

Group project / Group 3

Library Management System

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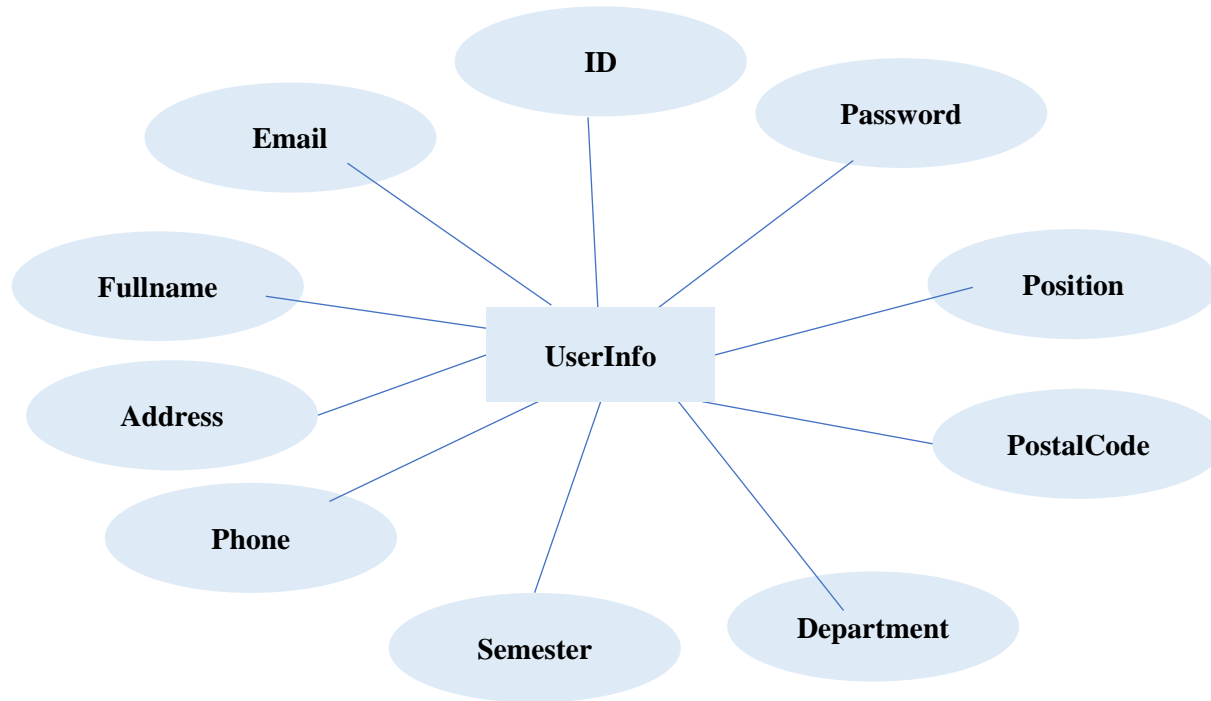
Background

- Library Management System is an online system for assisting both students and librarians in borrowing and supervising the books. The system will be developed for three users:
 - Administrator
 - Student
 - Librarian
- The System will perform main features like adding and updating members, books, reserving and issuing books.
- There should be different information for each user like (Name, Last name, library card number, email, address, and so on). Each user should have validation information depend on system

Objectives

- Our goal is to manage books and provide book rental through the library management system so that login users can search and borrow books.
- In order to work this system, it should follow these roles for the administrators, the librarian and students.
- First of all, the administrator and the librarian should be able to manage all books in the system.
- Second, all registered users in the system can see book lists and search books.
- Third, students can request book rental to the administrator.
- Fourth, the administrator should be able to accept and approve the book rental request.
- Fifth, there are some policies to rent books and to return books.
- Sixth, students can check the list of books they borrowed.
- Last, the administrator should be able to check the list of all rented books.
- In conclusion, when this project complies with the above rules, this system can work properly for administrators, librarians and students.

