The Cookie Database Project

By Daniel Carpenter

General Overview

This project is used to create a database for storing the orders that are received by the home cookie business run by Megan Carpenter, found at https://megscookies.my.canva.site/. The app is designed to help with analyzing the quantity of which each cookie and mixin are ordered to facilitate the assessment of whether extra funds should be allocated towards buying supplies for them in bulk.

The Back

This application runs entirely upon a local database to reduce hardware requirements. It uses the well documented structure of Window Forms as its basis along with the .NET framework. The entirety of the project was written in SQL and C# inside of Visual Studio 2022.

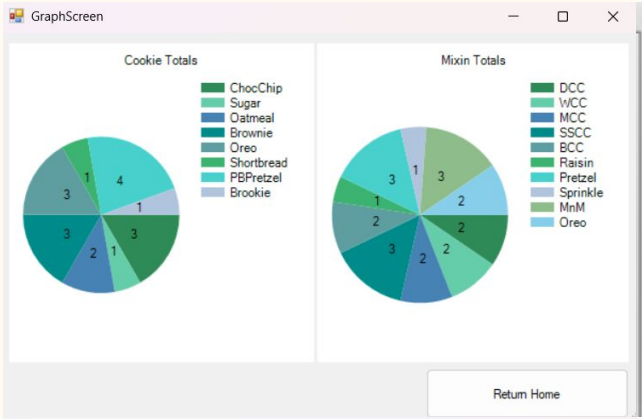
The structure of this application is three layered. The top layer is the GUI portion, where the gathering of user input and data is connected to display pieces. The middle layer is the data retrieval layer, handling pull and push requests to the database from the GUI layer. This prevents the GUI from directly interacting with the database level, where the information is all stored as the final level.

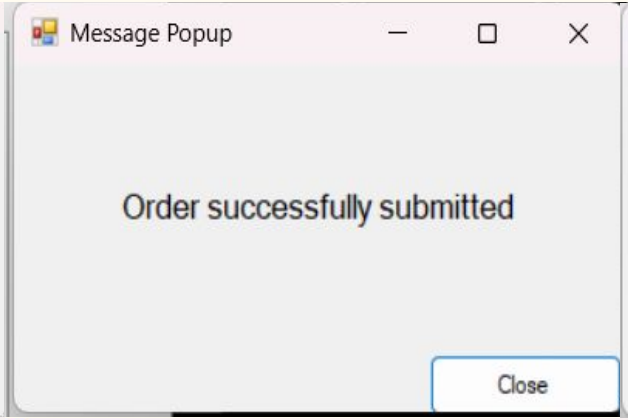
The Interface

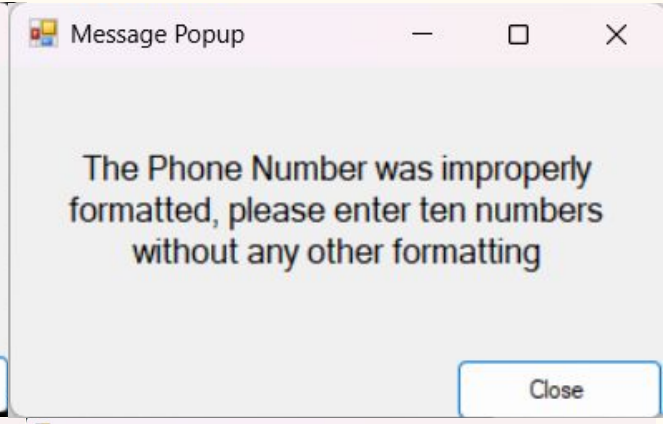
The application functions using a total of five screens:

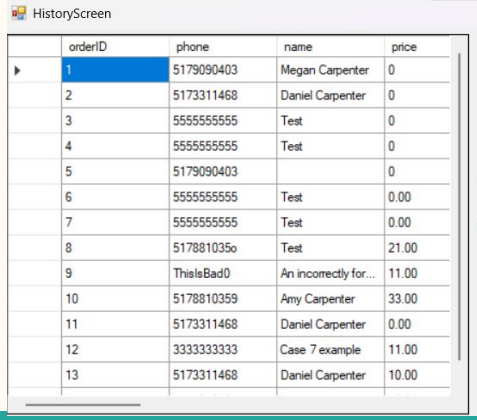
- The Home Screen: used to navigate to three other screens.
- The History Screen: used to present the orders gathered from the database.
- The Graph Screen: used to display two pie graphs that show the cookie types and mixin types broken down into their respective portions
- The New Order Screen: used to enter the new information for a new order for the database.
- The Message Screen: a simple screen for displaying a message that is utilized by other screens.

