



Inventory Management

FINAL PROJECT
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IS 520 | Fall 2015

Executive Summary

As a Mary Kay Consultant, I essentially run my own business. This business is very heavily centered around inventory – ordering new inventory from a supplier, selling inventory to clients, etc. Up to this point, my inventory management system has consisted of the process shown in Figure 1 at the end of this section. There are two cumbersome and time-consuming parts of this process: checking my inventory (especially since I have multiple locations), and getting the product from Mary Kay if I don't have it on hand. For my final project, I decided to use VBA to automate my inventory management to help alleviate these problems.

Project Overview

The first problem I dealt with in this project was having to manually check my inventory each time a client requests a product. I used a local database to keep track of my inventory, and created userforms to make it easy to communicate with the database. The userforms fall into three different categories (as shown in Figure 2): updating basic information (adding a new product, product line, or category); managing inventory quantities (recording a shipment or sale); and generating reports (finding the current quantity for a specific product). Having this information at my fingertips will save a significant amount of time in this process.

The second problem I worked to fix with this project was having to wait on shipments from company, which can often take a week or more. To decrease the frequency of having to wait on shipments before I can provide the requested to my client, I added a “preferred quantity” field to each product, which will be filled out when the product is initially added to the database. Each time I open the workbook, the dashboard displays a list of all the products for which the current quantity on hand is less than the preferred quantity for the product. (*See Figure 3*) This list will allow me to see what products I need to order from Mary Kay so that I will have them on hand when a client requests them, and they will not have to wait to get their product.

This project will allow me to provide better customer service to my clients and to not miss out on sales because I don't have the desired product on hand. I plan to continue to develop this system to record more information about clients and sales, and provide more detailed reports that will give me valuable insights as I grow my business.