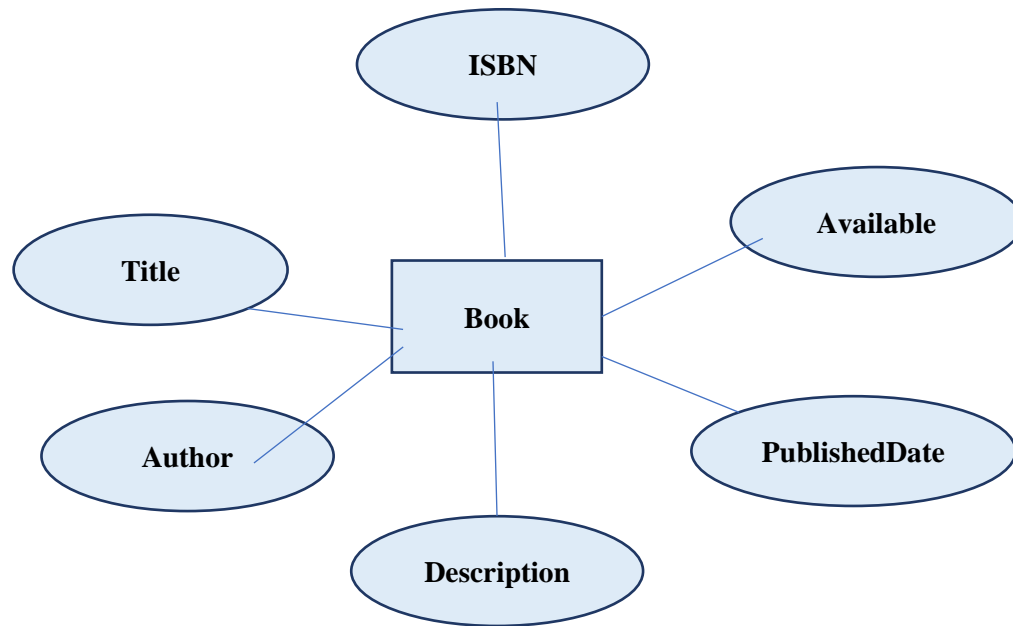
UserInfo ER Diagram



User Info

- ID: int
- Email: varchar (50)
- Password: varchar (20)
- Fullname: varchar (30)
- Address: varchar (40)
- Postalcode: int
- Phone: int
- Position: Char (1) (A: Administrator, S: Student, L: Librarian)
- Department: varchar (10)
- Semester: varchar (10)

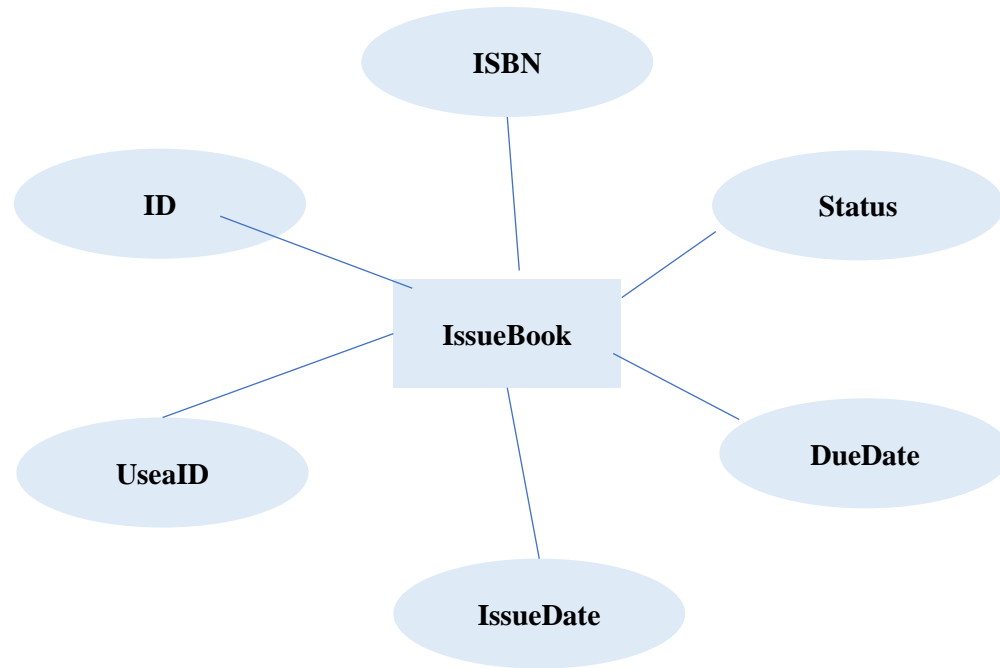
Book ER Diagrams



Book

- ISBN: int
- Title: varchar (126)
- Author: varchar (126)
- Description: text
- PublishedDate: date
- Available: char (1) (Y/N)

