```
import tkinter as tk
from tkinter import ttk, messagebox
import mysql.connector
from tabulate import tabulate

def connect_db():
    return mysql.connector.connect(
        host="localhost",
        user="root",
        password="soniya2193",
        database="RetailBanking"
    )

def populate_database():
    db = connect_db()
    cursor = db.cursor()

    cursor.execute("""
    INSERT INTO Customers (CustomerID, Name, Email, Address, PhoneNumber, DateOfBirth,
AccountStatus)
    VALUES
    (1, 'Alice Johnson', 'alice@example.com', '123 Main St', '123-456-7890',
'1985-05-20', 'Active'),
    (2, 'Bob Smith', 'bob@example.com', '456 Oak St', '123-555-7890', '1990-11-15',
'Active'),
    (3, 'Charlie Brown', 'charlie@example.com', '789 Pine St', '123-777-8888',
'1988-09-25', 'Inactive'),
    (4, 'Daisy Carter', 'daisy@example.com', '321 Birch St', '987-654-3210',
'1995-07-30', 'Active')
    ON DUPLICATE KEY UPDATE Name=Name;
    """)

    cursor.execute("""
    INSERT INTO Accounts (AccountID, CustomerID, AccountType, Balance, CreatedDate,
Status)
    VALUES
    (101, 1, 'Savings', 5000.00, '2023-01-01', 'Open'),
    (102, 2, 'Checking', 3000.00, '2023-02-10', 'Open'),