FIGURE 1 – CURRENT ORDER PROCESS

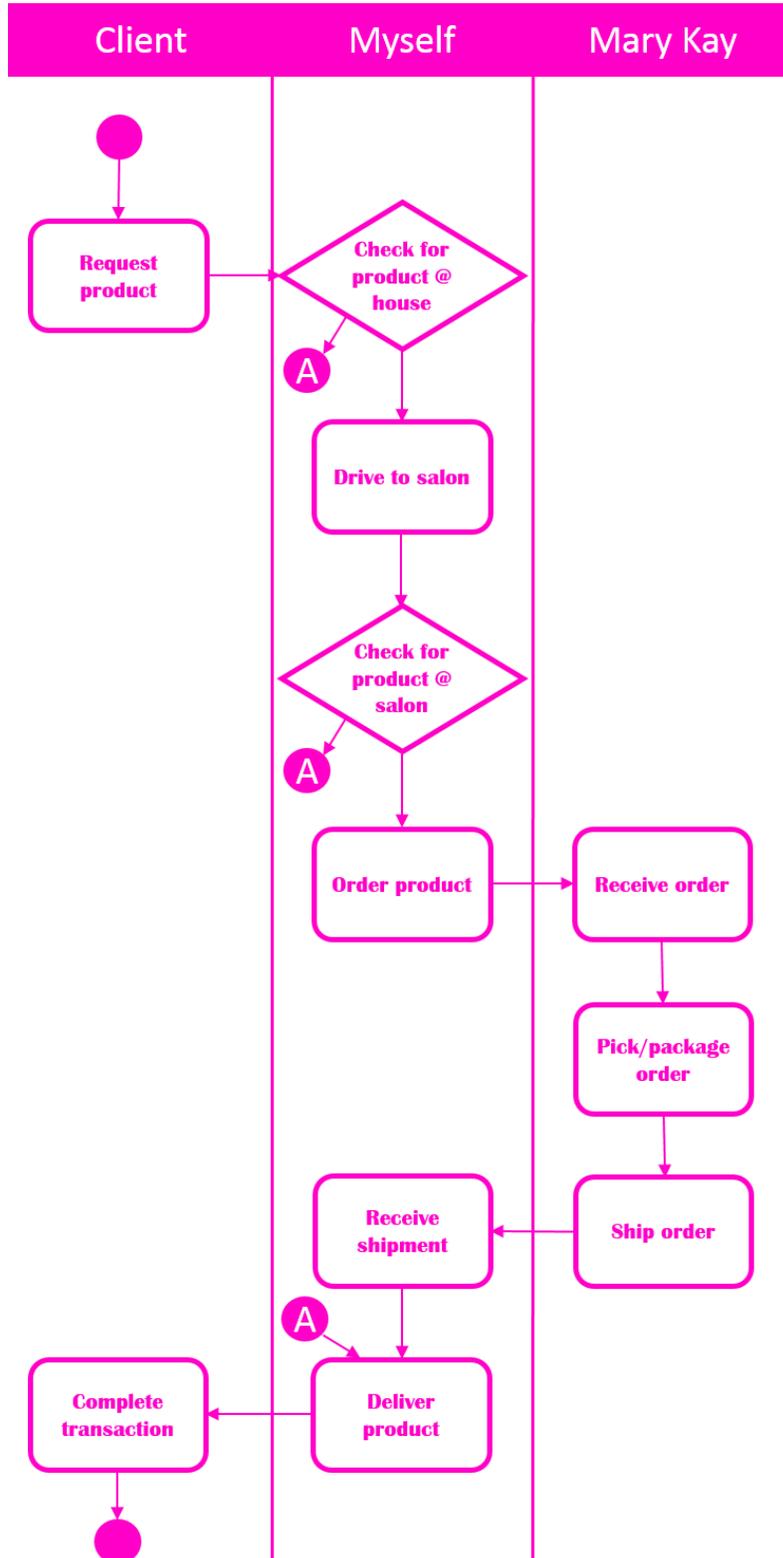


FIGURE 2 – CUSTOMIZED RIBBON



FIGURE 3 – LIST OF PRODUCTS TO ORDER

	A	B	C
1	Product	Current Inventory	Preferred Quantity
2	Ultimate Mascara - Black	1	5
3	Cleanse - Formula 1	0	1
4	Cleanse - Formula 2	1	2
5	Cleanse - Formula 3	1	3
6	Freshen - Formula 1	0	1
7	Freshen - Formula 2	1	2
8	Hydrate - Formula 1	0	1
9	Hydrate - Formula 2	1	2
10	Hydrate - Formula 3	1	3
11	Mask - Formula 1	0	1
12	Mask - Formula 2	1	2
13	Mask - Formula 3	2	3
14	Clarifying Cleansing Gel	0	1

Implementation

When I started working on this project, I used worksheets within the workbook to hold the necessary data. I quickly realized that storing this information on worksheets was going to be too cumbersome to be useful. I instead created an Access database to store this data. This database is hosted locally on my computer and contains the following tables:

TABLE 1 – DATABASE TABLES

Table Name	# of Fields*
Category	1
Product Line	2
Product	7
Client	5

**does not include the ID field, which all of the tables have*

To provide easy interaction with the database, I created several userforms, all of which are accessible from a customized tab in the ribbon. The buttons to access these userforms are separated into three sections labeled Inventory, Update Information, and Reports, as shown below.

FIGURE 3 – CUSTOMIZED RIBBON



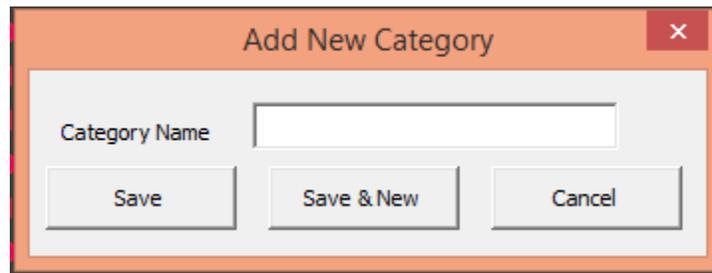
UPDATE INFORMATION

The buttons in this section will be used to add basic information to the database rather than to track specific inventory. They will populate their respective database tables with records that will then be used to populate combo boxes on userforms.

Add Category

This is the most basic of all the userforms. As shown below, clicking this button brings up a userform that simply has a text box for the user to type in the name of the new category. When the user clicks “Save,” the procedure will open a connection to the database and add a new record to the “Category” table with the information provided by the user. If the user would like to add multiple new categories at once, they will simply click “Save & New,” and after the database has been updated, the procedure will reopen the userform with a blank text box.

