Library Management System

Introduction:

The purpose of this application is to develop a web application that can manage the library system and also employees working in the library. The users can create, update, delete and get library items as well as employees information.
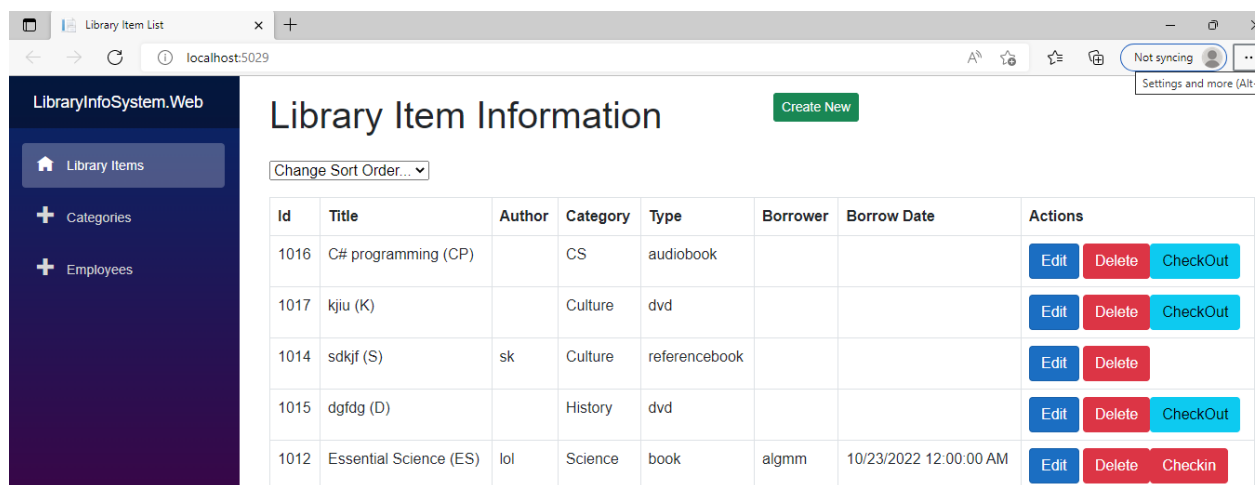
Description:

ASP.Net Web API is used to develop the API for this application. It provided the interface that clients can use to connect to this using the HTTP protocol. The client-side application is developed in Blazor Server that uses the HTTP client to connect to it and then gets the data from the server using this API interface. Entity Framework Core is used for accessing and storing data in the database. SQL Server is used for database management. Dependency injections and async programming is used for the development of this application.

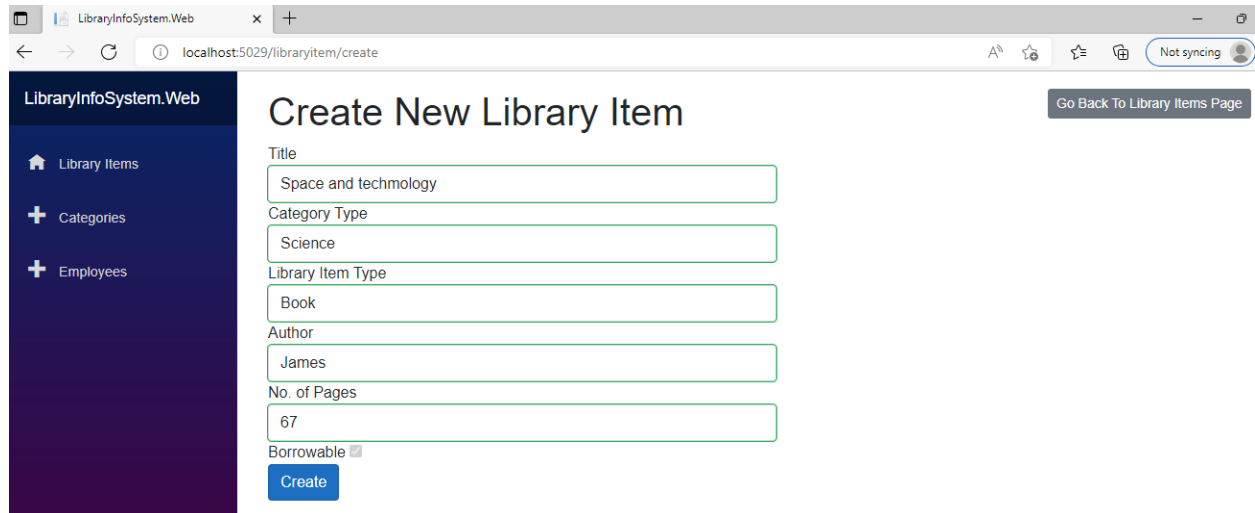## Users' Guide:

List of Library Item:

When the application starts, it displays the list of all the library items that are stored in the database. One the left-hand side of the page is the menu bar, using this menu user can open the different options. The list is sorted by category. The user can also sort by type of the library item. The tile of each library item is decorated with acronym. The user can create, edit, delete, check in and check out the library item. There are 4 different types of library items, book, reference book, DVD and audio book. These items can by checked out by the user except the reference book. If an item is checked out, it will display the borrower's name and date of borrow. When an item is checkout, it can not be checked in. The user can only check out this item. Similarly, if an item is in the library, the user can check out this item.
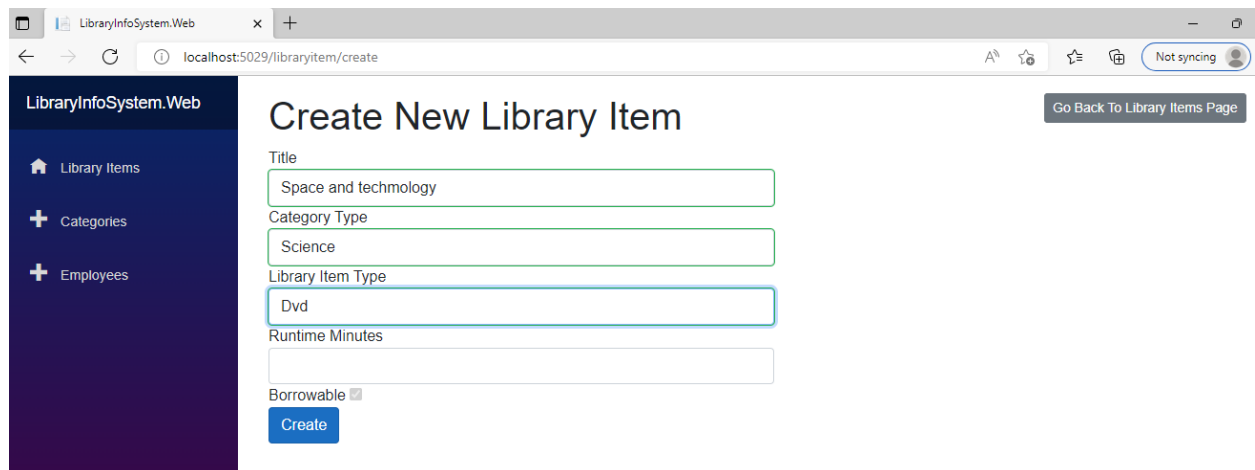
List Item Create page:

When user will click on the create button, the create page will open when user can add a new library item. Depending on the library item type, the user has to fill in the different information. If the type of library item is book and reference book, the user will fill in the title, category type, author and number of pages.

If the type of library item is dvd or audio, the user will fill in the title, category type and run type minutes. This page also contains a button to move to the main page.

If compulosry fields are left blank the application will give errors.

Edit Page:

The edit page is used to edit a library item. It will display the record of the library item to be edited.

