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MBA 614: VBA

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Final Project

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Grocery List Builder



VBA FINAL PROJECT

Grocery List Builder

Executive Summary

The “Grocery List Builder” is an Excel-based, VBA-powered tool which allows the user to quickly create a grocery list with an easy-to-use user form. The multi-page form is broken out into nine different grocery categories, with a selection screen and a details screen for each category (thus 18 screens total). The user calls the form by pressing either the “Make List” button on the Grocery List Builder dashboard or the “Edit List” button on the mini-dashboard in the Grocery List view. The user can move from tab to tab within the form either by clicking on the individual tabs at the top of the form or by navigating through with the “Next” and “Back” buttons at the bottom of the form. The form features various message boxes to help guide the user as he or she selects the items to complete his or her list (for example, one message box alerts the user if 14 items, the maximum, have been added for any given category).

The user can add up to 14 grocery items per category and can enter details such as quantity (in a drop down selection) and notes (i.e., brand name, size, etc. in a text box). The selections are automatically copied to the Grocery List template in the Excel workbook, which can be printed instantly by clicking the “Print List” button on either the Grocery List Builder dashboard or the mini-dashboard in the Grocery List view.

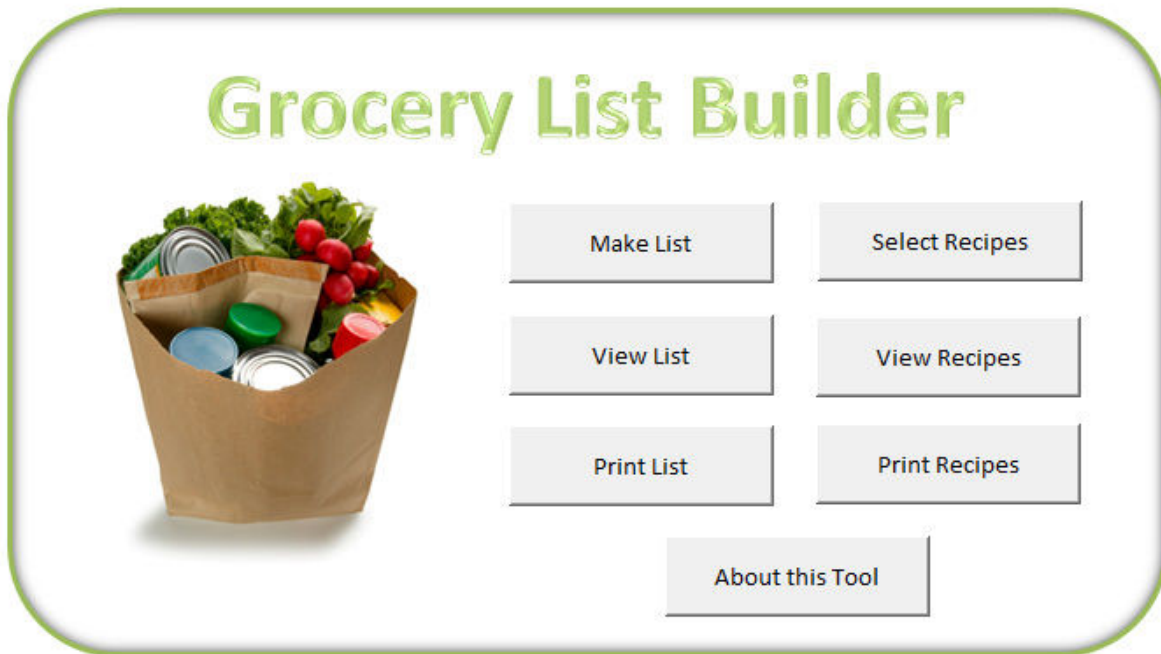
In addition to the tool’s main feature, the Grocery List Builder, this tool also features a recipe selector. The user can access this part of the tool from the main dashboard by clicking “Select Recipes”; in addition, when the user clicks “Finished” on the Grocery List Builder form, he or she has the option to select recipes before finishing. As with the Grocery List view, the tool features a Selected Recipe view which includes a mini-dashboard. The recipe selector allows the user to not only select up to six recipes to print on “cards,” but also allows the user to add the recipe ingredients to a special section of the grocery list. The selected recipes are copied to the Recipes template in the Excel workbook, which can be printed instantly by clicking the “Print Recipes” button on either the Grocery List Builder dashboard or the mini-dashboard in the Selected Recipes view.

Implementation

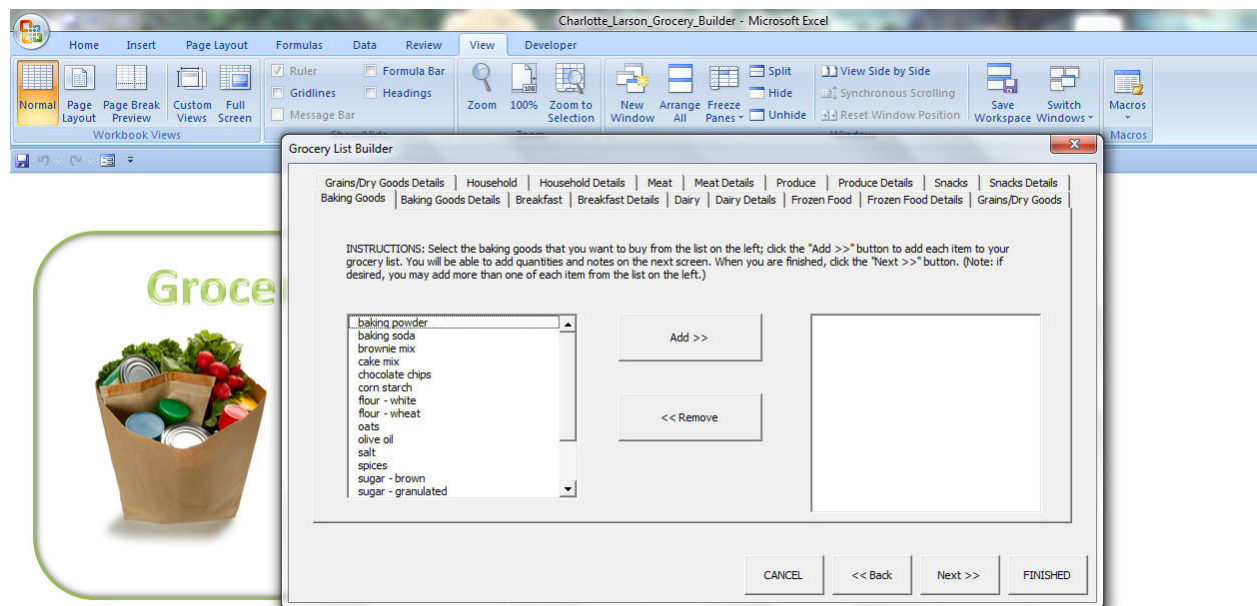
Below, each main element of the Grocery List Builder tool will be described (functionality, features, etc.).

