

Criterion E: Product development

List of Techniques Used in Development

Tools in Microsoft Access were used for development. These tools were required to employ these complex techniques:

1. Complex Query Development for Data Retrieval from Tables in the Database
2. Embedded Macros for Database Navigation, Print Commands and Record Saving Functions.
3. Authentic Data Representation on Forms and Reports through Linking Tables and Queries as Sources.

Each complex technique will be explored and demonstrated individually with evidence of functionality.

Digital Cookbook Database



Figure 1 - Database Homepage

When the database file is executed, the client will immediately be directed to this 'Home Screen' form, due to the 'AutoExec' macro. The AutoExec macro runs as soon as the database has been launched.

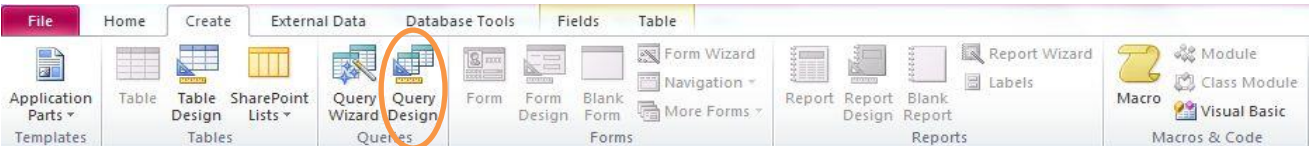
```
OpenForm
    Form Name   Home Screen
    View       Form
    Filter Name
    Where Condition
    Data Mode
    Window Mode Normal
```

Figure 2- following function performed by AutoExec

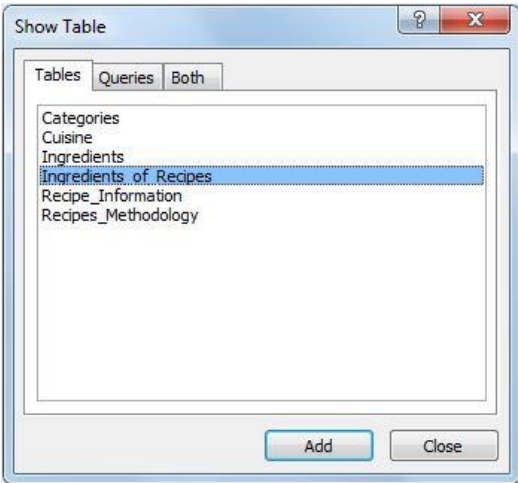
Complex Query Development for Data Retrieval from Tables in the Database

Nearly all functions in this database require queries. There are three types of different queries in this database; one, prompts the user to input information from a single field and then output the record(s) that correspond to that input. Two, prompts the user to provide multiple inputs one by one, and then output records that have all the values that the user input. Three, prompts the user to input information from a single field and then outputs the record(s) that correspond to that input from two or more tables.

