Invoice System Project Documentation

Overview

The system is comprised of three webpages each handling a separate different table. Each page is capable of creating new table entries, updating existing entries, and deleting entries.

- **Invoice Management:** Create, view, update, and delete invoices.

- **Invoice Item Management:** Manage invoice items that reference a master Items table.

- **Customer Management:** Add, update, and delete customer records.

- **UI:** User interface using a Master Page with Bootstrap.

Prerequisites

- **Development Environment:** Visual Studio 2019 or later.

- **Framework:** .NET Framework 4.7.2 (or later recommended).

- **Database:** SQL Server Express or full SQL Server.

- **Tools:** SQL Server Management Studio (SSMS) for database scripts.

Database Schema

Tables

- **Customers:**

  - CustomerID (INT, PK, IDENTITY)

  - Name (NVARCHAR(100))

  - Address (NVARCHAR(255))

  - ContactInfo (NVARCHAR(100))

- **Invoices:**

  - InvoiceID (INT, PK, IDENTITY)

  - CustomerID (INT, FK to Customers)

  - InvoiceDate (DATETIME)

  - TotalAmount (DECIMAL(18,2))

- **Items:**

- o ItemID (INT, PK, IDENTITY)

- o Name (NVARCHAR(255))

- o UnitPrice (DECIMAL(18,2))

- **InvoiceItems:**

  - o InvoiceItemID (INT, PK, IDENTITY)

  - o InvoiceID (INT, FK to Invoices)

  - o ItemID (INT, FK to Items)

  - o Quantity (INT)

Note: Cascade deletes are enabled on child records.

Stored Procedures

Below are the names of stored procedures:

Invoice Stored Procedures

- spGetAllInvoices

- spGetInvoiceById

- spAddInvoice

- spUpdateInvoice

- spDeleteInvoice

InvoiceItems Stored Procedures

- spGetInvoiceItems

- spAddInvoiceItem

- spUpdateInvoiceItem

- spDeleteInvoiceItem

Customer Stored Procedures

- spGetAllCustomers

- spGetCustomerById

- spAddCustomer

- spUpdateCustomer

- spDeleteCustomer

Items Stored Procedures

- spGetAllItems

UI and Code-Behind

- **Default.aspx:**
  - Lists all invoices in a GridView using an SQLDataSource.
  - Allows for the editing of invoices using the GridView's editing functionality
  - Allows deletion of Invoices
  - A calendar field is used for changing InvoiceDates, accessible when editing the gridview
- **Customers.aspx:** Enables managing customers with add, update, and delete functionality similar to the InvoiceItems screen.
- **InvoiceItems.aspx:** Provides an interface to add, update, and delete invoice items for a selected invoice.
  - The items field of the InvoiceItem table is altered using a dropdown similar to the CustomerID field on the default page

---

Troubleshooting & Future Enhancements

- **Troubleshooting:**
  - Ensure the database and stored procedures exist before running the application.
  - Check connection string settings ensuring connection string in Web.config file is correct.
  - Verify the cascade delete settings or manually delete child records if foreign key conflicts occur.
- **Future Enhancements:**
  - A search feature allowing for filtering by customer or item name and ID
  - Improve error handling and logging.
  - Integrate ASP.NET Identity for user and role management.
  - Enhance UI and add client-side validation.

- Separate layers for security using some kind of entity management framework, creating a business layer and data layer.