Grocery Builder Main Dashboard and Mini-Dashboards

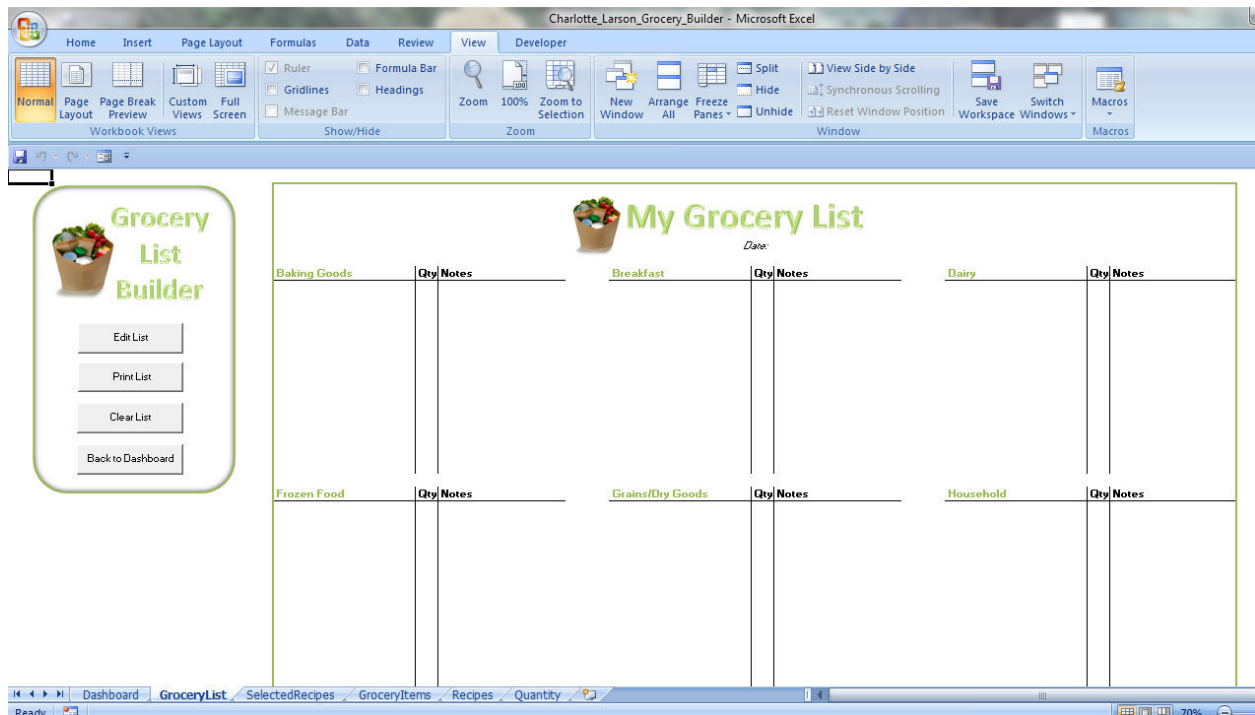
The Grocery Builder Main Dashboard is, as the name suggests, the primary access point for the user. It is a simple interface with easy-to-interpret buttons:



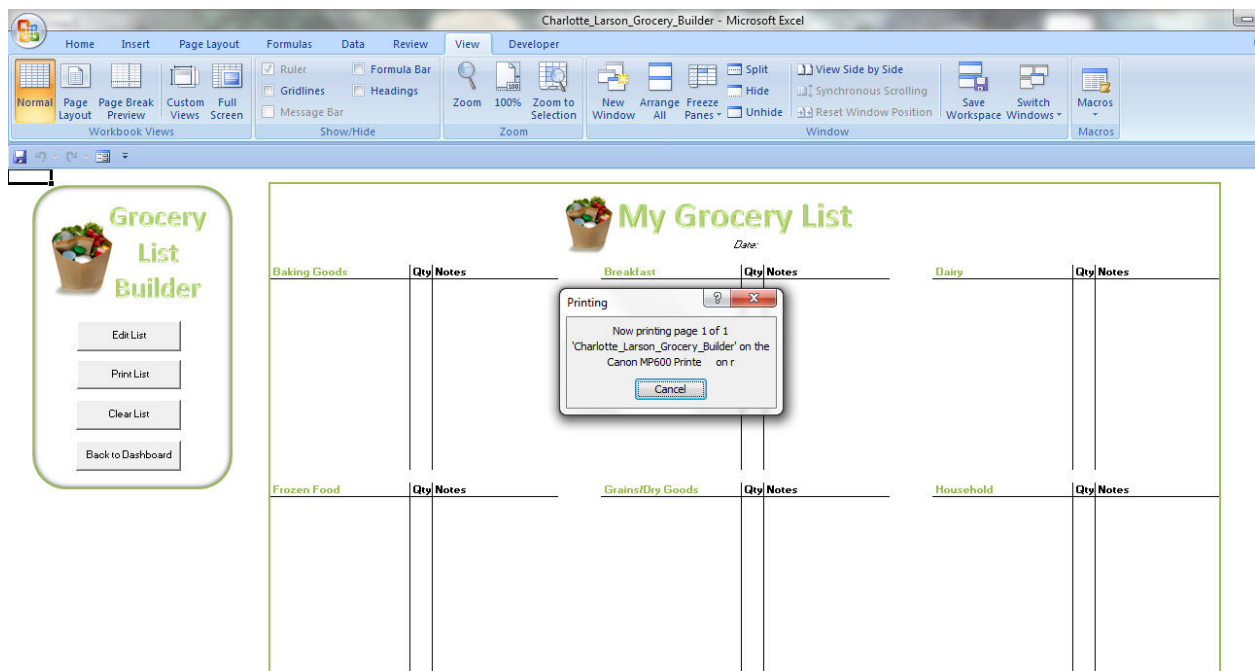
When the user clicks “Make List,” the Grocery List Builder user form is called:



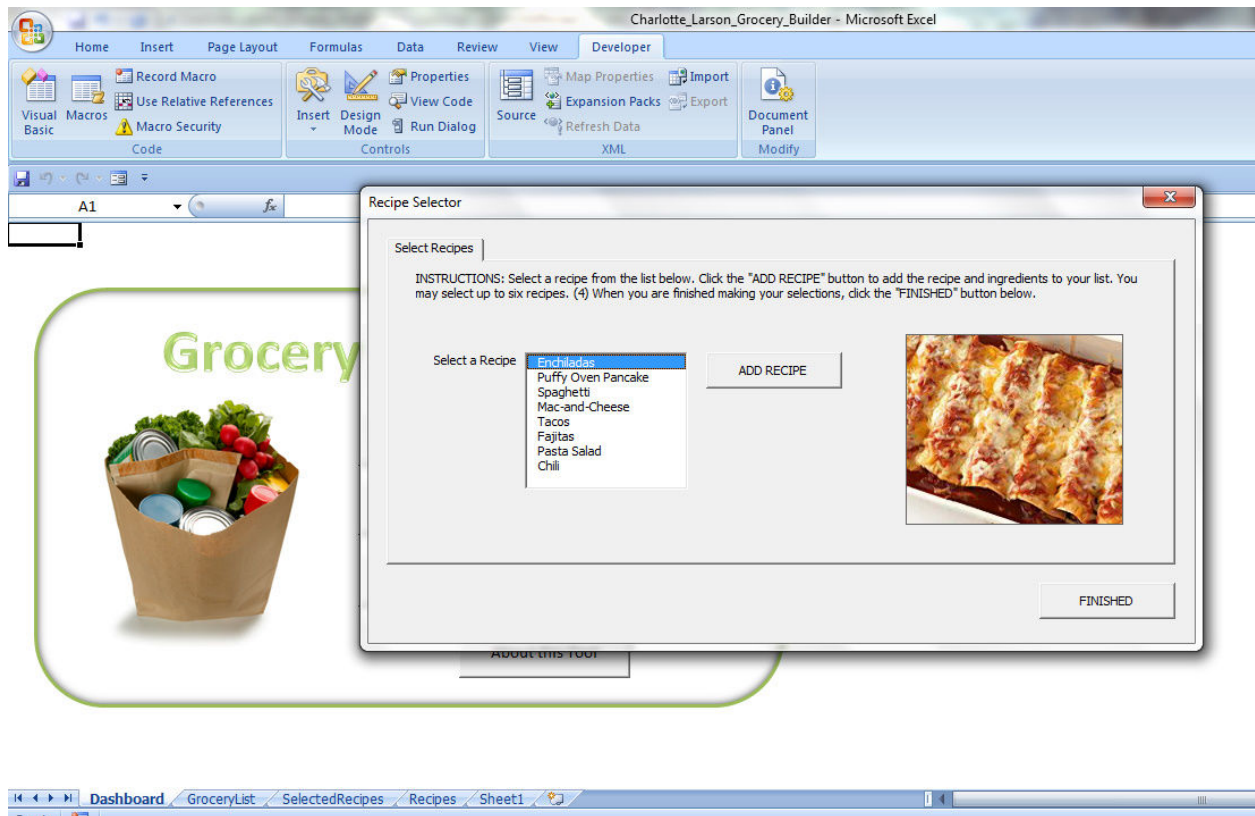
When the user clicks “View List,” he or she is taken to the Grocery List view:



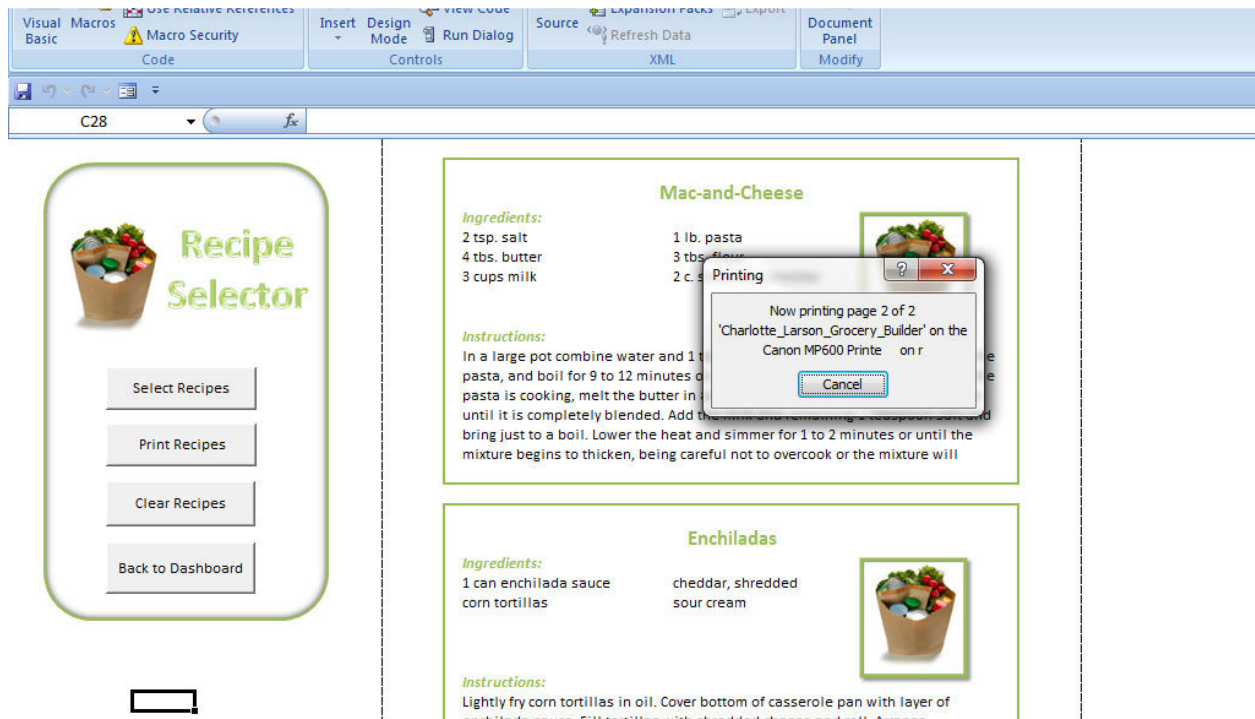
When the user clicks “Print List,” the Grocery List view is called up and the list is sent directly to the printer (using the default printer and default print settings):