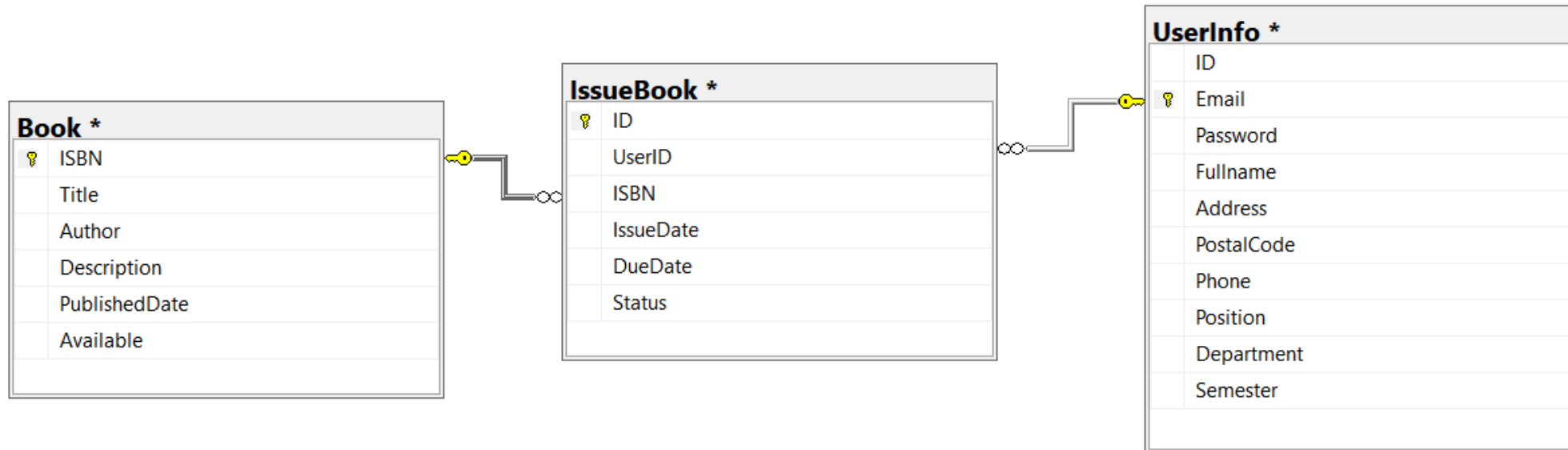
IssueBook ER Diagrams



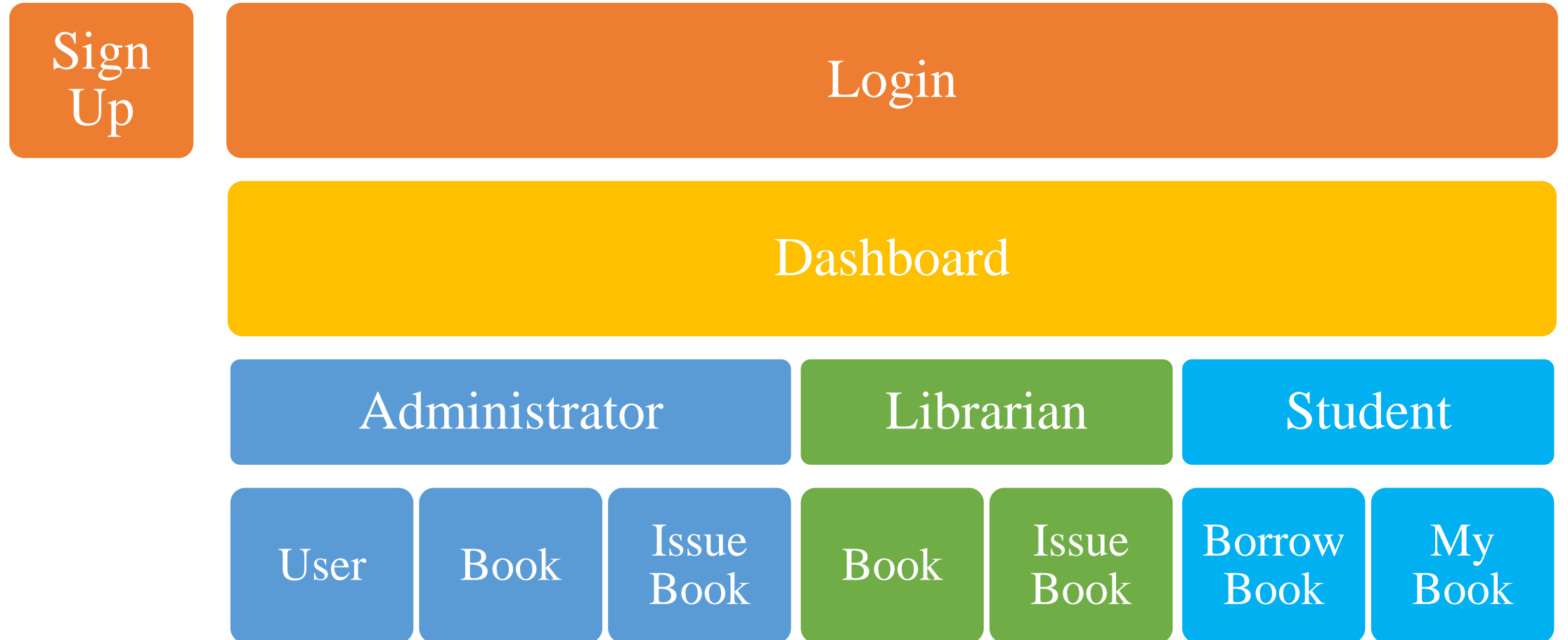
IssueBook

- ID: int
- UserID: varchar (50)
- ISBN: int
- IssueDate: date
- DueDate: date
- Status : varchar (50) (Returned,Request,Loan)