    (103, 3, 'Savings', 8000.00, '2023-03-05', 'Closed'),
    (104, 4, 'Checking', 2500.00, '2023-04-15', 'Open')
    ON DUPLICATE KEY UPDATE AccountType=AccountType;
    """)
```

```
    db.commit()
    cursor.close()
    db.close()
    messagebox.showinfo("Success", "Database populated with sample data!")

# Function to execute queries
def execute_query(query, headers, text_box):
    db = connect_db()
    cursor = db.cursor()
    cursor.execute(query)
    results = cursor.fetchall()

    output = tabulate(results, headers=headers, tablefmt="grid")
    text_box.delete("1.0", tk.END)
    text_box.insert(tk.END, output)

    db.close()

# Creating the GUI
def create_gui():
    root = tk.Tk()
    root.title("RetailBanking Database GUI")
    root.geometry("900x700")
    root.config(bg="#D3EAF5")

    # Add a frame to contain the buttons and other widgets
    frame = tk.Frame(root, bg="#D3EAF5")
    frame.pack(pady=20, padx=20, fill=tk.X)

    # Button to populate the database
    ttk.Button(frame, text="Populate Database", command=populate_database).grid(row=0,
column=0, padx=10, pady=10)

    # Text box to display query results with larger size and white background
    text_box = tk.Text(root, height=30, width=120, bg="white", fg="black",
font=("Courier", 12))
    text_box.pack(pady=20, padx=20)

    # Function for showing customers
    def show_customers():
        query = "SELECT * FROM Customers;"
```

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        headers = ["CustomerID", "Name", "Email", "Address", "PhoneNumber",
"DateOfBirth", "AccountStatus"]
        execute_query(query, headers, text_box)

    # Button to show customers
    ttk.Button(frame, text="View Customers", command=show_customers).grid(row=0,
column=1, padx=10, pady=10)

    # Function for showing accounts
    def show_accounts():
        query = "SELECT * FROM Accounts;"
        headers = ["AccountID", "CustomerID", "AccountType", "Balance", "CreatedDate",
"Status"]
        execute_query(query, headers, text_box)

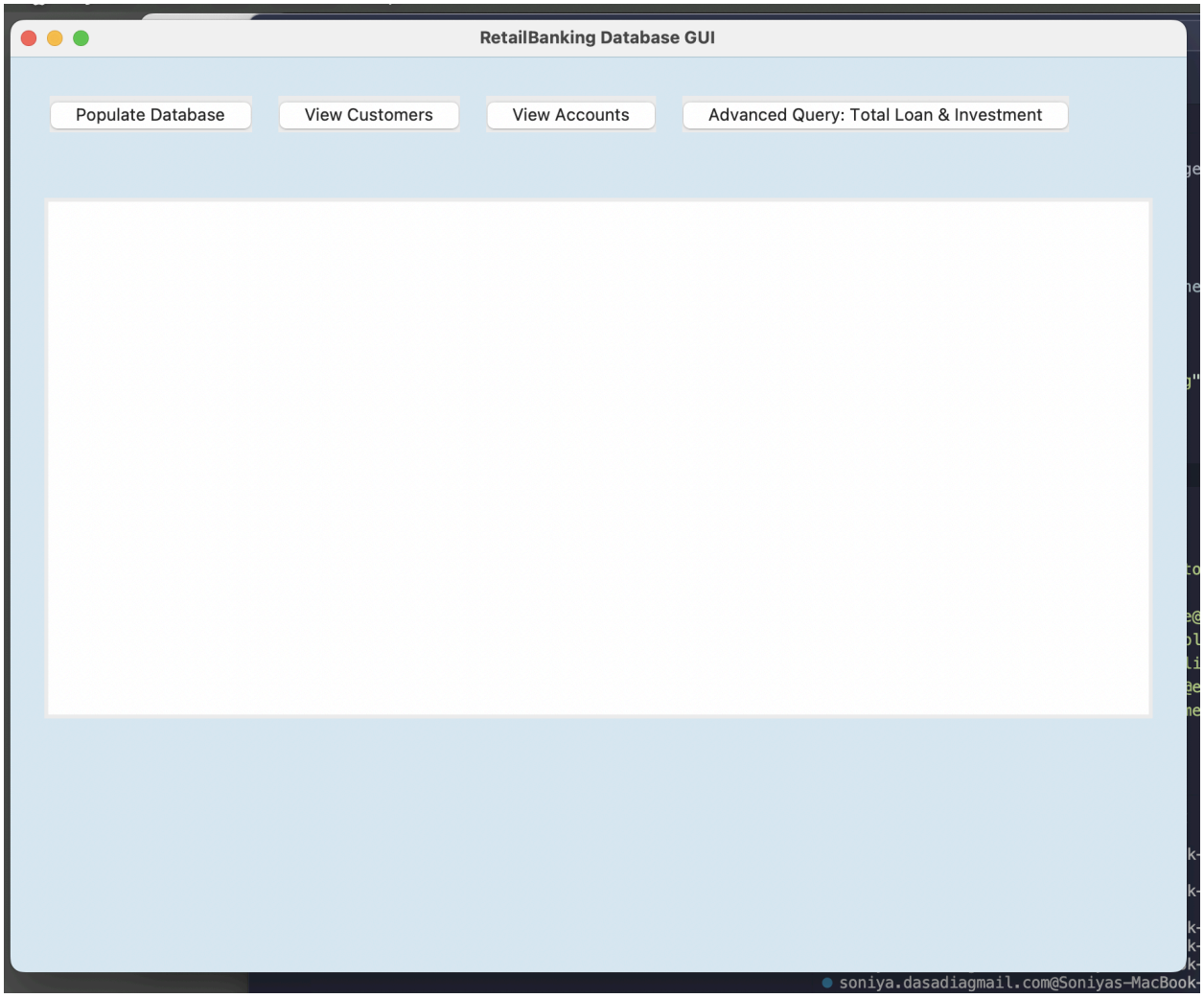
    # Button to show accounts
    ttk.Button(frame, text="View Accounts", command=show_accounts).grid(row=0,
column=2, padx=10, pady=10)

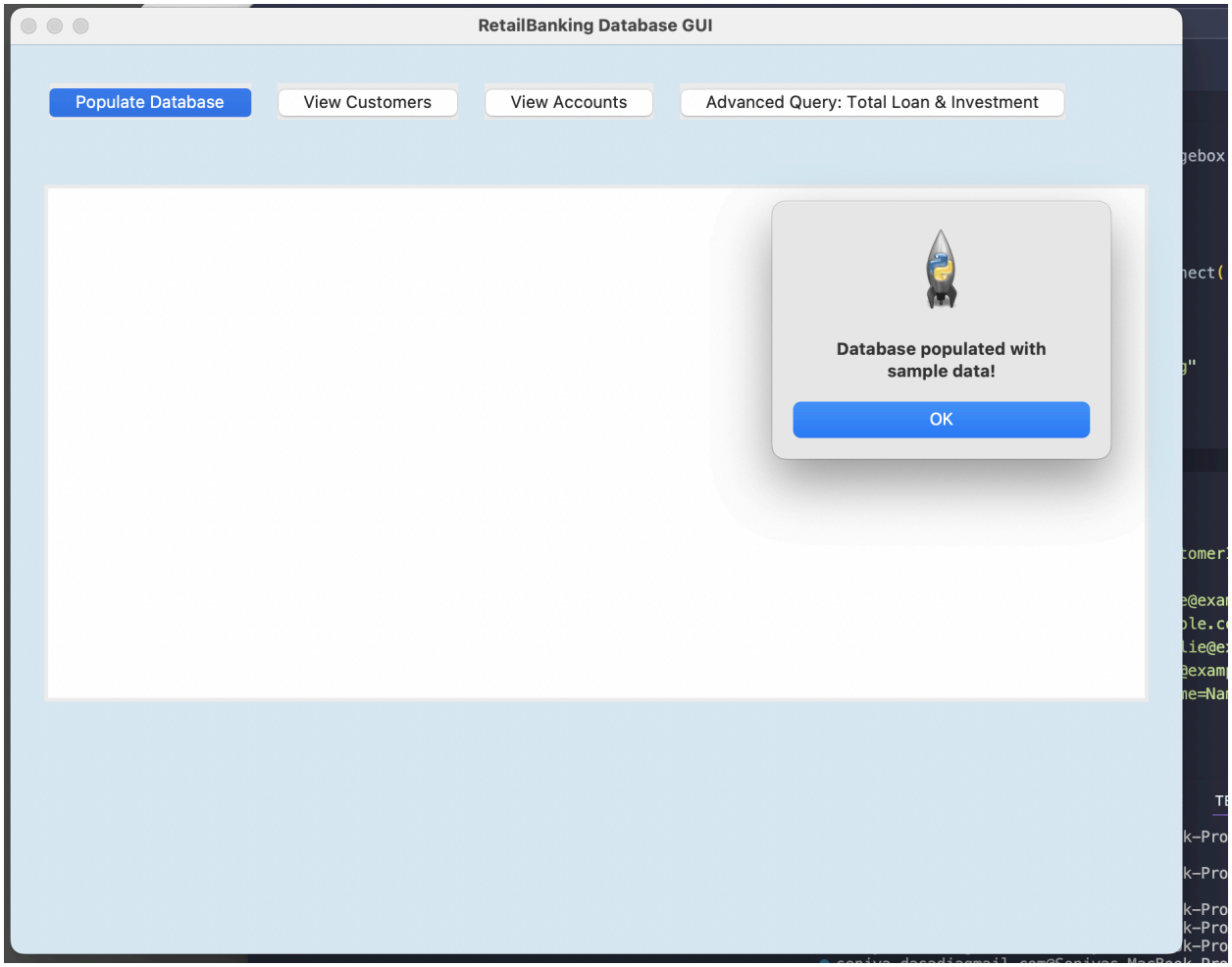