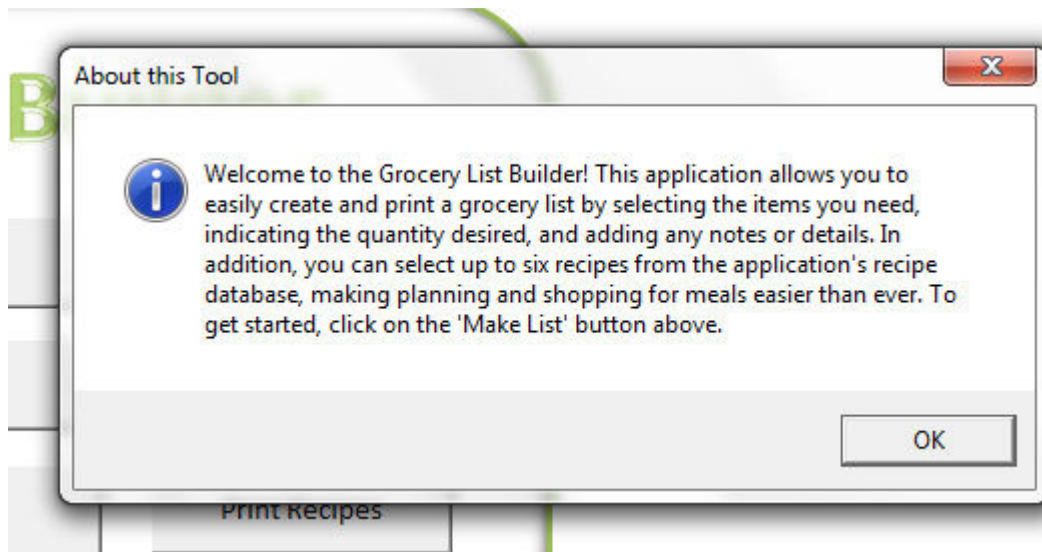
When the user clicks “Select Recipes,” the Recipe Selector user form is called:



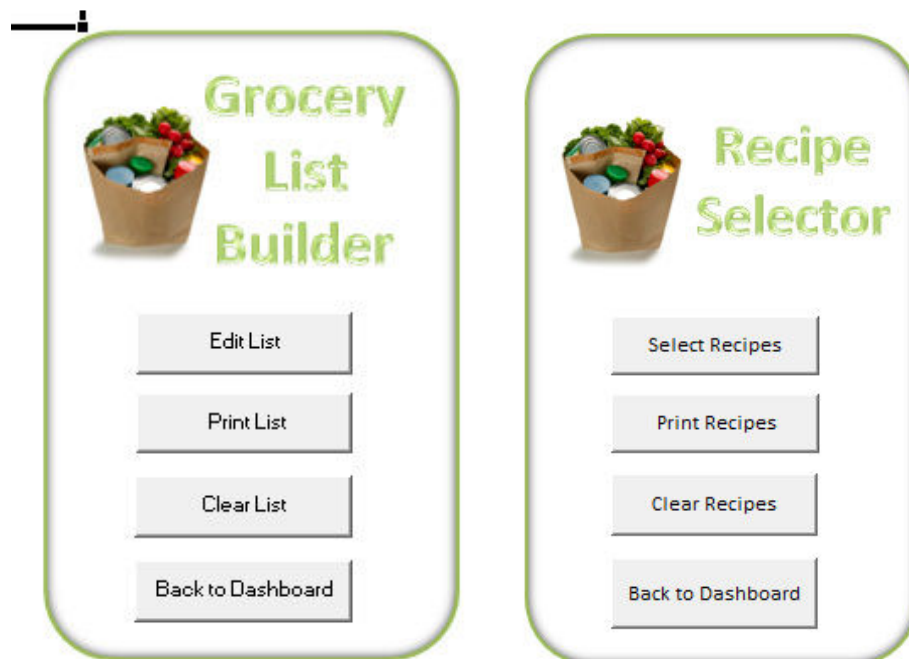
When the user clicks “Print List,” the Selected Recipes view is called up and the “cards” are sent directly to the printer (using the default printer and default print settings):



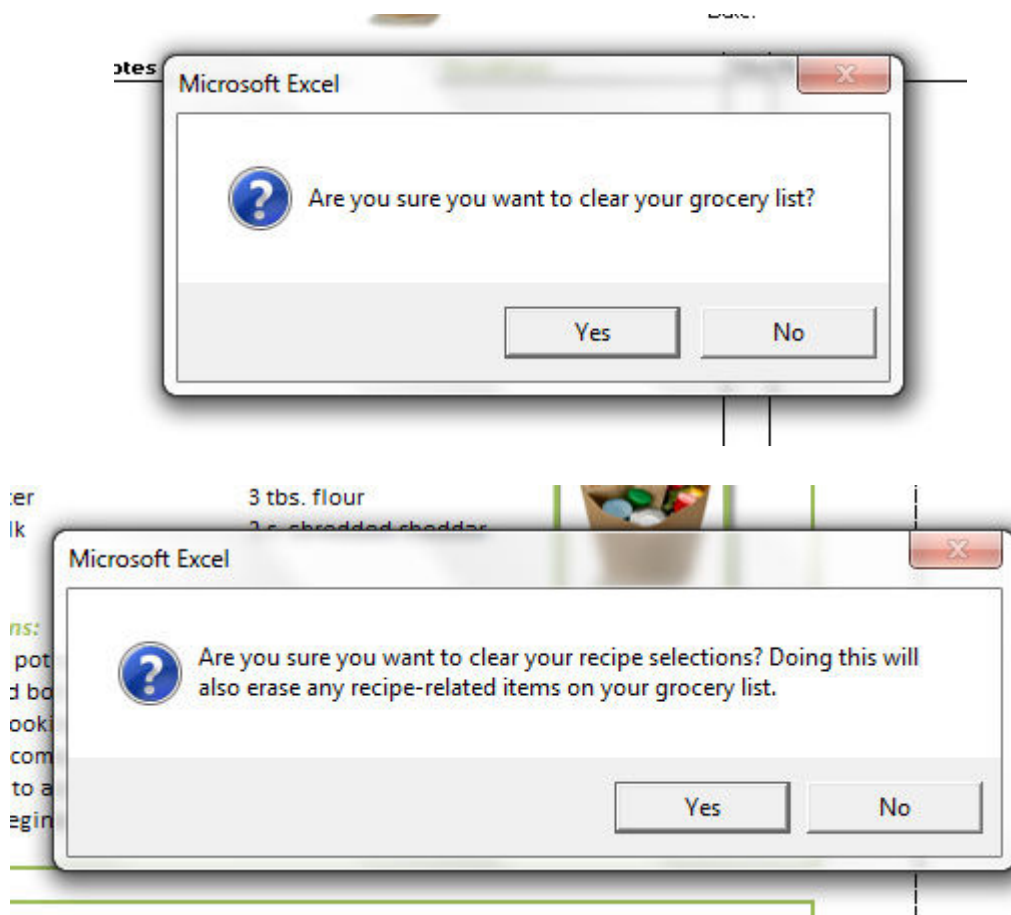
Finally, when the user clicks “About this Tool,” a message box appears with information about the Grocery List Builder tool:



In addition to the main Grocery List Builder dashboard, both the Grocery List view and the Selected Recipes view feature mini-dashboards with some buttons from the main dashboard, as well as added functionality such as a “Back to Dashboard” button and a “Clear List” or “Clear Recipes” button:



When either of the “Clear” buttons is hit, a message box appears to confirm that the user really wishes to clear either the grocery list or the selected recipes:

