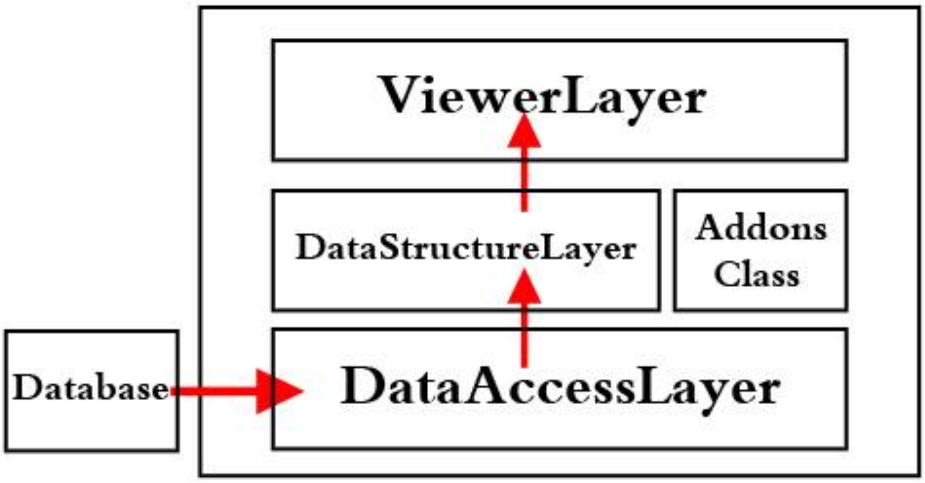
# Library MyLibrary

**Quick Overview:**

- This library has been created to work on data at a certain data base contains two tables **Books** and **Journals**.
- This library has been created based on Layered Programming concept; based on three classes hierarchy **DataAccessLayer**, **DataStructureLayer**, and **ViewerLayer**.
- **The DataAccessLayer** is responsible for accessing the data on certain database.
- **The DateStructureLayer** is responsible for getting the data from **DataAccessLayer** and make needed processing on it and send it to the **ViewerLayer**.
- **The ViewerLayer** is an any way to view data to the end-user such as Windows Forms GUIs or DOS or any other graphics methods.



**Feature**

- Less errors
- Easy for development and add features
- Data isolation

| Classes Summary |
|---|
| DataAccessLayer class |
| DataStructureLayer class |
| Books class |
| Journals class |
| Addons class |

Note: **Addons class** is a container that has a certain functions for a public processing like file checking or version checks.

# Class DataAccessLayer

Public abstract class **DataAccessLayer**

**This class contains the basic elements and function for each structure to deal directly with the database.**

## Field Summary

| | |
|---|---|
| | `Cn`<br>refers to the current connection stream to the database |
| | `command`<br>refers to the current OleDB command that deals with stream of data |
| | `Adapter`<br>refers to the current OleDB Adapter that deals with stream of data |
| | `Reader`<br>refers to the current OleDB Reader that deals with stream of data |

## Constructor Summary

`public DataAccessLayer(string _connectionString)`

Default constructor. Initializes all connections and components with the database.

## Destructor Summary

`~DataAccessLayer()`

## Method Summary

| | |
|---|---|
| `System.Data.DataSet` | `GetDataSet(string cmd)`<br>Returns a specific DataSet for a certain command. |
| `System.Data.DataSet` | `GetDataSet(string cmd,OleDbParameter[] parameters)`<br>Returns a specific DataSet for a certain command specified with its parameters. |
| `System.Data.OleDb.OleDbReader` | `GetReader(string cmd)`<br>Returns a specific data-reader stream for a certain command |
| `System.Data.OleDb.OleDbReader` | `GetReader(string cmd,OleDbParameter[]parameters)`<br>Returns a specific data-reader stream for a certain command with its parameters. |
| `void` | `RunDML(string cmd)`<br>Executes a certain command of insert, update, delete, select on the database side. |
| | `RunDML(string cmd,OleDbParameter [] parameters)`<br>Executes a certain command of insert, update, delete, select (with a specified parameters) on the database side. |

# Class DataStructureLayer

Public class **DataStructureLayer**
**inherts DataAccessLayer**

**This class containing the DataStrucrtures to deal with; books, and journals.**

## Constructor Summary

`public DataStructureLayer(string connectionString)`

Default constructor. Initializes all connections and components with the database by calling the base constructor of the DataAccessLayer