# This query joins the Loans and Investments tables with the Customers table
# It calculates the total loans and investments for each customer by using SUM
    def advanced_queries():
        query = """
        SELECT l.CustomerID, cu.Name,
               SUM(l.Amount) AS TotalLoans,
               SUM(i.Amount) AS TotalInvestments
        FROM Loans l
        JOIN Customers cu ON l.CustomerID = cu.CustomerID
        LEFT JOIN Investments i ON l.CustomerID = i.CustomerID
        GROUP BY l.CustomerID, cu.Name;
        """
        headers = ["CustomerID", "Name", "TotalLoans", "TotalInvestments"]
        execute_query(query, headers, text_box)

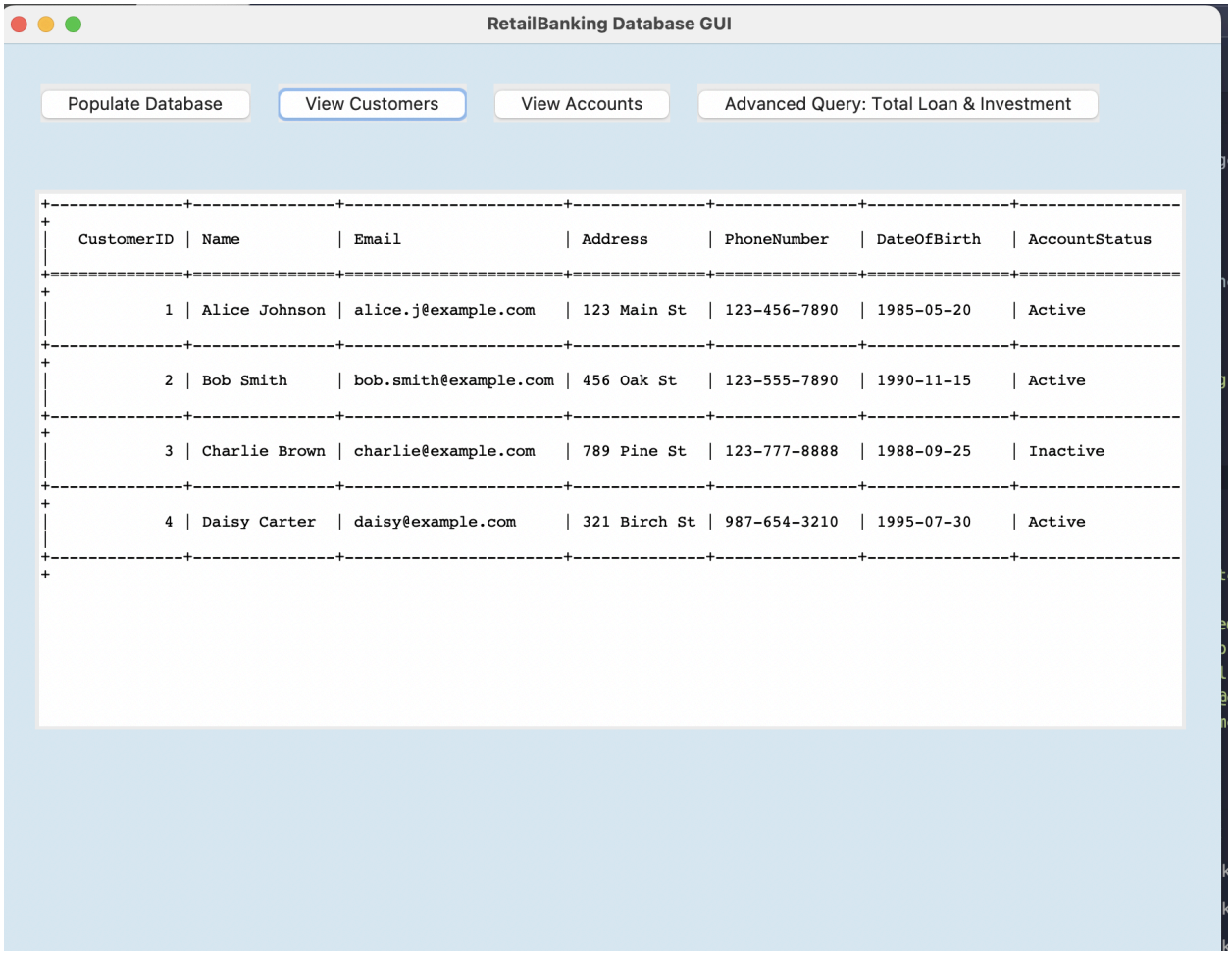
    # Button to execute advanced queries
    ttk.Button(frame, text="Advanced Query: Total Loan & Investment",
command=advanced_queries).grid(row=0, column=3, padx=10, pady=10)

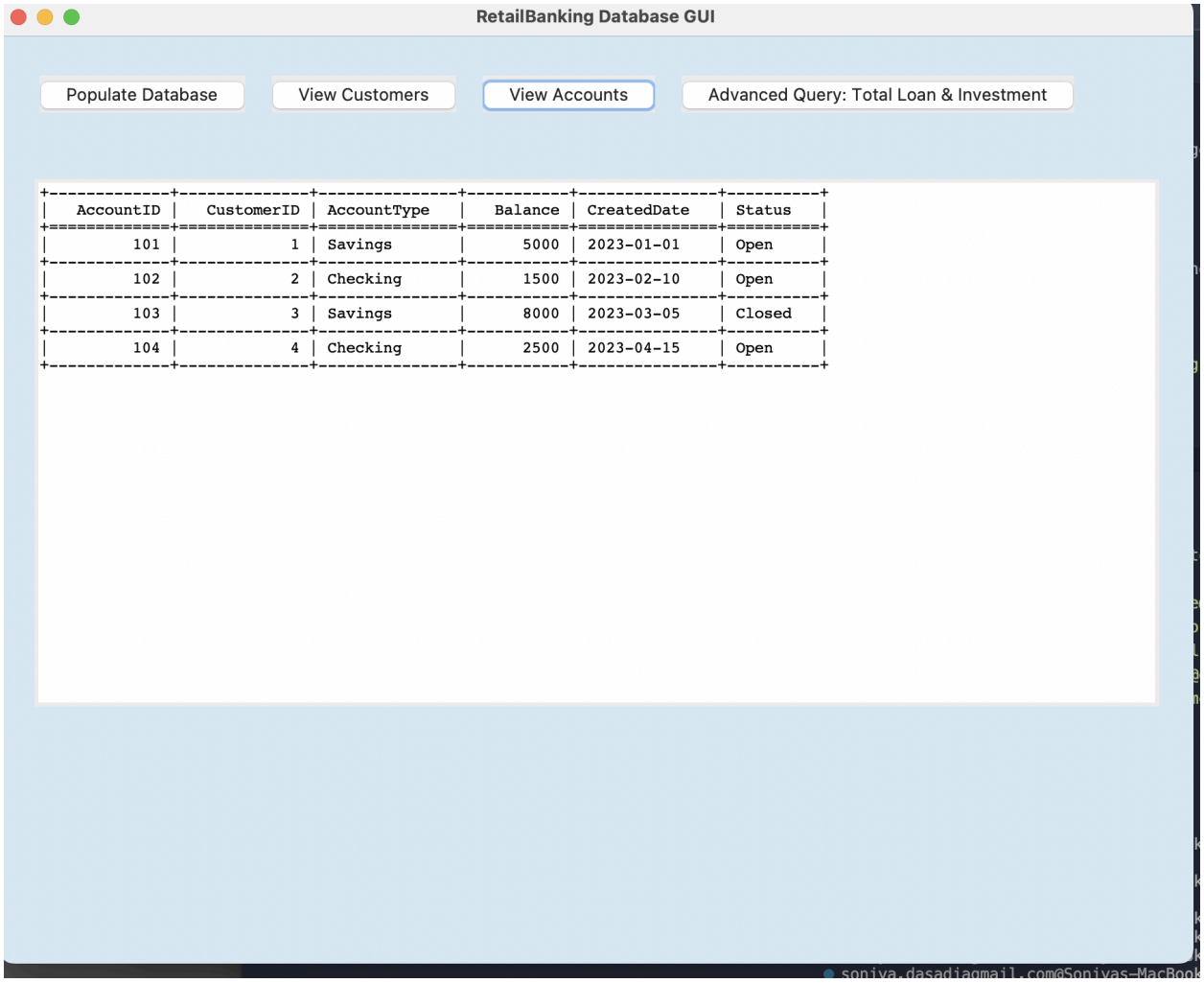
    root.mainloop()

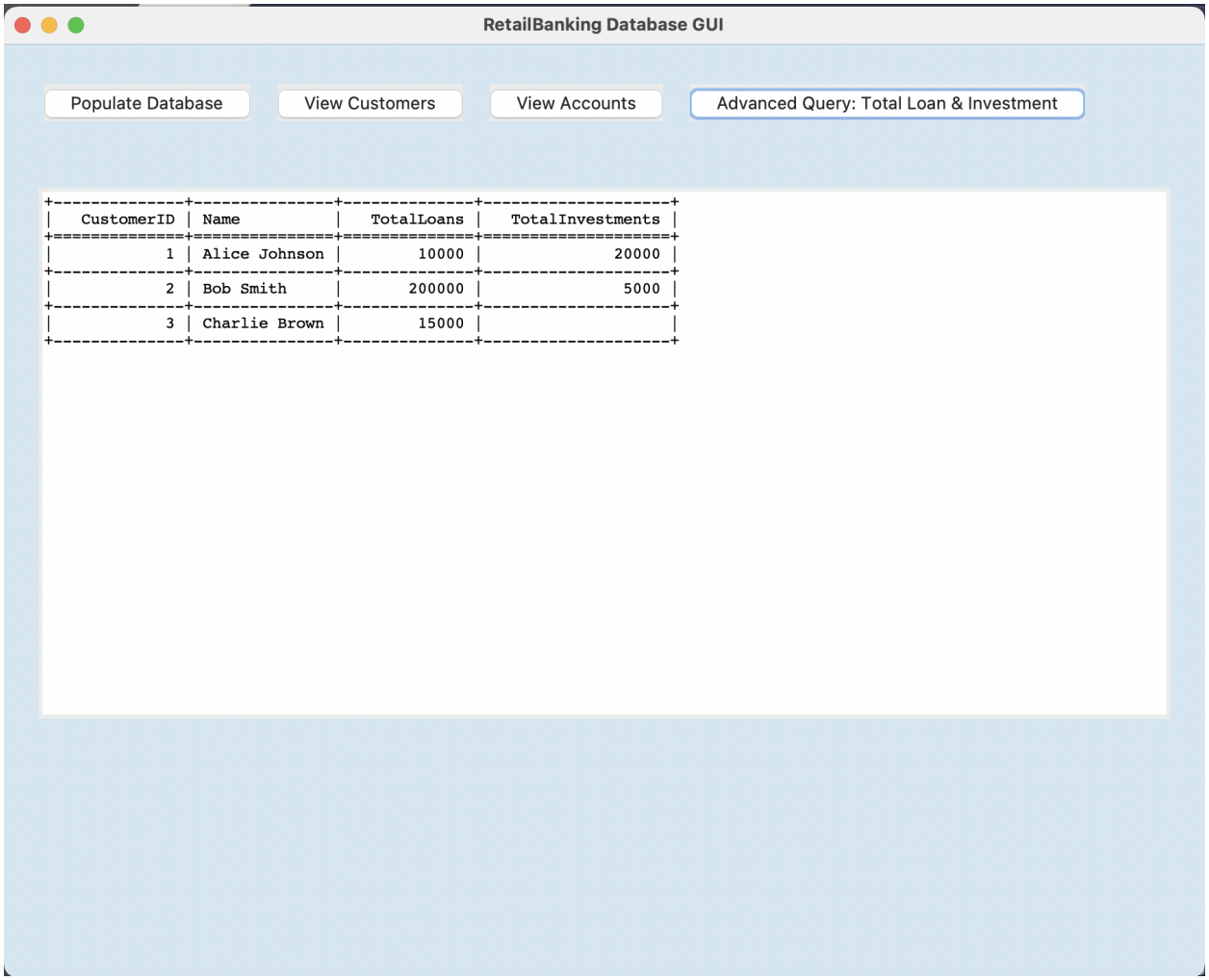
if __name__ == "__main__":
    create_gui()
```


RetailBanking Database GUI
Populate Database
View Customers
View Accounts
Advanced Query: Total Loan & Investment


RetailBanking Database GUI
Populate Database
View Customers
View Accounts