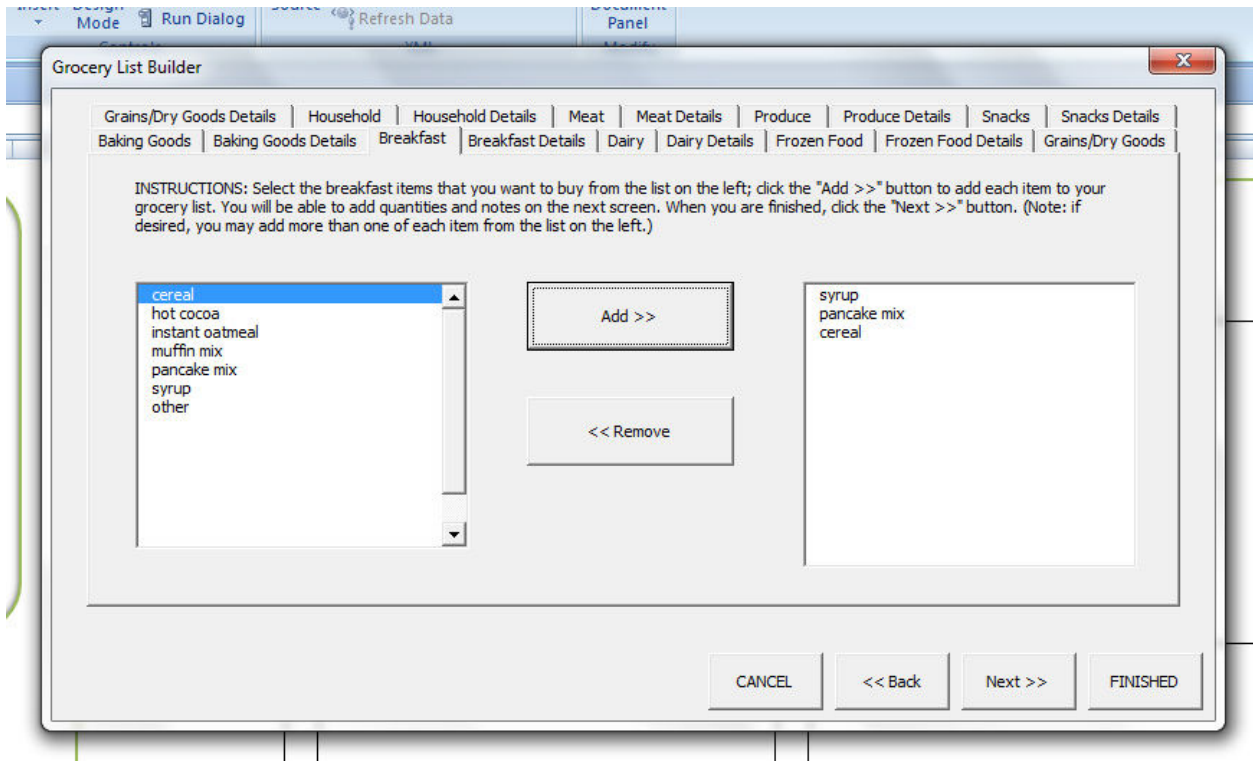


Grocery List Builder User Form

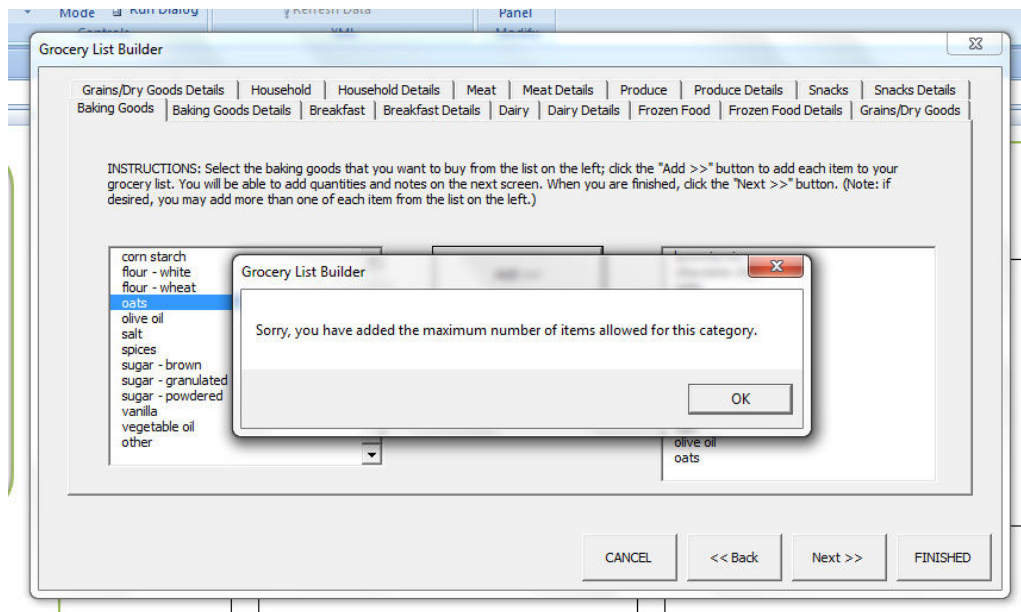
As noted above, the Grocery List Builder user form can be called from either the main dashboard or the mini-dashboard within the Grocery List view.

The multi-page form is broken out into nine different grocery categories, with a selection screen and a details screen for each category (thus 18 screens total). The user can move from tab to tab within the form either by clicking on the individual tabs at the top of the form or by navigating through with the “Next” and “Back” buttons at the bottom of the form. Regardless of which way the user navigates the form (using the tabs or the buttons), each time the user moves from one tab to another, the user’s selections are saved to the Grocery List template in Excel (unless the user hits the “Cancel” button on the form, in which case anything that had been saved to the Grocery List template is cleared). Also, the “Next” and “Back” buttons are coded such that the “Next” button is grayed out/inactive when on the last screen of the multi-page (since there is no next screen) and the “Back” button is grayed out/inactive when on the first screen of the multi-page (since there is no back screen).

The screenshot below shows one of the category selection screens:



The user can add up to 14 items per category; clicking the “Add” button moves the items from the options list on the left to the grocery list on the right. The user can also remove items by clicking the “Remove” button. Once the user has added 14 items, he or she will see the following message:



In addition to the selection screen for each category, the user can access a details screen on which quantity and notes can be added for each item selected:

Mode Run Dialog Refresh Data Panel

Grocery List Builder

Grains/Dry Goods Details | Household | Household Details | Meat | Meat Details | Produce | Produce Details | Snacks | Snacks Details
Baking Goods | Baking Goods Details | Breakfast | Breakfast Details | Dairy | Dairy Details | Frozen Food | Frozen Food Details | Grains/Dry Goods

Below are the breakfast items you selected. If desired, enter the quantity to purchase as well as any notes (e.g., brand, type, etc.).