Categories Page:

The categories page information about different type of categories. Each library item will belong to a category. The page has button to create a new category, edit and delete a category. The user can not delete a category if it is being referenced by the library item.
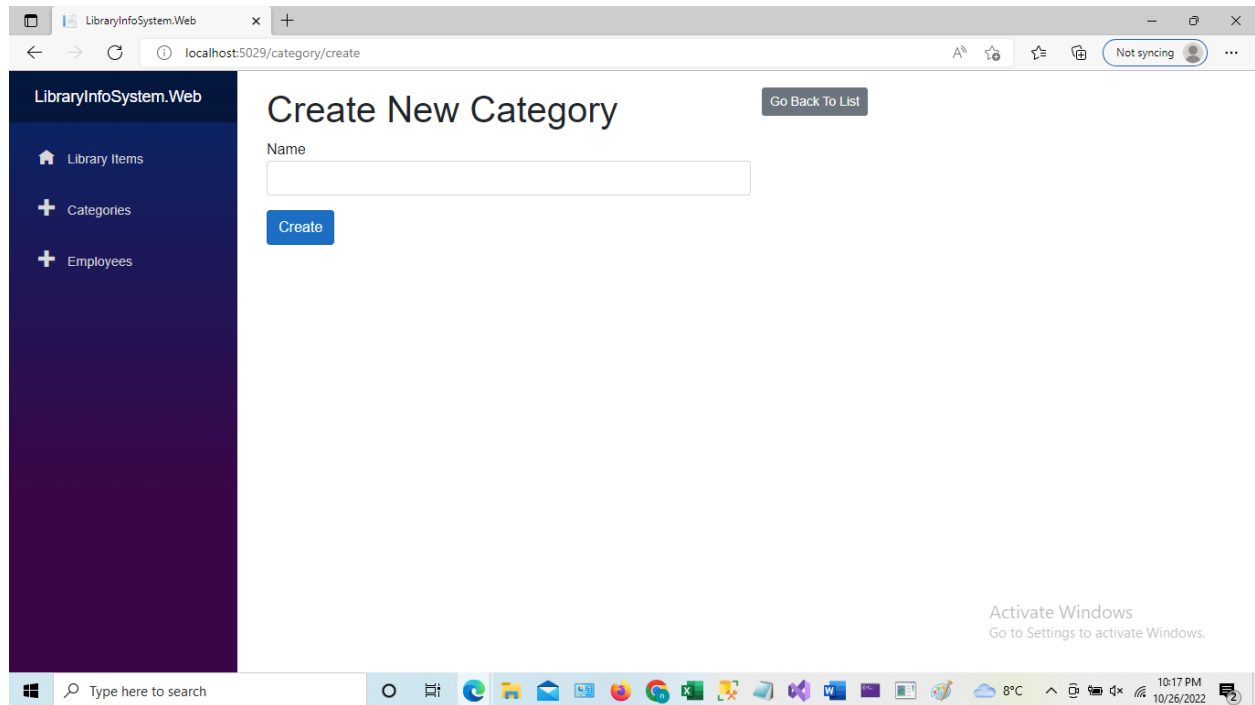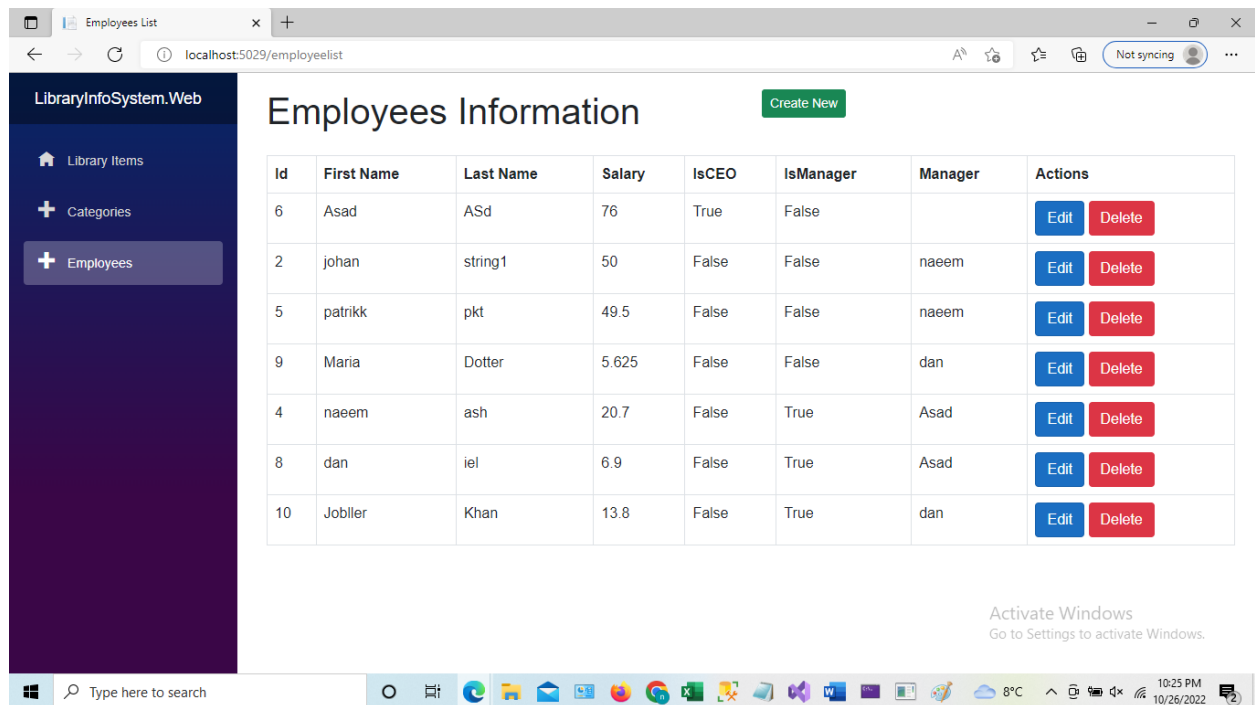