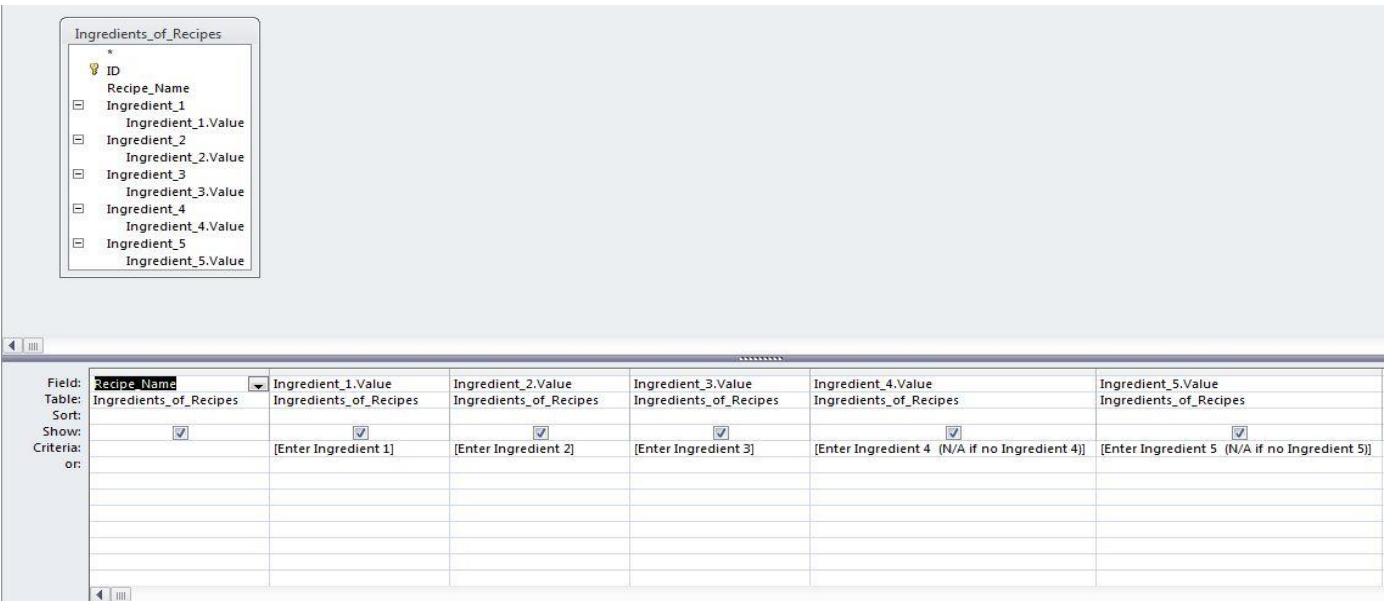
The construction of all the queries is similar, with nearly the same steps followed to create the queries. However, they are constructed from different tables and have different criteria for parameter value e.g. a query that outputs the information about a recipe by taking ingredients as input, is constructed as follows:



First we go on create and click on Query design where the program opens a prompt for us to choose a table or query from. We will choose the ‘Ingredient_Searcher_Query’ table as shown



Once this table is selected and the button ‘Add’ is clicked, all fields from the table are added and the following is display is set:



Now in order to set the user prompt, in the criteria of ‘Ingredient_1’, ‘Ingredient_2’, ‘Ingredient_3’, ‘Ingredient_4’, and ‘Ingredient_5’ a prompt instruction is set. This will inform the user that she has to input the ‘Ingredient_1’, ‘Ingredient_2’, ‘Ingredient_3’, ‘Ingredient_4’, and ‘Ingredient_5’ individually in each of their prompts. Once the 5 ingredients are input, the program searches for and outputs any and all recipes that have all the listed ingredients. The entire function is constructed as follows:

Digital Cookbook Database



Figure 3-User clicks on ‘Search Using Multiple Ingredient Input’ button

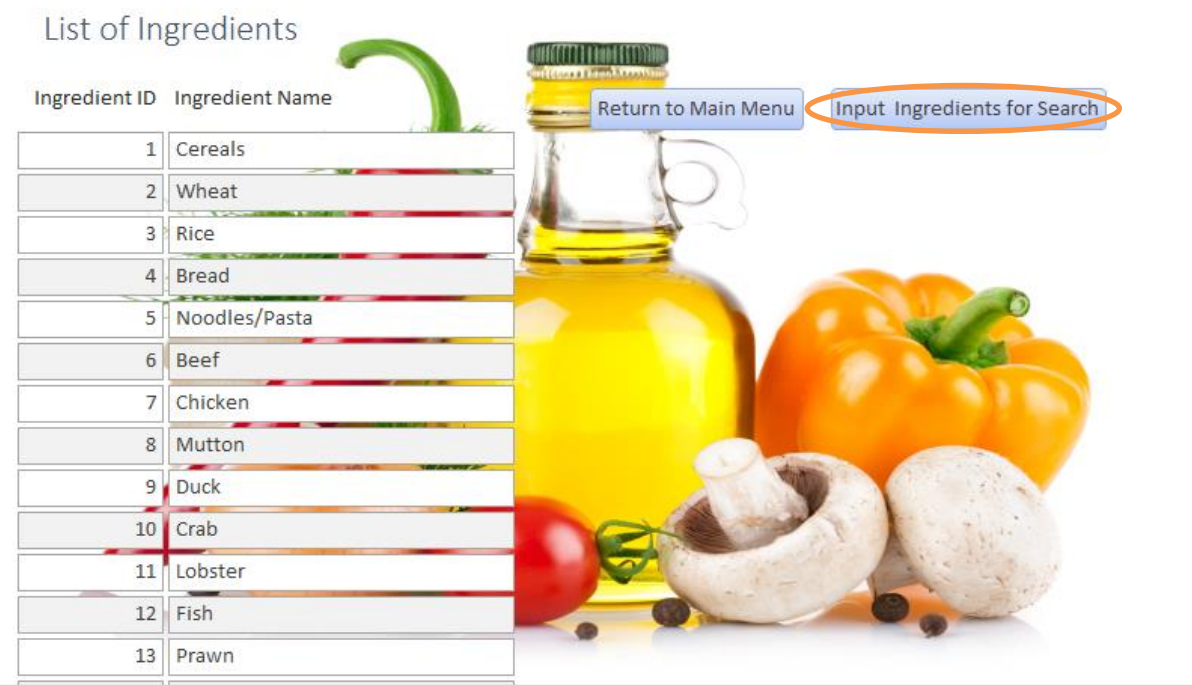


Figure 4-user clicks ‘Input Ingredients for Search’ button to run the query

The figure shows five separate dialog boxes, each titled 'Enter Parameter Value'. Each box contains a text input field and 'OK' and 'Cancel' buttons. The inputs are as follows:

Dialog Title	Input Field Content
Enter Parameter Value (Ingredient 1)	Wheat
Enter Parameter Value (Ingredient 2)	Egg
Enter Parameter Value (Ingredient 3)	Chicken
Enter Parameter Value (Ingredient 4)	Garlic
Enter Parameter Value (Ingredient 5)	N/A

Figure 5- User inputs the ingredient name in each prompt

The figure displays a 'Search Result' interface overlaid on a background image of various ingredients. The interface includes a table of recipe details and a set of action buttons.

Search Result			
Recipe Name	Fried Drumsticks	Ingredient 3	Chicken
Ingredient 1	Wheat	Ingredient 4	Garlic
Ingredient 2	Egg	Ingredient 5	N/A

Below the table are four buttons: 'Return to Main Menu', 'Search Again', 'View Method of Cooking', and 'Print Recipe'.

Figure 6-query retrieves a recipe that uses the ingredients that the user input

Another type of query used in the database functions by searching and retrieving information of a recipe methodology by searching with the name of the recipe. This 'Recipes_Methodology_Search_Query' has also been developed though similar steps. The following query design is constructed from the 'Recipes_Methodology' Table:

Recipes_Methodology

Recipe_ID

Recipe_Name

Procedure

Cooking_time

Date_added

Prep_time

Serves

Cuisine_ID

Cuisine_ID.Value

Category_ID

Category_ID.Value

Field:	Recipe_Name	Procedure	Cooking_time	Prep_time	Serves
Table:	Recipes_Methodology	Recipes_Methodology	Recipes_Methodology	Recipes_Methodology	Recipes_Methodology
Sort:					
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:	[Enter Recipe Name]				
or:					

The criterion is set for the user to input the recipe name she wants to use for her search. The program will search and retrieve the complete record of the cooking methodology for the recipe name that the user input. To explain this query function the example of the multiple inputs will be continued.

Search Result

Recipe Name

Fried Drumsticks

Ingredient 1

Wheat

Ingredient 2

Garlic

Ingredient 3

Egg

Ingredient 4

Chicken

Ingredient 5

N/A

Return to Main Menu

Search Again

View Method of Cooking

Print Recipe

Figure 7 - User clicks on 'View Method of Cooking' button

Enter Parameter Value

Enter Recipe Name

Fried Drumsticks

OKCancel

Figure 8-User inputs the name of the recipe in the prompt

Recipe Methodology

Recipe Name

Fried Drumsticks

Cooking time

30 mins

Serves

6

Prep time

10 mins

Procedure

1.Put together all ingredients in a bowl and marinade for 2 hours.

2.Heat oil and deep fry for 15 minutes or until tender.

3.Serve with ketchup.