Item	Quantity	Notes	Item	Quantity	Notes
syrup	1	Maple			
pancake mix	1				
cereal	2	Lucky Charms			

CANCEL << Back Next >> FINISHED

Quantities are selected from a drop down box and notes can be entered in the text field.

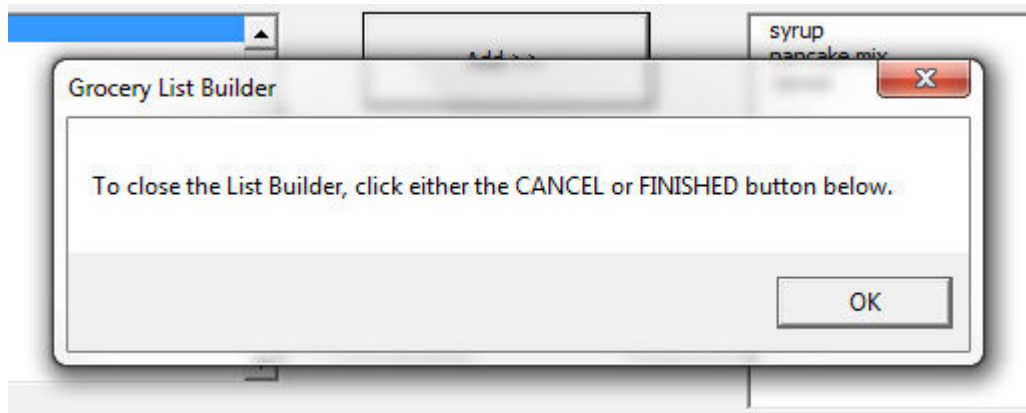
The user can close the form at any time (i.e., it is not necessary to scroll through all 18 screens) by clicking the “Finished” button. Clicking the finished button saves the user’s selections to the Grocery List template and closes the Grocery List Builder form; the user also is given the option to add recipes before finishing:

Microsoft Excel

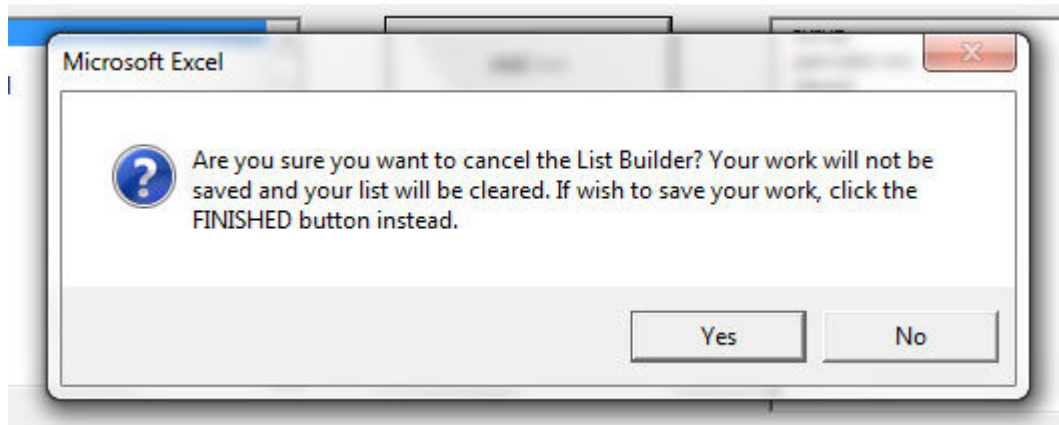
Would you like to add any recipes to your grocery list?

Yes No


To ensure the user doesn’t accidentally close the Grocery List Builder user form, the red “X” in the top right corner of the form has been disabled; if the user clicks on it, he or she will see the following message:



When the user clicks the “Cancel” button on the user form, he or she will see the following message:



Below is a screenshot of the Grocery List view, which has been populated with data entered on the user form:

 My Grocery List Date: 4/19/2011			
Baking Goods	Qty	Notes	
corn starch	1	chocolate chunk	
brownie mix	1		
corn starch	1		
baking soda	1		
Breakfast	Qty	Notes	
cereal	3	lucky charms	
instant oatmeal	2		
Dairy	Qty	Notes	
butter	1		
eggs	1	dozen	
milk	3		2%

Note that the date appears at the top of the form; this date is VBA-powered and is static until the user resets the grocery list.

The selectable grocery items which appear on each tab of the multi-page form are stored in a hidden sheet in the workbook (thus the owner or manager of the workbook can update these lists, which will then be reflected in the selectable items lists of the user form):

	A	B	C	D	E	F	G	H	I
1	Baking Goods	Breakfast	Dairy	Frozen Food	Grains/Dry Goods	Household	Meat	Produce	Snacks
2	baking powder	cereal	butter	frozen vegetables - broccoli	bread - baguette	bathroom cleaner	bacon	apples	candy
3	baking soda	hot cocoa	cheese - block cheddar	frozen vegetables - corn	bread - sandwich	bleach	beef	bagged salad	chips
4	brownie mix	instant oatmeal	cheese - muenster	frozen vegetables - peas	buns - hamburger	dish soap	chicken	bananas	cookies
5	cake mix	muffin mix	cheese - provolone	frozen vegetables - stir fry	buns - hotdog	food storage bags	deli meat	broccoli	crackers
6	chocolate chips	pancake mix	cheese - shredded cheddar	ice cream	egg noodles	garbage bags	hotdogs	carrots	fruit snacks
7	corn starch	syrup	cheese - shredded mozzarella	pizza	pasta - long	hand soap	pork	cauliflower	granola bars
8	flour - white	other	cheese - string	potstickers	pasta - short	napkins	sausage	celery	jell-o
9	flour - wheat		eggs	ravioli	rice - brown	paper towels	shrimp	grapes	nuts
10	oats		milk	tortellini	rice - white	sandwich bags	other	green beans	pretzels
11	olive oil		sour cream	other	tortillas - corn	toilet paper		green bell pepper	pudding
12	salt		yogurt		tortillas - flour	window cleaner		leeks	other
13	spices		other		other	other		lettuce - green leaf	
14	sugar - brown							lettuce - iceberg	
15	sugar - granulated							lettuce - romaine	
16	sugar - powdered							onions	
17	vanilla							oranges	
18	vegetable oil							potatoes	
19	other							strawberries	
20								other	
21									
22									