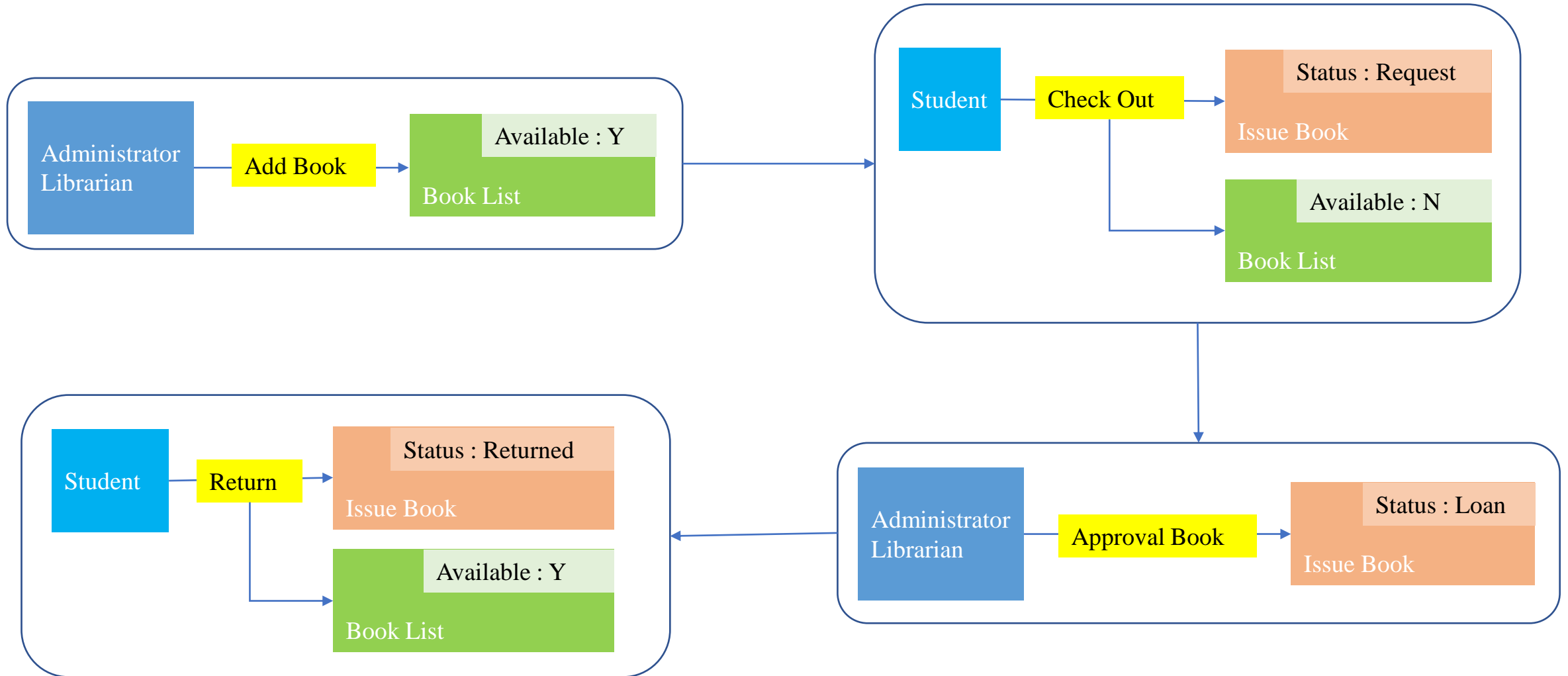
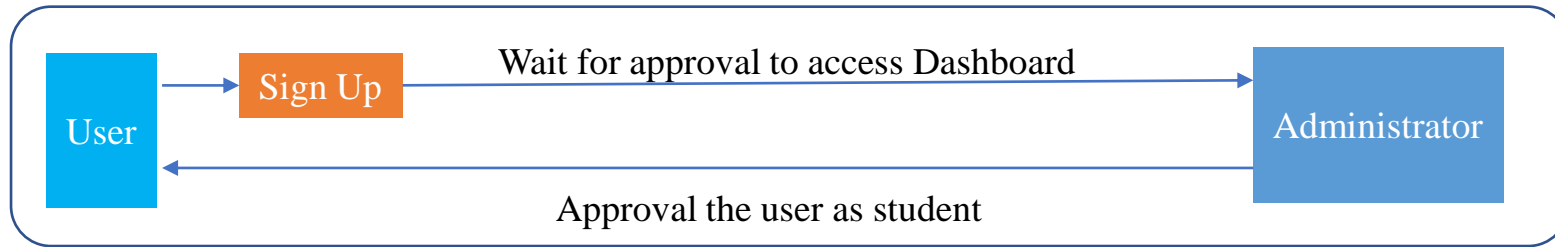
Data entity relationship



