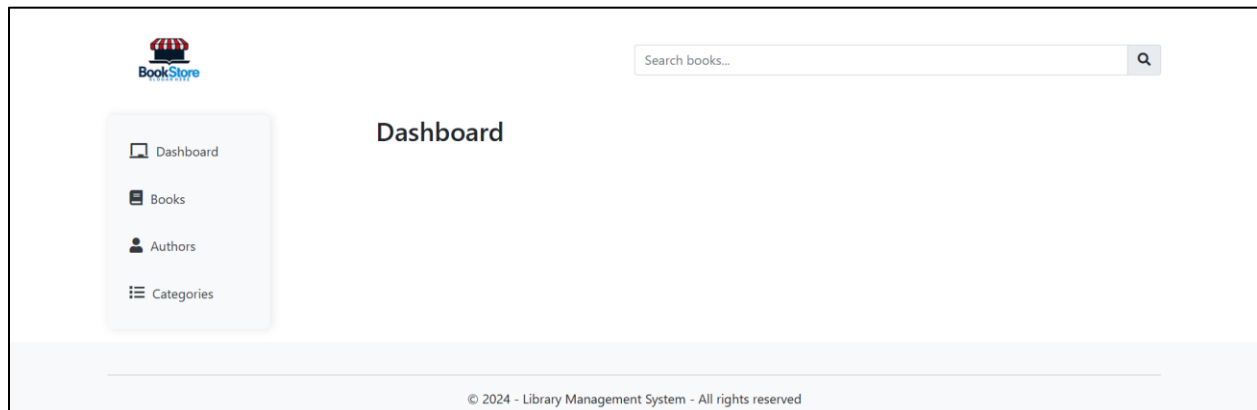


## Exercise 1: Create a admin layout for library management system.



## Exercise 2: Design a database using SQL Server and migrate it to the model in the MVC project with the tables listed below.

```
LibraryDbContext.cs
LibraryManagement
LibraryManagement.Models.Context.LibraryDb
LibraryDbContext(DbContextOptions<LibraryC

1  using Microsoft.EntityFrameworkCore;
2
3  namespace LibraryManagement.Models.Context
4  {
5      7 references
6      public class LibraryDbContext : DbContext
7      {
8          0 references
9          public LibraryDbContext(DbContextOptions<LibraryDbContext> options) : base(options) { }
10
11          0 references
12          public DbSet<User> Users { get; set; }
13
14          0 references
15          public DbSet<Loan> Loans { get; set; }
16
17          1 reference
18          public DbSet<Book> Books { get; set; }
19
20          0 references
21          public DbSet<Author> Authors { get; set; }
22
23          0 references
24          public DbSet<Category> Categories { get; set; }
25
26          1 reference
27          public DbSet<Carousel> Carousels { get; set; }
28      }
29  }
```

Object Explorer

Connect

DESKTOP-B45PQNL (SQL Server 16.0.113)

Databases

System Databases

Database Snapshots

CSE443

Database Diagrams

Tables

System Tables

FileTables

External Tables

Graph Tables

dbo.Authors

dbo.Books

dbo.Carousels

dbo.Categories

dbo.Loans

dbo.Users

Dropped Ledger Tables

Views

External Resources

Synonyms

Programmability

Query Store

Service Broker

Storage

Security

Security

Server Objects

Replication

Always On High Availability

Management

Integration Services Catalogs

SQL Server Agent (Agent XPs disabled)

XEvent Profiler

DESKTOP-B45PQNL...443 - dbo.Authors

Column Name	Data Type	Allow Nulls
AuthorId	int	<input type="checkbox"/>
FirstName	nvarchar(100)	<input checked="" type="checkbox"/>
LastName	nvarchar(100)	<input checked="" type="checkbox"/>
DateOfBirth	datetime	<input checked="" type="checkbox"/>
Biography	nvarchar(MAX)	<input checked="" type="checkbox"/>
Nationality	nvarchar(100)	<input checked="" type="checkbox"/>
Email	nvarchar(100)	<input checked="" type="checkbox"/>
Website	nvarchar(100)	<input checked="" type="checkbox"/>
CreatedDate	datetime	<input checked="" type="checkbox"/>
IsActive	bit	<input checked="" type="checkbox"/>
Avatar	nvarchar(MAX)	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