## Method Summary

| | |
|---|---|
| `void` | `ErrorLog(string ErrMsg, string objName, string FormName, DateTime ErrTime)`<br>Creates an error log `"c:\\ErrLogs.txt"` with a specified error message. |

# This class contains

1. **Books class that deals with books in the LibraryAssistant.**

2. **Journals class that deals with books in the LibraryAssistant.**

# Class Books

Public class **Books**

**Inherits DataStructureLayer**

## Field Summary

| | |
|---|---|
| | bTitle<br>Storing a certain book title. |
| | bAutor<br>Storing a certain book author. |
| | bSubject<br>Storing a certain book subject. |
| | bISBN<br>Storing a certain book ISBN. |
| | bAccNo<br>Storing a certain book accession number. |
| | bClassNo<br>Storing a certain book classification number. |
| | bPublicher<br>Storing the publisher name |
| | pPlaceOfPub<br>Storing the place of publication of a certain book. |
| | BDateOfPub<br>Storing a date for a book. |

## Constructor Summary

```
Public Books(string connectionString)
```

Default Constructor. Initializes all connections and components.

## Enumerations

```
public enum bSearch
```

stores a list of topics to searchBy; By book title (bTilte), author name (bAuthor),book subject (bSubject), book ISBN (bISBN), book accession number (bAccNo), book classification number bClassNo, book publisher name (bPublisher), book place of publication (bPlaceofPub), and finaly by date of publiction (bDateOfPub)

## Method Summary

| | |
|---|---|
| `int` | `AddNewBook()`<br>Add a new book to the books table in the database with a specified data.<br>Returns affected rows. -1 if operation failed. |
| `int` | `ModifyBook()`<br>Modifies certain book in the database with a specified data with its ISBN number.<br>Returns affected rows. -1 if operation failed. |
| `int` | `DeleteBook()`<br>Deletes certain book from the database  with its ISBN number.<br>Returns affected rows. -1 if operation failed. |
| `System.Data.DataTable` | `BSearch(string txtbFind,bSearch findBy)`<br>Searching with a user-specified field. Returns DataTable. |

# Class Journals

Public class **Journals**
**Inherits DataStructureLayer**

## Field Summary

| | |
|---|---|
| | jTitle<br>Storing a certain journal title. |
| | jSubject<br>Storing a certain journal subject. |
| | jISSN<br>Storing a certain journal ISSN. |
| | jPublicher<br>Storing the publisher name. |
| | jVolume<br>Storing the volume of a certain book. |
| | jIssue<br>Storing the issue of a journal. |
| | jYear<br>Storing the Year of publication of a certain journal. |

## Constructor Summary

```
public Journals(string connectionString)
```

Default Constructor. Initializes all connections and components.

## Enumerations

```
public enum bSearch
```

stores a list of topics to searchBy; By journal title (jTitle), journal subject (jSubject), journal ISSN (jISSN), journal publisher name (jPublisher), journal year of publication (jYear), journal volume (jVolume), and finally journal issue (jIssue)

| Method Summary | |
|---|---|
| `int` | `AddNewJournal()`<br>Add a new journal to the journal's table in the database with a specified data.<br>Returns affected rows. -1 if operation failed. |
| `int` | `ModifyJournal()`<br>Modifies certain journal in the database with a specified data with its ISSN number.<br>Returns affected rows. -1 if operation failed. |
| `int` | `DeleteJournal()`<br>Deletes certain journal from the database with its ISSN number.<br>Returns affected rows. -1 if operation failed. |
| `System.Data.DataTable` | `JSearch(string txtbFind,bSearch findBy)`<br>Searching with a user-specified field. Returns DataTable. |

# Class Addons

Public static class **DataStructureLayer**

**This class is a container that has a certain functions for a public processing like file checking, data-conversion or version checks.**

| Method Summary | |
|---|---|
| `bool` | `IsFileExist(string path)`<br>Check the existence of a certain file with a certain path. |
| `string[]` | `FromDataTableToArry(DataTable table)`<br>Converts from a certain data to a one-dimensional array. |
| `bool` | `VersionCheck()`<br>Checks the version of our assembly with all possible versions on the registery |