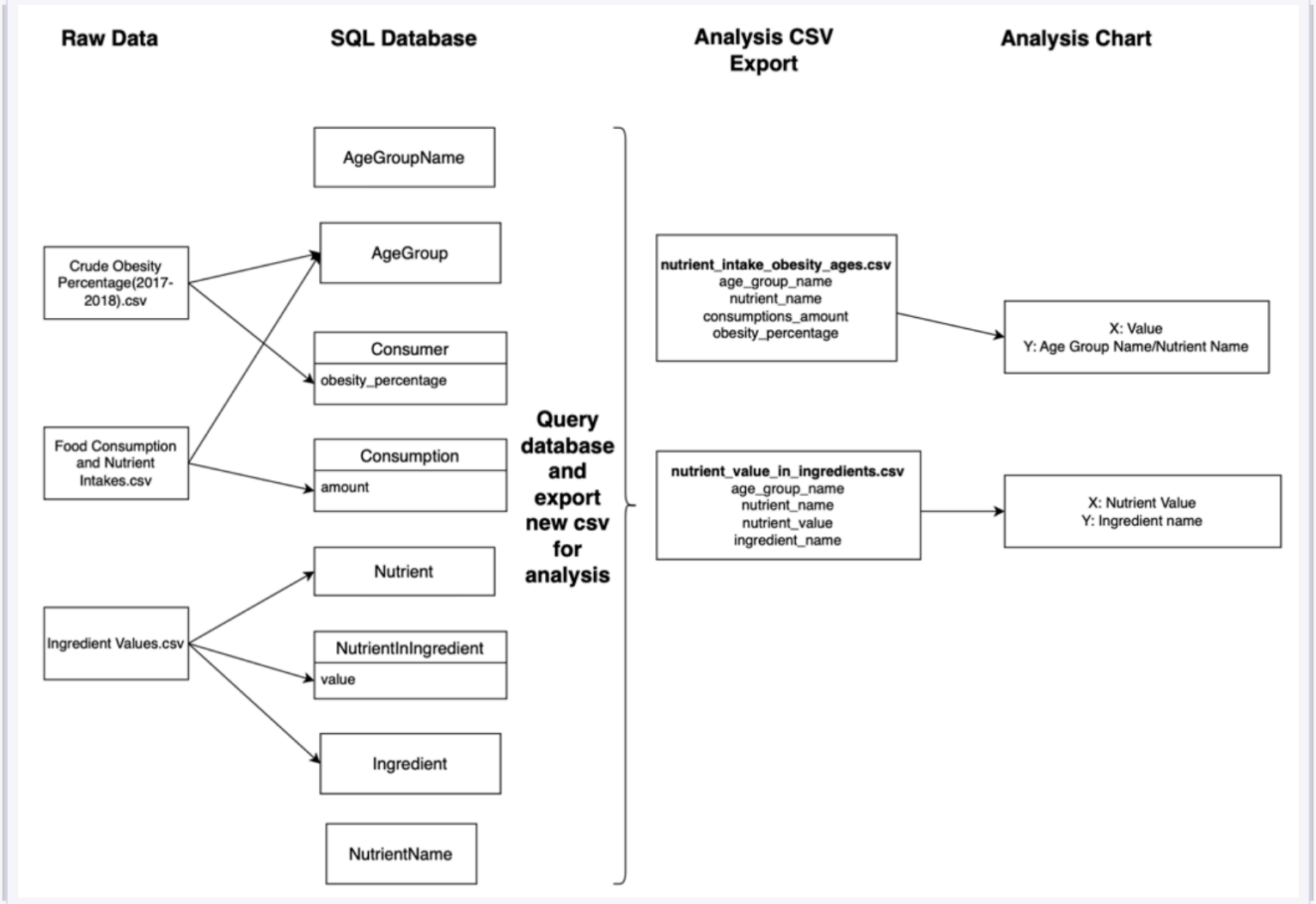
Project Workflow



Data Collection

- Download and convert each .csv datasets from the web.
- Upload to datacamp workplace for access.
- Clean and process the original .csv files by removing unnecessary columns and rows. Save the refined data into a new .csv file for further actions using Python code.
- Manully create new age_groups.csv, age_group_names.csv and nutrient_names.csv files to manage synonyms.

SQL Database Initialization

- Execute SQL commands via Python to create the necessary tables and attributes according to our ER diagram.

