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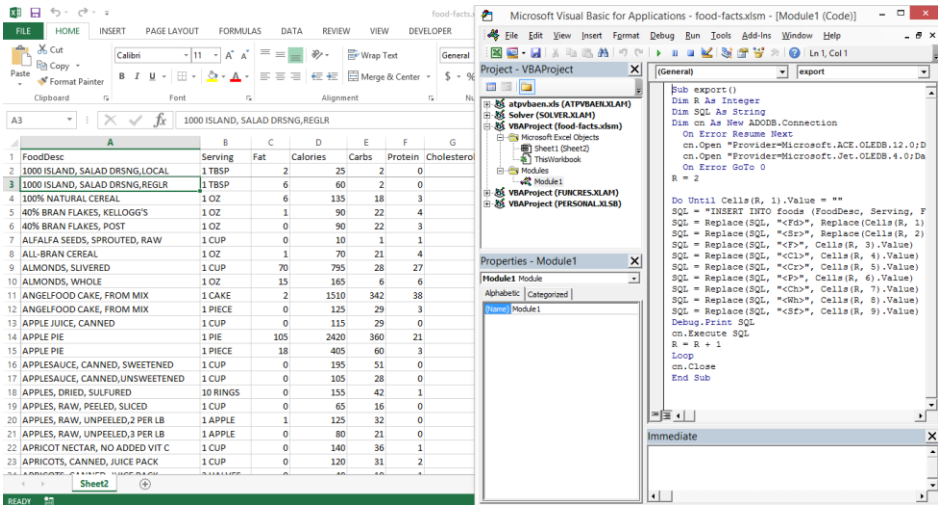
VBA Final Project

Executive summary:

The project provides a way of manipulating an Access database that tracks a person's diet. The project can be used by physicians or personal trainers who want their patients/customers to track certain nutritional information, like cholesterol or saturated fats eaten, or exercise information. By using user forms and VBA the project is more user friendly than working directly in Access and in Excel we can create graphs with queries. Using Access to store the data makes it easier to enforce data integrity than storing all data in Excel.

Implementation documentation:

The first step implementing the project was creating an Access database and populating that database with an initial dataset of foods and exercise types. Altogether there were 4 tables in this database: one for food types, one for exercise types, one for records of food being eaten (food instances) and one for exercise being performed (exercise instances). I imported that data from the web to an Excel sheet and used VBA to insert the data into Access (see screenshot below).



With the initial dataset created there was enough information in the database that users could start working with it. The next step was to provide users a way to add data, specifically times they ate food or exercised.

The user forms for adding food and exercise instances has a user query the types already in Access, pick a type, and input a date and amount associated with that type. These inputs are put into a SQL statement where the type # (a foreign key), amount and date are stored. As records are added Access automatically assigns a primary key, in this case called the instance #. There are also user forms for editing these instances that queries the database to find the instances recorded, joins that information to the type tables so there is a name associated with the type #. Users can edit or delete instances.

While the initial dataset provides the user with many of the common foods that are eaten and exercises performed there is a good possibility they might want to record a type not included. For this reason there are also forms for adding types. This includes the name of the food/exercise, nutritional information and typical serving. Because the name and serving fields can have text there is a replace function that replaces quotation marks. Many of the other fields must have numbers so they can be mathematically manipulated later. For this reason there is a sub that pops

up a message box if any non-numeric characters are entered into the text box. Editing types are allowed but the user cannot delete types. This is so the foreign keys in the instance tables will always have a type they are associated with. Because all manipulation is through user forms implementing this rule was as easy as not adding a delete button to the edit type form.

Last there are a number of reports a user can use that query the database and present a summary of their nutritional information. Reports on data include a summation for each day on each nutritional category, calories consumed(gross) calories worth of exercise, and calories consumed less calories of exercise (net). Also there is an average of calories from the three macronutrients (protein, carbohydrates, fat). Users can either have a table of the information pulled into Excel or both a table and a graph.

Discussion of learning and conceptual difficulties encountered:

Figuring out all the SQL statements were a bit difficult. I have more experience working with MySQL workbench and there were some differences in making statements that would work with workbench also work with Access. At first I declared my FoodDate and ExerDate variables, which track the date instances occurred, as dates, but this caused errors when inserting the data into Access. I realized it was better to declare them as strings so the string would be put into SQL and Access would recognize them as a date.