**MirCheese Business Application**

**Introduction**

Imagine satisfying your appetite for the greasiest fast food with top-tier, gourmet-like quality. MirCheese is a unique grilled cheese eatery, combing high-quality ingredients with the efficiency of fast food. We wanted to create a place where every sandwich would be a masterpiece, crafted from artisanal bread, fresh cheeses, and fillings second to none. The idea behind it is not rocket science: great produce, endless customization, and an experience that feels personal yet efficient.

But to put this into place, we needed a lot more than just the menu; we needed some sort of backbone that would help support the whole operation. That is where this app comes in: an application built as part of the Programming for Business Analytics module, designed to handle everything from order-taking to performance insights. And just purely with data managed by Microsoft Access, a person-friendly Excel frontend, and just VBA sticking it all altogether, this basically is the type of application-you say its central-to all work in MirCheese. Therefore, the applications are much less done but not just streamlines customer interactions into form because key reasons were the core needed to run that business, supplying that invaluable look at sales directions required during or setting sales call times.

**Database**

The backend of the MirCheese application is designed using Microsoft Access to handle data in an organized and efficient manner. It has six key tables:

Bread: Lists the different types of bread along with their prices.

Cheese: Captures all available cheese options with costs.

Fillings: Lists sandwich fillings and associated prices.

Sauces: Tracks variety of sauces.

Order: Manages orders of customers for bread, cheese, fillings, and sauces.

Customers: Stores customer information, such as names and phone numbers.

These tables can seamlessly integrate data and provide the basis for popular products and customer preference-type insights.

**Front-End**

The Excel front-end is designed in such a way that the app is user-friendly and visually intuitive, including:

Order Overview: A dashboard displaying all orders, color-coded by status for clarity: Pending, Shipped, Delivered.

Summary Sales: A pivoted table output representing total sales by bread-type for easy referencing of some fundamental measures from business metrics.

Order Form: User-friendly form to add new orders with dropdown menus and validation. The form action is connected to VBA for updating instantly in the database.

Top Customers: A table showing the most orders placed by a certain customer for recognizing loyal customers and adding on loyalty programs in the future to the app.

**VBA Middleware**

VBA is the glue between the database and the front-end. There are three main subroutines:

Import/Refresh: Retrieves the list of orders out of Access for review in Excel and provides detailed order details.

**Set rs = conn.Execute("SELECT \* FROM Orders")**

**ws.Range("A2").CopyFromRecordset rs**

This snippet connects to the database, fetches the records, and pastes them into the Excel worksheet starting from cell A2.

Submit Order: This process handles new orders set in Excel to be inserted into the database at once.

**sql = "INSERT INTO Orders (CustomerID, BreadID, CheeseIDs, FillingIDs, SauceIDs, Quantity, OrderDate, Status) " & \_**

**"VALUES (" & Range("B1").Value & ", " & Range("B2").Value & ", '" & Range("B3").Value & "', '" & Range("B4").Value & "', '" & Range("B5").Value & "', " & Range("B6").Value & ", #" & Range("B7").Value & "#, '" & Range("B8").Value & "')"**

**conn.Execute sql**

This snippet dynamically constructs an SQL query from user inputs and executes it to add the order to the database.

Fetch Details: This retrieves the customer information by ID for easy order creation.

**sql = "SELECT Name, Phone FROM Customers WHERE CustomerID = " & Range("B1").Value**

**Set rs = conn.Execute(sql)**

**If Not rs.EOF Then**

**Range("B9").Value = rs!Name**

**Range("B10").Value = rs!Phone**

**End If**

This snippet queries the database for matching customer data and populates the relevant cells in Excel.

These subroutines ensure real-time updates and efficient data flow between Excel and Access, making the application robust and responsive.

**Conclusion**

Among various scalable and practical applications, the MirCheese application will be in place for small-scale restaurants. This proof of concept can further be extended to a real-world scenario by: Integrating payment gateways, adding real-time inventory tracking, automating notifications to customers via email or SMS.

This project has successfully married database management with business analytics and user-friendly interface design, laying a very strong foundation for further development.

GitHub: <https://github.com/mirroshanali67/MirCheese>