FIGURE 4 – ADD CATEGORY USERFORM

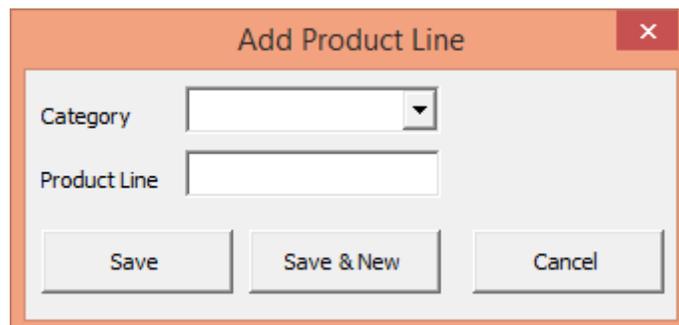


The screenshot shows a userform window titled "Add New Category". Inside the window, there is a text input field labeled "Category Name". Below the text field are three buttons: "Save", "Save & New", and "Cancel". The window has a standard orange title bar with a close button (X) in the top right corner.

ADD PRODUCT LINE

Clicking this button opens a userform that includes a text box for the user to type the name of the new product line, as well as a combo box that is populated with all of the categories in the database as the form is initialized. The “Save” and “Save & New” buttons work just like these same buttons on the “Add Category” userform. The product line is connected to the category, which will be explained in more detail in the “Inventory” section.

FIGURE 5 – ADD PRODUCT LINE USERFORM

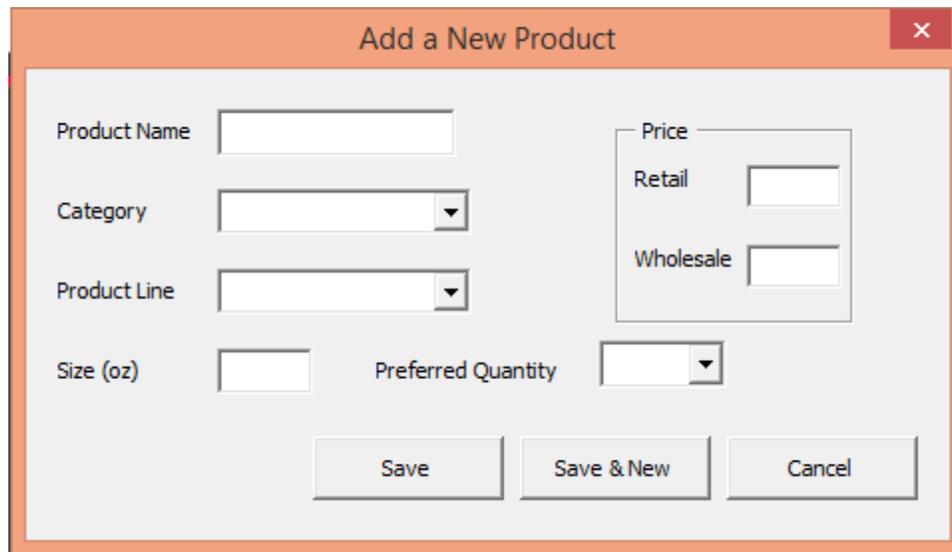


The screenshot shows a userform window titled "Add Product Line". Inside the window, there is a dropdown menu labeled "Category" and a text input field labeled "Product Line". Below these fields are three buttons: "Save", "Save & New", and "Cancel". The window has a standard orange title bar with a close button (X) in the top right corner.

ADD PRODUCT

The userform that is connected to the “Add Product” button is more complex than the previous two userforms. In addition to a text box for the name of the new product and combo boxes to identify the associated category and product line, there are text boxes for the size, wholesale price, and retail price, and a combo box filled with the number 0-20 to select the preferred quantity for that product.

FIGURE 6 – ADD PRODUCT USERFORM



The screenshot shows a userform titled "Add a New Product" with a close button in the top right corner. The form contains the following fields and controls:

- Product Name:** A text input field.
- Category:** A dropdown menu.
- Product Line:** A dropdown menu.
- Size (oz):** A text input field.
- Preferred Quantity:** A dropdown menu.
- Price:** A sub-form containing two text input fields: "Retail" and "Wholesale".
- Buttons:** "Save", "Save & New", and "Cancel" are located at the bottom of the form.

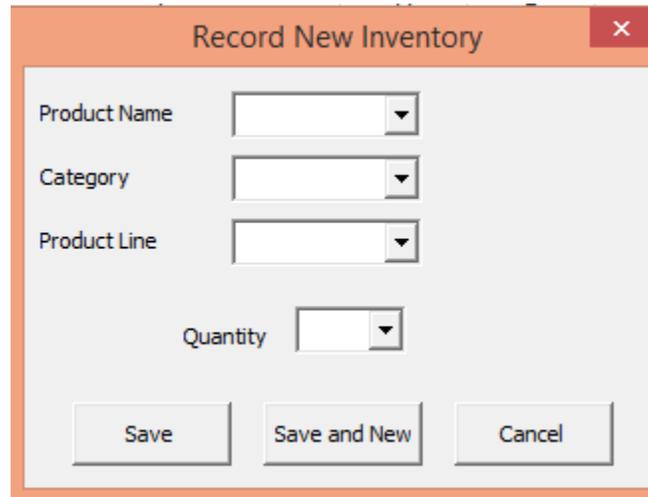
INVENTORY

This is the section that actually manipulates the quantity of products, and therefore is crucial to the purpose of this project.