Column Properties

(General)

(Name)AuthorId

Allow NullsNo

Data Typeint

Default Value or Binding

Table Designer

(General)

```
Author.cs
LibraryManagement
1 using System;
2 using System.ComponentModel.DataAnnotations;
3
4 namespace LibraryManagement.Models
5 {
6     public class Author
7     {
8         [Key]
9         public int AuthorId { get; set; }
10
11         [Required, StringLength(100)]
12         public string FirstName { get; set; }
13
14         [Required, StringLength(100)]
15         public string LastName { get; set; }
16
17         public DateTime DateOfBirth { get; set; }
18
19         public string Biography { get; set; }
20
21         [StringLength(100)]
22         public string Nationality { get; set; }
23
24         [EmailAddress, StringLength(100)]
25         public string Email { get; set; }
26
27         [StringLength(100)]
28     }
29 }
```

100 % 0 7

Error List Command Window Code Definition Window Output

Object Explorer

Connect

DESKTOP-B45PQNL (SQL Server 16.0.113)

Databases

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CSE443

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dbo.Authors

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dbo.Loans

dbo.Users

Dropped Ledger Tables

Views

External Resources

Synonyms

Programmability

Query Store

Service Broker

Storage

Security





DESKTOP-B45PQNL.CSE443 - dbo.Books

	Column Name	Data Type	Allow Nulls
PK	BookId	int	<input type="checkbox"/>
	Title	nvarchar(200)	<input checked="" type="checkbox"/>
	Description	nvarchar(MAX)	<input checked="" type="checkbox"/>
	BookCode	nvarchar(MAX)	<input checked="" type="checkbox"/>
	Publisher	nvarchar(MAX)	<input checked="" type="checkbox"/>
	PublishedYear	datetime	<input checked="" type="checkbox"/>
	CategoryId	int	<input checked="" type="checkbox"/>
	AuthorId	int	<input checked="" type="checkbox"/>
	TotalCopies	int	<input checked="" type="checkbox"/>
	AvailableCopies	int	<input checked="" type="checkbox"/>
	CreateDate	datetime	<input checked="" type="checkbox"/>
	Avatar	nvarchar(MAX)	<input checked="" type="checkbox"/>
	Pdf	nvarchar(MAX)	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

Column Properties

```
Book.cs
LibraryManagement
LibraryManagement.Models.Book
BookId

18 public string BookCode { get; set; }
19
20 public string Publisher { get; set; }
21
22 public DateTime PublishedYear { get; set; }
23
24 [ForeignKey("Category")]
25 public int CategoryId { get; set; }
26 public Category Category { get; set; }
27
28 [ForeignKey("Author")]
29 public int AuthorId { get; set; }
30 public Author Author { get; set; }
31
32 public int TotalCopies { get; set; }
33
34 public int AvailableCopies { get; set; }
35
36 public DateTime CreatedDate { get; set; }
37
38 public string Avatar { get; set; } = "images/books/";
39
40 public string Pdf { get; set; }
41 }
```





Object Explorer			
Connect    			
DESKTOP-B45PQNL (SQL Server 16.0.113)			
Databases			
System Databases			
Database Snapshots			
CSE443			
Database Diagrams			
Tables			
System Tables			
FileTables			
External Tables			
Graph Tables			
dbo.Authors			
dbo.Books			
dbo.Carousels			
dbo.Categories			
dbo.Loans			
dbo.Users			

DESKTOP-B45PQNL.C... - dbo.Categories			
Column Name	Data Type	Allow Nulls	
CategoryId	int	<input type="checkbox"/>	
Name	nvarchar(MAX)	<input checked="" type="checkbox"/>	
Description	nvarchar(MAX)	<input checked="" type="checkbox"/>	
CreatedDate	datetime	<input checked="" type="checkbox"/>	
UpdatedDate	datetime	<input checked="" type="checkbox"/>	
IsActive	bit	<input checked="" type="checkbox"/>	
Avatar	nvarchar(MAX)	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

```
Category.cs  [icon] X
LibraryManagement  LibraryManagement.Models.Category  CarouselId

4  namespace LibraryManagement.Models
5  {
6      2 references
7      public class Category
8      {
9          [Key]
10         0 references
11         public int CarouselId { get; set; }
12
13         [Required, StringLength(200)]
14         0 references
15         public string ImageUrl { get; set; }
16
17         [Required, StringLength(200)]
18         0 references
19         public string Title { get; set; }
20
21         0 references
22         public string Description { get; set; }
23
24         0 references
25         public string LinkUrl { get; set; }
26
27         [Required]
28         0 references
29         public int Order { get; set; }
30
31         0 references
32         public bool IsActive { get; set; } = true;
33
34         0 references
35         public DateTime CreatedDate { get; set; } = DateTime.Now;
36
37         0 references
38         public DateTime UpdatedDate { get; set; } = DateTime.Now;
39     }
}
```