Return to Main Menu

Search Again

Print Recipe Methodology




Figure 9 - The recipe methodology for the recipe name input is retrieved through the query and displayed as a report

The third query function in this database involves using a single user prompt to retrieve data from two tables within the same query. Similar to the previous two queries, it also has the same initial steps, but instead of using one table as a data source, this query makes use of two: ‘Recipe_Information’ table and ‘Recipes_Methodology’ table. Thus the following query is designed as the ‘Recipe_Information_Query’:

Recipe_Information_1

ID

Recipe_Name

Ingredient_1

Ingredient_2

Ingredient_3

Ingredient_4

Ingredient_5

Recipes_Methodology_1

Recipe_ID

Recipe_Name

Procedure

Cooking_time

Date_added

Prep_time

Serves

Cuisine_ID

Cuisine_ID.Value

Category_ID

Category_ID.Value

Field:

Recipe_Name

Ingredient_1

Ingredient_2

Ingredient_3

Ingredient_4

Ingredient_5

Procedure

Cooking_time

Prep_time

Serves

Recipe_Name

Table:

Recipe_Information

Recipe_Informa

Recipe_Informa

Recipe_Informa

Recipe_Informa

Recipe_Informa

Recipes_Methodology

Recipes_Methodology

Recipes_Methodology

Recipes_Methodology

Recipes_Methodology

Sort:

Show:

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Criteria:

[Enter Recipe Name]

[Enter Recipe Name]

or:

For this query to function, the information that the user would be prompted to enter should be the same in both the tables e.g. Recipe Name. Thus when the user will input a recipe name, information of that particular recipe will be retrieved from both the tables. However, that would mean that the ‘Recipe Name’ field would be output twice alongside the rest of the information (once from both tables). Therefore, one of

the 'Recipe Name' fields has been marked as hidden, by unchecking the 'Show' function on that particular field in the query design. This function is executed as such:

Digital Cookbook Database

Search Through Category

Search via Cuisine

Search Using Recipe Name

Search Using Multiple Ingredient Input

Search Using Single Ingredient

Exit Program



Figure 10 - The user clicks the 'Search Using Recipe Name' Button

List of Recipes

Recipe ID	Recipe Name
1	Fried Drumsticks
2	Fried Cheese Sandwiches
3	Chicken Chatni Masala
4	Chicken White Karhai
5	Dijon Garlic Salmon
6	Creamy Cajun Chicken Pasta

Return to Main MenuOpen Complete Recipe Information

Figure 11 - The list of recipes opens up displaying Recipe Names with their respective IDs. The user can click the 'Open Complete Recipe Information' button to run the query

Enter Parameter Value

Enter Recipe Name

Fried Drumsticks

OKCancel

Figure 12 - The user inputs the Recipe Name in the prompt

Recipe Information

Recipe Name	Fried Drumsticks	Cooking Time	30 mins
Ingredient 1	Chicken	Prep Time	10 mins
Ingredient 2	Wheat	Number of Serves	6
Ingredient 3	Garlic		
Ingredient 4	Egg		
Ingredient 5	N/A		

Procedure

- 1.Put together all ingredients in a bowl and marinade for 2 hours.
- 2.Heat oil and deep fry for 15 minutes or until tender.
- 3.Serve with ketchup.

[Return to Main Menu](#) [Search Again](#) [Print Recipe](#)

Figure 13 - The query retrieves and displays information of this particular Recipe Name from both the tables in form of a report

Embedded Macros for Database Navigation, Print Commands and Record Saving Functions

This database contains buttons with embedded macros. These buttons are placed on forms and reports, to perform functions such as navigating between forms and reports, printing when required, moving between records to view and edit data, saving that data, and exiting the database application.

The macro that moves the user from one report/form to another involves two functions. First it would open the next form/report and then close the current.

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[Search Through Category](#)

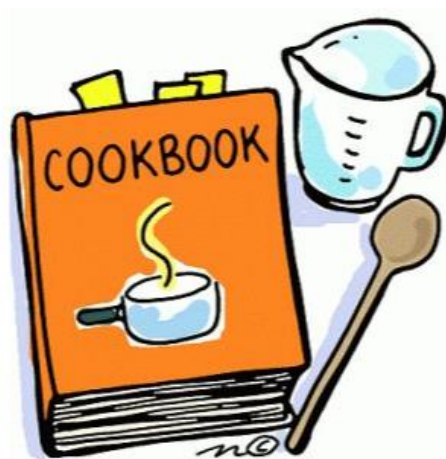
[Search via Cuisine](#)

[Search Using Recipe Name](#)