Record Shipment

This button is used when I actually receive a shipment of product from Mary Kay. The userform attached to this button contains combo boxes for each of the following: product name, category, product line, and quantity. The category and product line combo boxes are optional; their purpose is to narrow the list of product names. For example, when the user selects a category, only the product lines and products associated with that category will show in those combo boxes. When the “Save” button is clicked, the “Current Quantity” field for the specified product is increased in the database by the number shown in the “Quantity” combo box. The “Save & New” button just brings up the userform again after the database has been updated.

FIGURE 7 – RECORD SHIPMENT USERFORM

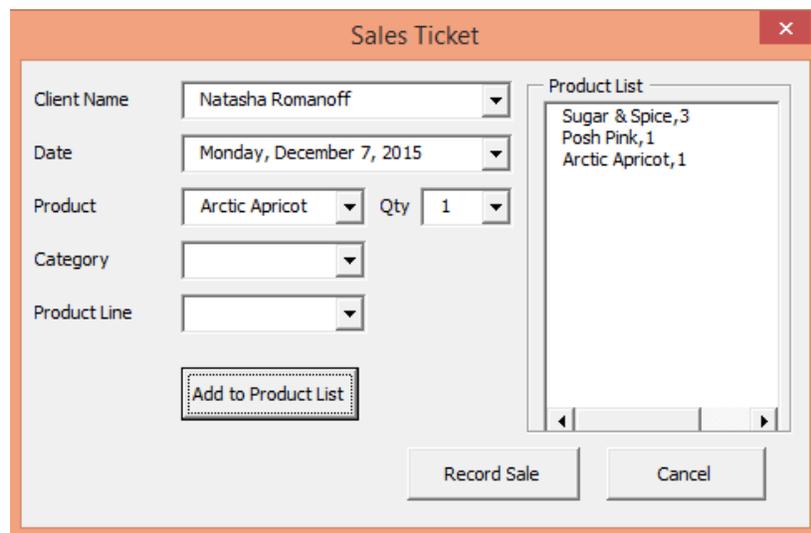


The "Record New Inventory" userform is a window with an orange title bar and a close button. It contains four dropdown menus: "Product Name", "Category", "Product Line", and "Quantity". At the bottom, there are three buttons: "Save", "Save and New", and "Cancel".

RECORD SALE

This userform is the most complex one in this project. There are combo boxes for client name, product, category, and product line, all of which are populated from their respective tables in the database. When the form is initialized, the "Date" combo box is populated with long dates from the past 365 days, with the current date at the top. In this form, all of the products purchased by a client in a single transaction will be processed to the database at once. A user will select a specific product and then the quantity for that product and then click "Add to Product List." This will transfer the product name and quantity into the list on the right side of the form, and the user can select another product and quantity. When all products and quantities have been added to the product list, the user will click "Record Sale," at which point the "Current Quantity" fields will be decreased by the specified amounts for each product record.

FIGURE 8 – RECORD SALE USERFORM



The "Sales Ticket" userform is a window with an orange title bar and a close button. It features several input fields: "Client Name" (Natasha Romanoff), "Date" (Monday, December 7, 2015), "Product" (Arctic Apricot), and "Qty" (1). There are also dropdown menus for "Category" and "Product Line". A button labeled "Add to Product List" is highlighted with a dashed border. On the right, a "Product List" box contains the text: "Sugar & Spice, 3", "Posh Pink, 1", and "Arctic Apricot, 1". At the bottom, there are "Record Sale" and "Cancel" buttons.

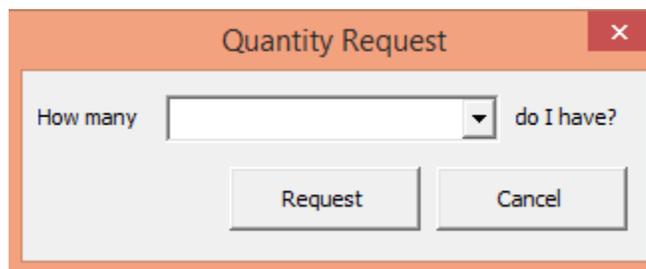
REPORTS

Currently, this section only has the ability to report the current quantity of a specific product, but this is an area I would like to develop further in the future.