Object Explorer			
Connect ▾    			
DESKTOP-B45PQNL (SQL Server 16.0.113)			
Databases			
System Databases			
Database Snapshots			
CSE443			
Database Diagrams			
Tables			
System Tables			
FileTables			
External Tables			
Graph Tables			
dbo.Authors			
dbo.Books			
dbo.Carousels			
dbo.Categories			
dbo.Loans			
dbo.Users			

DESKTOP-B45PQNL.CSE443 - dbo.Loans			
	Column Name	Data Type	Allow Nulls
	LoanId	int	<input type="checkbox"/>
	UserId	int	<input checked="" type="checkbox"/>
	BookId	int	<input checked="" type="checkbox"/>
	LoanDate	datetime	<input checked="" type="checkbox"/>
	DueDate	datetime	<input checked="" type="checkbox"/>
	ReturnDate	datetime	<input checked="" type="checkbox"/>
	Status	int	<input checked="" type="checkbox"/>
			<input type="checkbox"/>



Loan.cs

LibraryManagementLibraryManagement.Models.Loan

```
1 using System;
2 using System.ComponentModel.DataAnnotations;
3 using System.ComponentModel.DataAnnotations.Schema;
4
5 namespace LibraryManagement.Models
6 {
7     1 reference
8     public class Loan
9     {
10         [Key]
11         0 references
12         public int LoanId { get; set; }
13
14         [ForeignKey("User")]
15         0 references
16         public int UserId { get; set; }
17         0 references
18         public User User { get; set; }
19
20         [ForeignKey("Book")]
21         0 references
22         public int BookId { get; set; }
23         0 references
24         public Book Book { get; set; }
25
26         0 references
27         public DateTime LoanDate { get; set; }
28
29         0 references
30         public DateTime DueDate { get; set; }
31
32         0 references
33         public DateTime? ReturnDate { get; set; }
34
35         0 references
36         public int Status { get; set; }
37     }
38 }
```

Object Explorer				DESKTOP-B45PQNL.CSE443 - dbo.Users			
Connect							
DESKTOP-B45PQNL (SQL Server 16.0.113)							
Databases							
System Databases							
Database Snapshots							
CSE443							
Database Diagrams							
Tables							
System Tables							
FileTables							
External Tables							
Graph Tables							
dbo.Authors							
dbo.Books							
dbo.Carousels							
dbo.Categories							
dbo.Loans							
dbo.Users							
Dropped Ledger Tables							
Views							
External Resources							
Supervisors							
				Column Name	Data Type	Allow Nulls	
				UserId	int	<input type="checkbox"/>	
				FullName	nvarchar(200)	<input checked="" type="checkbox"/>	
				Description	nvarchar(MAX)	<input checked="" type="checkbox"/>	
				Password	nvarchar(MAX)	<input checked="" type="checkbox"/>	
				Email	nvarchar(100)	<input checked="" type="checkbox"/>	
				Phone	nvarchar(20)	<input checked="" type="checkbox"/>	
				Address	nvarchar(MAX)	<input checked="" type="checkbox"/>	
				Status	int	<input checked="" type="checkbox"/>	
				CreatedDate	datetime	<input checked="" type="checkbox"/>	
				UserCode	nvarchar(MAX)	<input checked="" type="checkbox"/>	
				IsLocked	bit	<input checked="" type="checkbox"/>	
				IsDeleted	bit	<input checked="" type="checkbox"/>	
				IsActive	bit	<input checked="" type="checkbox"/>	
				ActiveCode	nvarchar(MAX)	<input checked="" type="checkbox"/>	
				Avatar	nvarchar(MAX)	<input checked="" type="checkbox"/>	
						<input type="checkbox"/>	

```
Loan.cs  [icon] X
LibraryManagement  LibraryManagement.Models.Loan
4
5  namespace LibraryManagement.Models
6  {
7      1 reference
8      public class Loan
9      {
10         [Key]
11         0 references
12         public int LoanId { get; set; }
13
14         [ForeignKey("User")]
15         0 references
16         public int UserId { get; set; }
17         0 references
18         public User User { get; set; }
19
20         [ForeignKey("Book")]
21         0 references
22         public int BookId { get; set; }
23         0 references
24         public Book Book { get; set; }
25
26         0 references
27         public DateTime LoanDate { get; set; }
28
29         0 references
30         public DateTime DueDate { get; set; }
31
32         0 references
33         public DateTime? ReturnDate { get; set; }
34
35         0 references
36         public int Status { get; set; }
37     }
38 }
```