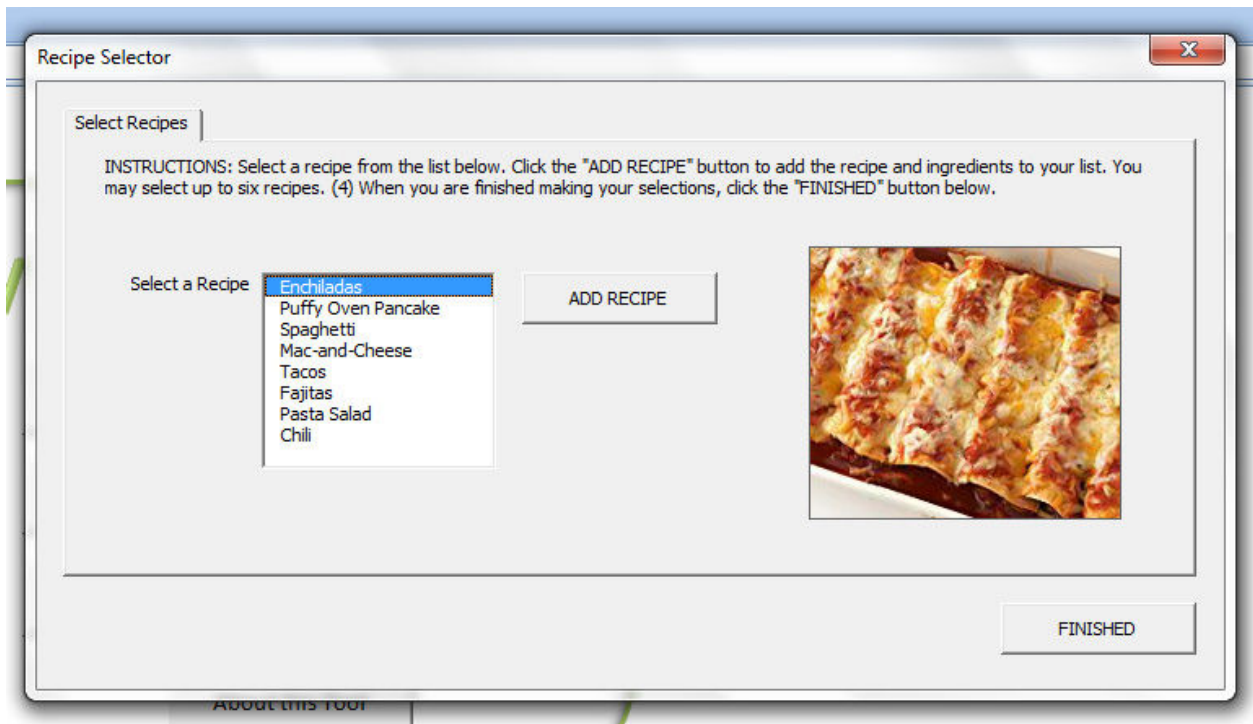
Recipe Selector User Form

As noted above, the Recipe Selector user form can be called from either the main dashboard or the mini-dashboard within the Selected Recipes view.

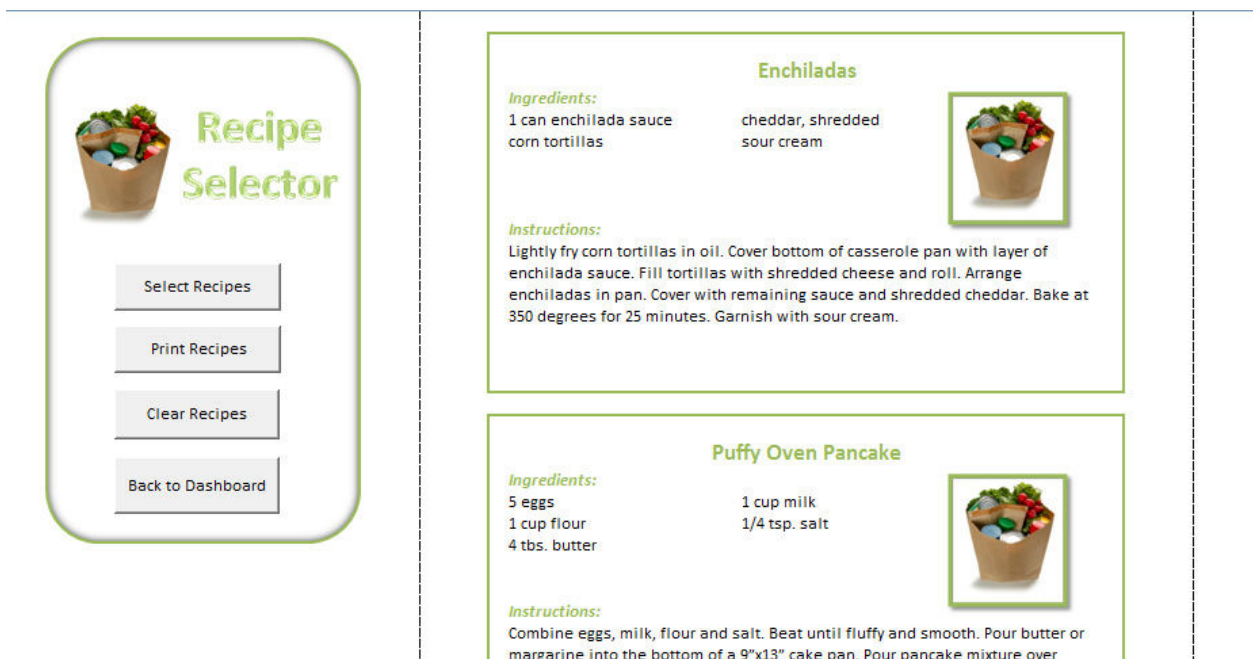
The simple form allows users to select up to six recipes from a list of recipes which are stored on a hidden sheet in the workbook (thus the owner or manager of the workbook can update this lists, which will then be reflected in the selectable recipes list of the user form):

	A	B	C	D	E	F	G	H	I	J	K
1	Recipe	Ingredient1	Ingredient2	Ingredient3	Ingredient4	Ingredient5	Ingredient6	Ingredient7	Ingredient8	Instructions	Photo
2	Enchiladas	1 can enchilada sauce	cheddar, shredded	corn tortillas	sour cream					Lightly fry corn tortillas	enchiladas.jpg
3	Puffy Oven Pancake	5 eggs	1 cup milk	1 cup flour	1/4 tsp. salt	4 tbs. butter				Combine eggs, milk	puffy_oven_pancake.jpg
4	Spaghetti	1 lb. pasta	1 can Hunt's Spaghetti	1 lb. ground beef	mozzarella cheese	garlic toast				Boil pasta until al dente	spaghetti.jpg
5	Mac-and-Cheese	2 tsp. salt	1 lb. pasta	4 tbs. butter	3 tbs. flour	3 cups milk	2 c. shredded cheddar			In a large pot combine	mac-and-cheese.jpg
6	Tacos	2 cans beef	1 pkg. taco seasoning	corn tortillas	cheddar, shredded	lettuce, shredded	salsa			Drain meat and brown	tacos.jpg
7	Fajitas	1 lb. chicken breasts	1 green pepper, sliced	1 onion, sliced	flour tortillas	cheddar, shredded	sour cream	salsa	1 pkg. fajita seasoning	Heat 1 tablespoon	fajitas.jpg
8	Pasta Salad	1 lb. tri-color pasta	1/2 bottle vinaigrette	1/2 cup cheese, cubed	pepperoni	cucumber, chopped	broccoli, chopped	cherry tomatoes	1 can olives	Boil pasta until al dente	pasta_salad.jpg
9	Chili	1 can kidney beans	1 can great northern beans	1 lb. ground beef	1 green pepper, chopped	1 onion, chopped	2 tbs. chili powder	1/4 tsp. pepper	3 cups tomato juice	In large saucepan	chili.jpg
10											