QUANTITY REQUEST

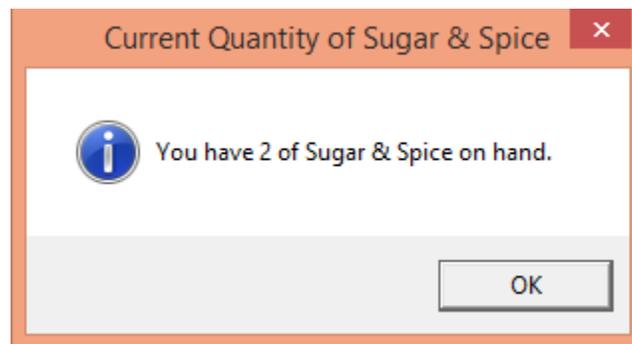
Clicking on the “Quantity Request” button brings up a userform that allows the user to specify a product. When the user clicks “Request,” a SQL query is dynamically built to include the selected product name. The results of the query are displayed in a message box.

FIGURE 9 – QUANTITY REQUEST USERFORM



The image shows a userform titled "Quantity Request" with a close button (X) in the top right corner. The form contains a label "How many" followed by a text input field and a dropdown arrow. To the right of the input field is the text "do I have?". Below the input field are two buttons: "Request" and "Cancel".

FIGURE 10 – QUANTITY REQUEST MESSAGE BOX



The image shows a message box titled "Current Quantity of Sugar & Spice" with a close button (X) in the top right corner. The message box contains an information icon (i) and the text "You have 2 of Sugar & Spice on hand." Below the message is an "OK" button.

DASHBOARD

Since the biggest reason to keep track of my inventory is to make sure I have the desired products in stock when a client requests them, I created a dashboard that will alert me of products that need to be ordered. When the workbook is opened, a procedure runs that retrieves all of the products that have a "Current Quantity" lower than their respective "Preferred Quantity." The product name, current quantity, and preferred quantity for each of these products are then printed to the "Dashboard" worksheet.

FIGURE 11 – LIST OF PRODUCTS TO ORDER

	A	B	C
1	Product	Current Inventory	Preferred Quantity
2	Ultimate Mascara - Black	1	5
3	Cleanse - Formula 1	0	1
4	Cleanse - Formula 2	1	2
5	Cleanse - Formula 3	1	3
6	Freshen - Formula 1	0	1
7	Freshen - Formula 2	1	2
8	Hydrate - Formula 1	0	1
9	Hydrate - Formula 2	1	2
10	Hydrate - Formula 3	1	3
11	Mask - Formula 1	0	1
12	Mask - Formula 2	1	2
13	Mask - Formula 3	2	3
14	Clarifying Cleansing Gel	0	1

Learning

Most of this project I was able to complete “on my own” – meaning most of the help that I got was from the textbook for this class or from sources I found through Google. I did get some much-needed help from Professor Allen after spending too much time trying to figure out how to connect to the database on my own. Professor Allen taught me how to connect to the database and suggested using dynamic SQL statements to connect to the database, which was enormously helpful as I continued to develop this project.

This project was actually very enjoyable for me, and I think the format of this project is genius. Allowing students to choose something they have some interest or stake in to apply the VBA they have learned over the course of the semester gives the students a motive to truly learn the material in a way that will be personally meaningful in their future. I know that was true for me. This project is something that I plan to continue to develop and use regularly. The scope of this project was really just to keep track of my inventory and make it easier to see when I was short on products that might be requested. In the future, I would like to keep track of clients and sales as well, specifically in the reporting section. I also feel that I have the skills necessary to create similar solutions for other problems that I run into in the future.

Through this project, in addition to the technical skills I gained, I learned a few life lessons which are fairly interconnected. First, that I have the ability to accomplish whatever I set my mind to. If someone had told me five years ago that I would be doing this project, I would have looked at them like they were crazy, especially since five years ago I had no idea that VBA existed. Second, getting help is not a bad thing. I am a very independent person, so to me, getting help feels like I have failed. However, in this project, there were some things that would have taken me MUCH longer to figure out on my own, and in the process of getting help, I learned new things that helped me out later in other situations as well. Both of these lessons will serve me well going forward both in my professional life and in my personal life.