**Exercise 3: Add a new table “Carousel” and make a model in project for displaying images or content on the homepage of your library management system with the following requirements:**

```

LibraryDbContext.cs
1  using Microsoft.EntityFrameworkCore;
2
3  namespace LibraryManagement.Models.Context
4  {
5      7 references
6      public class LibraryDbContext : DbContext
7      {
8          0 references
9          public LibraryDbContext(DbContextOptions<LibraryDbContext> options) : base(options) { }
10
11          0 references
12          public DbSet<User> Users { get; set; }
13
14          0 references
15          public DbSet<Loan> Loans { get; set; }
16
17          1 reference
18          public DbSet<Book> Books { get; set; }
19
20          0 references
21          public DbSet<Author> Authors { get; set; }
22
23          0 references
24          public DbSet<Category> Categories { get; set; }
25
26          1 reference
27          public DbSet<Carousel> Carousels { get; set; }
28      }
29  }

```

Object Explorer			
<div>             Connect                </div> <div>             DESKTOP-B45PQNL (SQL Server 16.0.113)             <ul style="list-style-type: none"> <li>Databases                     <ul style="list-style-type: none"> <li>System Databases</li> <li>Database Snapshots</li> <li>CSE443                             <ul style="list-style-type: none"> <li>Database Diagrams</li> <li>Tables                                     <ul style="list-style-type: none"> <li>System Tables</li> <li>FileTables</li> <li>External Tables</li> <li>Graph Tables</li> <li>dbo.Authors</li> <li>dbo.Books</li> <li>dbo.Carousels</li> <li>dbo.Categories</li> <li>dbo.Loans</li> <li>dbo.Users</li> <li>Dropped Ledger Tables</li> </ul> </li> </ul> </li> </ul> </li> </ul> </div>			
DESKTOP-B45PQNL...3 - dbo.Carousels			
Column Name	Data Type	Allow Nulls	
CarouselId	int	<input type="checkbox"/>	
ImageUrl	nvarchar(MAX)	<input checked="" type="checkbox"/>	
Title	nvarchar(200)	<input checked="" type="checkbox"/>	
Description	nvarchar(MAX)	<input checked="" type="checkbox"/>	
LinkUrl	nvarchar(MAX)	<input checked="" type="checkbox"/>	
[Order]	int	<input checked="" type="checkbox"/>	
IsActive	bit	<input checked="" type="checkbox"/>	
CreatedDate	datetime	<input checked="" type="checkbox"/>	
UpdatedDate	datetime	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

```
Carousel.cs
LibraryManagement
LibraryManagement.Models.Carousel
CarouselId

4 using System.ComponentModel.DataAnnotations;
5
6 public class Carousel
7 {
8     [Key]
9     public int CarouselId { get; set; }
10
11     [Required, StringLength(200)]
12     public string ImageUrl { get; set; } = "images/carousel/";
13
14     [Required, StringLength(200)]
15     public string Title { get; set; }
16
17     public string Description { get; set; }
18
19     public string LinkUrl { get; set; }
20
21     [Required]
22     public int Order { get; set; }
23
24     public bool IsActive { get; set; } = true;
25
26     public DateTime CreatedDate { get; set; } = DateTime.Now;
27
28     public DateTime UpdatedDate { get; set; } = DateTime.Now;
```