As the user clicks on the different recipes, a photo of each is shown:

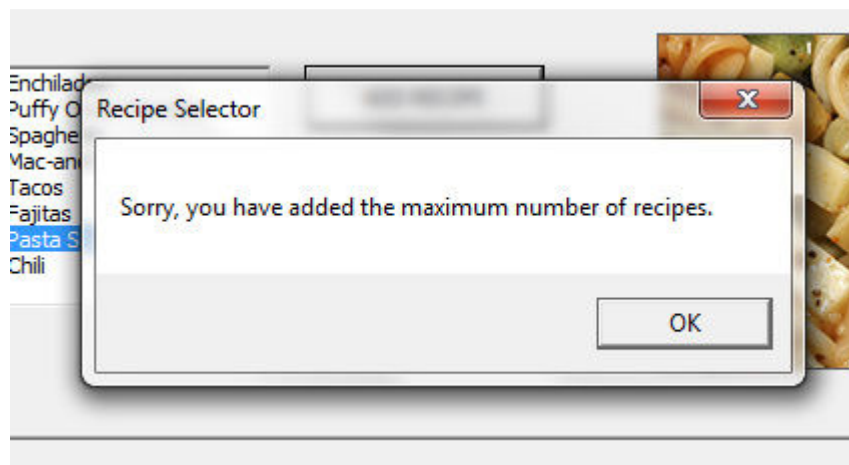


The user simply clicks the “Add Recipe” button when a recipe is selected to add the recipe to the Selected Recipes template as well as to add the recipe ingredients to the Grocery List template:



Meal Builder Selections		
Enchiladas 1 can enchilada sauce cheddar, shredded corn tortillas sour cream	Puffy Oven Pancake 5 eggs 1 cup milk 1 cup flour 1/4 tsp. salt 4 tbs. butter	Spaghetti 1 lb. pasta 1 can Hunt's Spaghetti Sauce 1 lb. ground beef mozzarella cheese garlic toast
Mac-and-Cheese 2 tsp. salt 1 lb. pasta 4 tbs. butter 3 tbs. flour 3 cups milk 2 c. shredded cheddar	Tacos 2 cans beef 1 pkg. taco seasoning corn tortillas cheddar, shredded lettuce, shredded salsa	Fajitas 1 lb. chicken breast, sliced 1 green pepper, sliced 1 onion, sliced flour tortillas cheddar, shredded sour cream salsa 1 pkg. fajita seasoning

If the user has added six recipes (the maximum allowed), he or she will see the following message:



Learning and Conceptual Difficulties

Learning

This project gave me the opportunity to utilize and build on the user form skills learned in class and on the user form homework assignment. For example, I included photos in my Recipe Selector user form (which update based on the recipe selected) and inserted various message boxes to help guide the user as well as to help control the functionality and use of the tool. I also used skills gained in class to transfer data within my user form (e.g., from one page of the multi-page to another) as well from my user form to the Excel workbook.

In addition, this project gave me the opportunity to learn many new skills related to user forms and VBA. These include (but are not limited to):

- How to disable the red "X" in the top right corner of the user box
- How to use the multi-page functionality, including:
 - Moving from tab to tab using control buttons at the bottom of the form

- How to disable the ability to move from tab to tab by clicking on the tabs, thus forcing the user to use the control buttons only (I did not end up using this, as I decided that I wanted users to be able to do this)
- How to hide all but the active tab (I did not end up using this, as I decided that I wanted users to be able to view only the tabs they wanted to, since 18 is too many to be *required* to scroll through to complete the form)
- How to populate drop-down and list boxes from either the Properties tool or by using code

Difficulties

Although challenging, I was able to get most features of my project to work – particularly with the Grocery List Builder user form. However, I struggled with several features of my Recipe Selector user form. Some things I was able to resolve after research and trial and error, but others I was not.

One key element I had hoped to implement in my Recipe Selector form would be functionality to only add certain items to the grocery list (i.e., a recipe might call for a bell pepper; if the user already has one on hand, he or she could choose to not add the bell pepper to the grocery list). I was able to complete part of this functionality, including having the checkboxes only appear if there was a ingredient to populate it (i.e., the user form has space for eight ingredients, but I would not want blank check boxes to appear for recipes with fewer than eight ingredients):

However, I experienced quite a bit of difficulty with the coding to add only the checked ingredients to the Grocery List template; part of the issue stemmed from transferring the data to the spreadsheet, while another part of the issue resulted from putting the information in the correct place on the spreadsheet. I commented out the code I had used to work on this and left it in the module so that I can return to it in the future.

Also shown in the screenshot above is a “Review Selections” button. The intent was to allow the user to move to another screen of the multi-page user form to review which recipes he or she had selected; on this second page, the user could edit the selections before finishing. This was another area of my project that I wasn’t quite able to work the bugs out of to work properly. I commented out the code I had used to work on this and left it in the module so that I can return to it in the future.

Finally, while I successfully coded the Recipe Selector user form to show the appropriate picture based on the recipe selected, I had difficulty getting this to work on the Selected Recipes template. I tried using the Record Macros function to record myself changing the picture based on the recipe selected; I also tried using an image control on the sheet. I was not able to get either to work properly; hence each recipe card features the generic bag of groceries image rather than the specific recipe image shown on the Recipe Selector user form.

Conclusion

This project was an excellent opportunity to apply skills learned over the course of the semester as well as to learn new skills. I had many “ah ha!” moments during my project, in addition to “Yes – it worked!” moments; both of these were exciting, as I had never used VBA prior to this semester. I am excited to continue developing my VBA skills going forward to be able to create unique, useful, time-saving, Excel-based tools.

As a final note, while not in the category of “difficulties encountered” per se, while working on my project I was surprised by the number of small details that could be worked into a relatively straight-forward tool such as the Grocery List Builder. I also noted during my project that I relied heavily on long lists of specific code; I might have streamlined my code (and the writing of that code!) by using more loops.