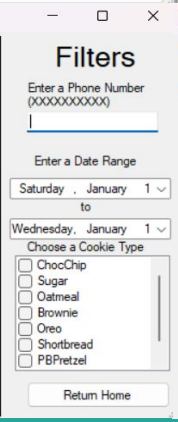
The Forms

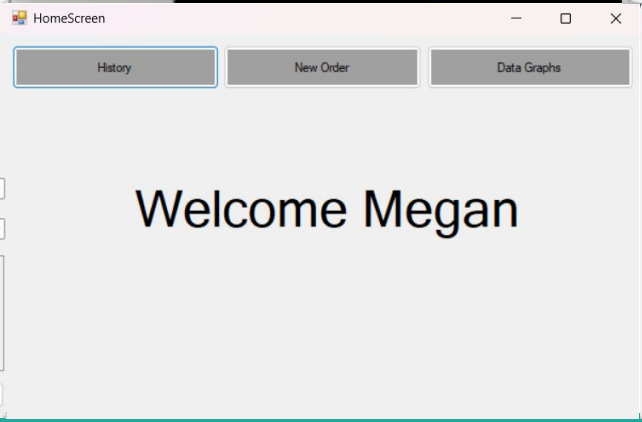

GraphScreen
Cookie Totals
ChocChip
Sugar
Oatmeal
Brownie
Oreo
Shortbread
PBPretzel
Brookie
Mixin Totals
DCC
WCC
MCC
SSCC
BCC
Raisin
Pretzel
Sprinkle
MnM
Oreo
Return Home

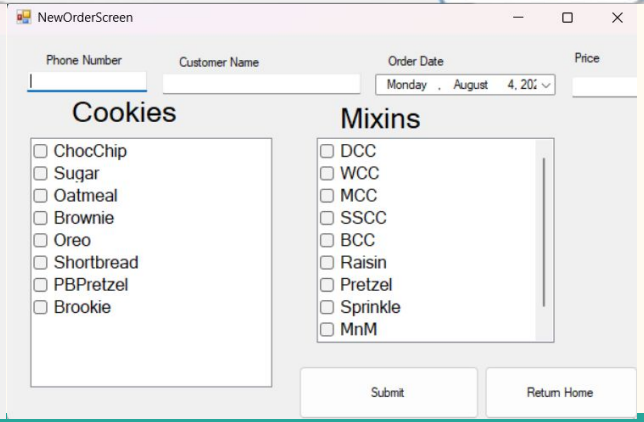

Message Popup
Order successfully submitted
Close


Message Popup
The Phone Number was improperly formatted, please enter ten numbers without any other formatting
Close


HistoryScreen
orderID
phone
name
price
1 5179090403 Megan Carpenter 0
2 5173311468 Daniel Carpenter 0
3 5555555555 Test 0
4 5555555555 Test 0
5 5179090403 0
6 5555555555 Test 0.00
7 5555555555 Test 0.00
8 517881035o Test 21.00
9 ThisIsBad0 An incorrectly for... 11.00
10 5178810359 Amy Carpenter 33.00
11 5173311468 Daniel Carpenter 0.00
12 3333333333 Case 7 example 11.00
13 5173311468 Daniel Carpenter 10.00


Filters
Enter a Phone Number (XXXXXXXXXX)
Enter a Date Range
Saturday , January 1
to
Wednesday, January 1
Choose a Cookie Type
ChocChip
Sugar
Oatmeal
Brownie
Oreo
Shortbread
PBPretzel
Return Home


HomeScreen
History
New Order
Data Graphs
Welcome Megan


NewOrderScreen
Phone Number
Customer Name
Order Date
Monday , August 4, 20
Price
Cookies
ChocChip
Sugar
Oatmeal
Brownie
Oreo
Shortbread
PBPretzel
Brookie
Mixins
DCC
WCC
MCC
SSCC
BCC
Raisin
Pretzel
Sprinkle
MnM
Submit
Return Home

Code Snippets

This simple program provides a string that appends the lists of mixins and cookies to be displayed in the graph in a much more readable format that each cookie and mixin option laid out as a true or false value.

```
public string orderDetails
{
    get
    {
        StringBuilder details = new StringBuilder();
        details.AppendLine("Cookies: " + string.Join(", ", cookies));
        details.AppendLine("Mixins: " + string.Join(", ", mixins));
        return details.ToString();
    }
}
```

```
public static bool AreDigitsOnly(this string text)
{
    if (string.IsNullOrWhiteSpace(text))
        return false;
    string digits = "0123456789";
    foreach (char character in text)
    {
        if (!digits.Contains(character))
            return false;
    }
    return true;
}
```

Because of the length of a phone number, it is too large in most cases for the “TryParse” function that can be used on integers. Instead, I created a function that examines each of the characters of a string to ensure that they are all numerical digits.

Questions for the Audience

Are there any features that should be added in the future? Because of the self contained nature of the forms, adding new forms for additional features should be manageable for future tasks.

After seeing the graphs already designed, are there any other visual tools that could help with easy data analytics? Data analysis can be difficult for those not properly trained for it, so small businesses can greatly benefit from easily understood graphs.

With the display of the forms being designed as such, are there any color or other aesthetic changes that would benefit the design? This should be simple enough to implement, it was simply lower on the priority list than achieving full functionality.

In Conclusion

I’m so grateful I was able to work on this project for an issue that a small company needed solving. I hope that it serves its purpose and that I could work on other such projects in the future for Meg’s Cookies or any other small business.

Thank You!