Parsing Data and Loading into SQL Database

- Use Python to read 'nutrient_names.csv' and write nutrient names synonyms and correspond nutrient id into **nutrient_names table**
- Read 'ingredient_values_processed.csv' and write ingredient names and id into **ingredients table.**
- Read 'ingredient_values_processed.csv' and write nutrient names and id into **nutrients table.**
- Read 'age_groups.csv' and write in new age group names we created and id into **age_groups table.**
- Read 'age_group_names.csv' and write all age_group_name synonyms into names column and their corresponding age_group_id in **age_group_names table.**
- Read 'age_group_names.csv' and 'obesity_age_processed'. Replace the age_group in obesity_age_processed.csv to age_group_id from age_group_names.csv and create **consumer table.**
- Read 'ingredient_values_processed.csv' write ingredient_id, nutrient_id and value in **nutrient_in_ingredients table.**
- Read 'age_group_names.csv' and 'nutrient_names.csv' to create look up in order to replace the original synonyms. Read 'nutrient_intake_processed.csv' and write amount, age_group_id and nutrient_id into **consumptions table.**

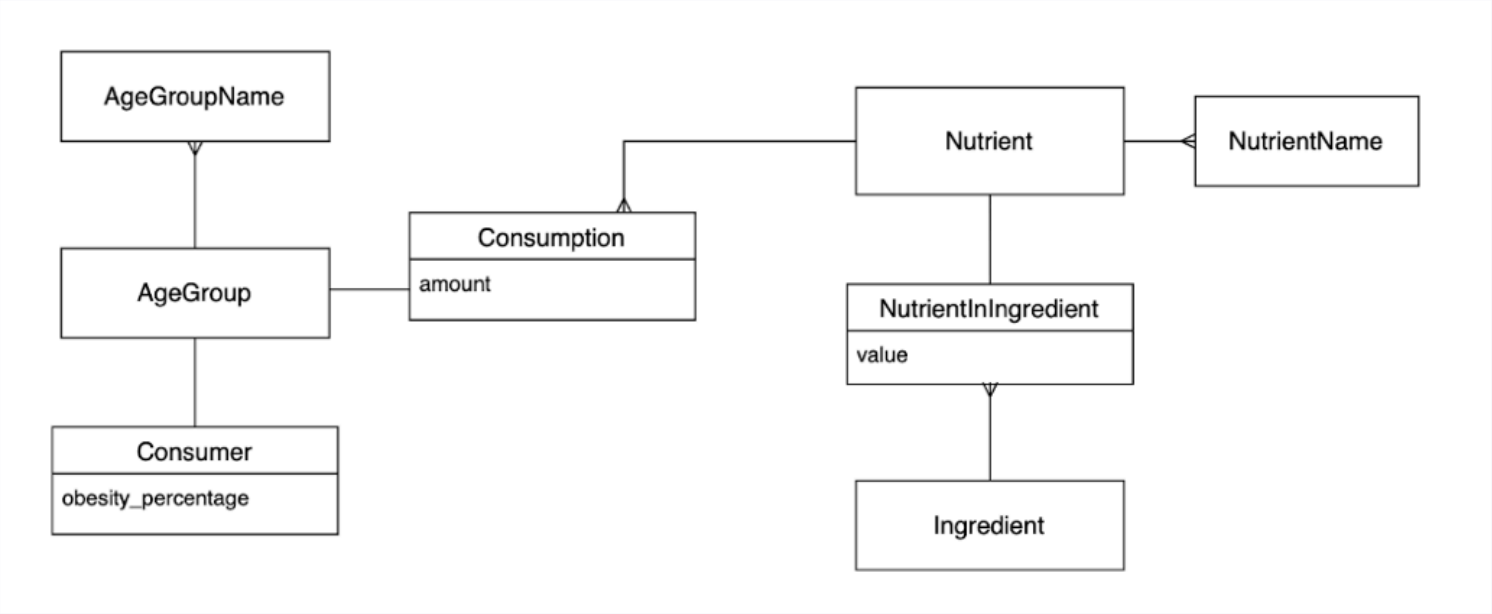
Export for Analysis

- Query age_group_names, age_groups, consumers, consumptions tables to compile standard age_group_name, nutrient_name, consumptions_amount and obesity_percentage in **'nutrient_intake_obesity_ages.csv' file.**
- Query age_group_names, age_groups, consumptions, nutrients, nutrient_names, nutrient_in_ingredients, ingredients table to compile standard nutrient name, nutrient_value and ingredient_name. Filter 'Adult' age_group and create **'nutrient_value_in_ingredients.csv' file.**

Analysis Chart

- Upload .csv files to Tableau and produce charts.

Conceptual ER Diagram



Managing Synonyms

We manage the synonyms for different nutrient names in separate tables by creating another “NutrientName” entity, and link them into a distinct nutrient id. As for the age that was divided into different groups and thus couldn’t match in analysis. We manage that by creating a new “AgeGroupName” entity that describes the age range into names, and turning them into defined age group ids.(Details shown in SQL tables)

Physical ER Diagram