Advanced Query: Total Loan & Investment
Database populated with sample data!
OK


RetailBanking Database GUI
Populate Database
View Customers
View Accounts
Advanced Query: Total Loan & Investment
+--------------+---------------+-----------------------+--------------+---------------+---------------+-----------------+
| CustomerID | Name | Email | Address | PhoneNumber | DateOfBirth | AccountStatus |
+==============+===============+=======================+==============+===============+===============+=================+
| 1 | Alice Johnson | alice.j@example.com | 123 Main St | 123-456-7890 | 1985-05-20 | Active |
+--------------+---------------+-----------------------+--------------+---------------+---------------+-----------------+
| 2 | Bob Smith | bob.smith@example.com | 456 Oak St | 123-555-7890 | 1990-11-15 | Active |
+--------------+---------------+-----------------------+--------------+---------------+---------------+-----------------+
| 3 | Charlie Brown | charlie@example.com | 789 Pine St | 123-777-8888 | 1988-09-25 | Inactive |
+--------------+---------------+-----------------------+--------------+---------------+---------------+-----------------+
| 4 | Daisy Carter | daisy@example.com | 321 Birch St | 987-654-3210 | 1995-07-30 | Active |
+--------------+---------------+-----------------------+--------------+---------------+---------------+-----------------+


RetailBanking Database GUI
Populate Database
View Customers
View Accounts
Advanced Query: Total Loan & Investment
AccountID	CustomerID	AccountType	Balance	CreatedDate	Status
101	1	Savings	5000	2023-01-01	Open
102	2	Checking	1500	2023-02-10	Open
103	3	Savings	8000	2023-03-05	Closed
104	4	Checking	2500	2023-04-15	Open


RetailBanking Database GUI
Populate Database
View Customers
View Accounts
Advanced Query: Total Loan & Investment
+--------------+---------------+--------------+--------------------+
| CustomerID | Name | TotalLoans | TotalInvestments |
+==============+===============+==============+====================+
| 1 | Alice Johnson | 10000 | 20000 |
+--------------+---------------+--------------+--------------------+
| 2 | Bob Smith | 200000 | 5000 |
+--------------+---------------+--------------+--------------------+
| 3 | Charlie Brown | 15000 | |
+--------------+---------------+--------------+--------------------+