Create New Category:

This page is used to create a new category. The only field to enter is the name of the category. Name of each category must be unique otherwise the system will not store it in the database.

Employees Information Page:

This page contains information about the employee's status like their first name, last name, salary etc. The user can edit, delete and create the new employee using this page. The list is sorted by the category of employees. It is first displaying the CEO, then employees and at the last the managers.

Id	First Name	Last Name	Salary	IsCEO	IsManager	Manager	Actions
6	Asad	ASd	76	True	False		Edit Delete
2	johan	string1	50	False	False	naeem	Edit Delete
5	patrikk	pkt	49.5	False	False	naeem	Edit Delete
9	Maria	Dotter	5.625	False	False	dan	Edit Delete
4	naeem	ash	20.7	False	True	Asad	Edit Delete
8	dan	iel	6.9	False	True	Asad	Edit Delete
10	Jobller	Khan	13.8	False	True	dan	Edit Delete

Create New Employee Page:

This page is used to create a new employee. The application will ask the user to enter the first name, last name, salary scale and employee type. The employee can be CEO, Manager or employee. The application will first ask the user what type of employee he is going to create. If the type of employee is manager, the application will display name of CEO and list of other managers who can manage this manager.

As the employee is managed by any manager so it will display a list of managers to be selected for this employee.

If the type of the employee is CEO, it will do nothing as there can be no manager of the CEO. The application doesn't allow to create a CEO if an CEO already exists in the database.

Delete Employee:

The delete button that is present on the employee information page is used to delete the record of an employee. If type of the employee is manager or CEO and he is managing other managers or employees, it will not allow to delete it.

Test Run:

To run the application, following steps must be done:

```
"AllowedHosts": "*",
  "ConnectionStrings": {
    "LibraryContext":
"Server=localhost;Database=Library;Trusted_Connection=True;MultipleActiveResultSets=true"
 }
```

- Run these entity framework commands for migration
- Add-Migration migration-name
- Update-database
- Seed the data manually in the tables
- In the client application, fix the port in program.cs file on whice server is running
- Make both server and client projects as startup projects(if not).