[Search Using Multiple Ingredient Input](#)

[Search Using Single Ingredient](#)

[Exit Program](#)



Once the user clicks 'Search via cuisine', the following macro is executed:

OpenReport

Report Name List of Symptoms

View Report

Filter Name

Where Condition

Window Mode Normal

CloseWindow

Object Type Form

Object Name Home Screen

Save Prompt

This macro first opens the 'List of Symptoms' report and then closes the Home Screen form. Thus, once the user clicks the 'Search by Symptoms' button the report opens up:

Country	Continent	Recipe Names
Pakistani	South Asia	Chicken Chatni Masala, Chicken White Karhai
Italian	Europe	Creamy Cajun Chicken Pasta
French	Europe	
Japanese	Asia	
American	North America	Fried Drumsticks, Fried Cheese Sandwiches, Dijon Garlic Salmon

Return to Main Menu

Open Complete Recipe Information

GEORGIAN CUISINE SHASHLIK

CHINESE CUISINE NOODLES

JAPANESE CUISINE SUSHI

Another embedded macro is the 'Print Recipe' macro.

Search Result

Recipe Name	Fried Drumsticks	Ingredient 3	Chicken
Ingredient 1	Wheat	Ingredient 4	Garlic
Ingredient 2	Egg	Ingredient 5	N/A

The 'print report' button enables the print function through this macro:

```
RunMenuCommand
Command PrintObject
```

Another macro function is the 'Close Database'. This closes the database. This can only be performed from the Home Screen form:

Digital Cookbook Database



Figure 14-the following macro is executed when the user presses 'Exit Program'

Authentic Data Representation on Forms and Reports through Linking Tables and Queries as Sources

All forms and reports that allow the user to view from tables and queries, use these tables and queries as their data sources. The data sources have been used in three ways. One; data is viewed from a table in form of a report. Two; a data source is used, is as the search result of a query being displayed on a report.

In this database, one way that data types are used, is as a list of viewable records in form of a report. Various lists in this database use this type of data representation, where particular records from a source table are displayed in form a report e.g. the 'List_of_Recipes' displays the 'Recipe ID' and the 'Recipe Name' as such:

List of Recipes

Recipe ID	Recipe Name	Return to Main Menu	Open Complete Recipe Information
1	Fried Drumsticks		
2	Fried Cheese Sandwiches		
3	Chicken Chatni Masala		
4	Chicken White Karhai		
5	Dijon Garlic Salmon		
6	Creamy Cajun Chicken Pasta		



All the records are listed in chronological order for the fields that were imported from the 'Recipes_Methodology' table as shown in Data section of the report properties:

Format	Data	Event	Other	All
Record Source	Recipes_Methodology			
Filter				
Filter On Load	No			
Order By				
Order By On Load	Yes			
Allow Filters	Yes			

Figure 15 - The records displayed are imported from the 'Recipe_Methodology' table

Another way data is used in this database, is by the representation of query results in form of reports. Similar to representation of fields and their data from tables, information from query search results are also displayed in form of reports within this database. These reports use the data from the query search results as source for the report. The difference between data retrieved from a table and data retrieved from a query, is that the query report only outputs selected records whereas a table report outputs all records in the table. When data is retrieved from a table, it looks like the following:

Recipe Information

Recipe Name	Fried Drumsticks	Cooking Time	30 mins
Ingredient 1	Chicken	Prep Time	10 mins
Ingredient 2	Wheat	Number of Serves	6
Ingredient 3	Garlic		
Ingredient 4	Egg		
Ingredient 5	N/A		
Procedure	1.Put together all ingredients in a bowl and marinade for 2 hours. 2.Heat oil and deep fry for 15 minutes or until tender. 3.Serve with ketchup.		

[Return to Main Menu](#) [Search Again](#) [Print Recipe](#)

Figure 16 - This report was generated when the user input the Recipe Name in the user prompt

Format	Data	Event	Other	All
Record Source	Recipe_Information_Query			
Filter				
Filter On Load	No			
Order By				
Order By On Load	Yes			
Allow Filters	Yes			

Figure 17 - The record source for this report is the 'Recipe_Information_Query' as shown in the Data section of the report properties

Word Count: 1102 (excluding headings, captions and screenshots)