Library Management System Structure



System Flow

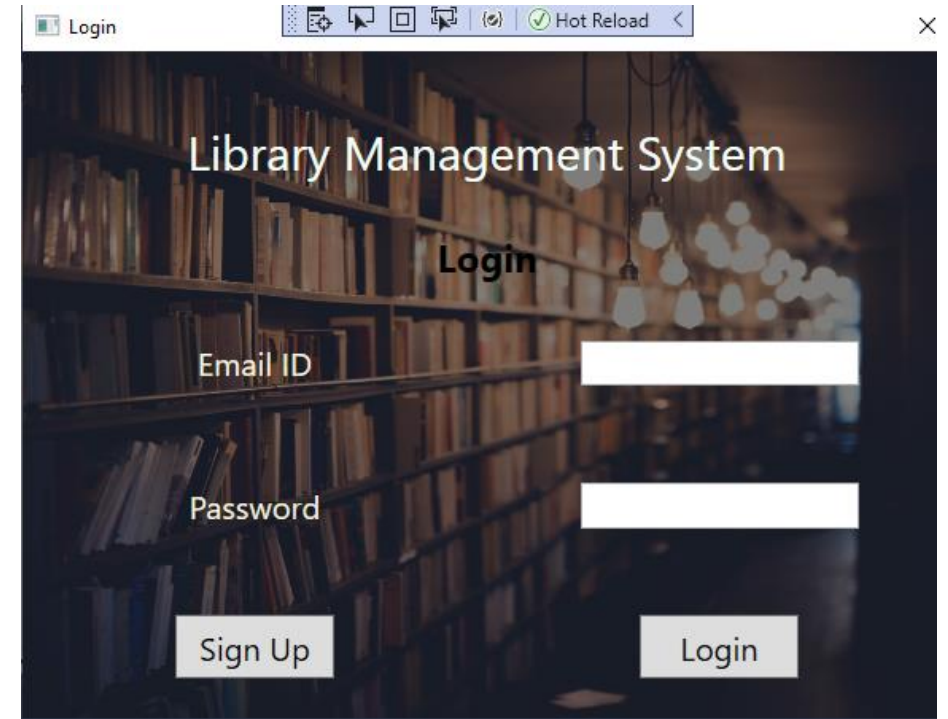


Log In

Problem: How to login

```
private void Login_Click(object sender, RoutedEventArgs e)
{
    SqlConnection con = new SqlConnection("Data Source=(local)\\sqlexpress;Initial
        Catalog=Group3 ;Trusted_Connection=true;");
    try
    {
        if (con.State == System.Data.ConnectionState.Closed)
            con.Open();

        string query = "SELECT count(1) from UserInfo WHERE Email = '" + txtUsername.
Text.Trim() + "' AND Password='" + txtPassword.Password.Trim() + "'";
```



Sign up

Sign Up:

Email:

Full Name:

Password:

Conformed Password:

Phone Number:

Home Address:

Postal Code:

Submit

Cancel

Sign Up:

Email:

Full Name:

Password:

Conformed Password:

Phone Number:

Home Address:

Postal Code:

Submit

Cancel

✕

Password and Confirm password must be the same.

OK


Sign up

//password and email validation

```
private void Submit_Click(object sender, RoutedEventArgs e)
{
    bool isValidEmail = IsValidEmail(txtBoxEmail.Text);
    if(isValidEmail == false)
    {
        MessageBox.Show("The email address format is not valid.");
        return;
    }
    if (passwordBox1.Password != passwordBoxConfirm.Password)
    {
        MessageBox.Show("Password and Confirm password must be the same.");
        return;
    }
}
```

```
public bool IsValidEmail(string email)
{
    bool valid = Regex.IsMatch(email, @"[a-zA-Z0-9!#$%&'*/+=?^_`{|}~-]+(?:\.[a-zA-Z0-9!#$%&'*/+=?^_`{|}~-]+)*@(?:[a-zA-Z0-9](?:[a-zA-Z0-9-]*[a-zA-Z0-9])?\.)+[a-zA-Z0-9](?:[a-zA-Z0-9-]*[a-zA-Z0-9])?");
    return valid;
}
```

Issue Book

 Library Management System



Issue Book

☐ All ☐ Request ☐ Loan ☐ Returned

ID

User ID

ISBN

Issue Date

Due Date

Status

Approval Book

No	ID	Status	User ID	ISBN	IssueDate	DueDate
1	3	Returned	dog@gmail.com	89452	20210421	20210428
2	4	Returned	dog@gmail.com	56789	20210421	20210428
3	5	Request	test@gmail.com	89452	20210421	20210428

Issue Book



```
try
{
    DateTime dtNow = DateTime.Now;
    checkOut.IssueDate = dtNow.ToShortDateString();

    DateTime dtDue = DateTime.Now.AddDays(7);
    checkOut.DueDate = dtDue.ToShortDateString();
}
```

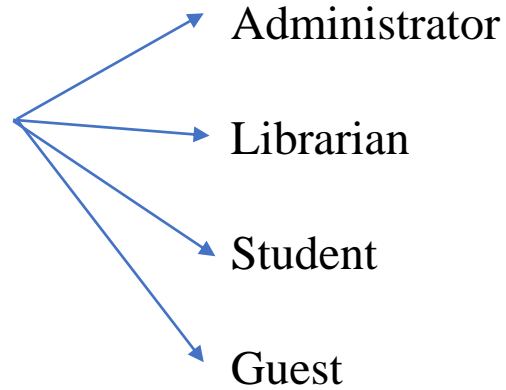
Issue Book

//Radio Button

```
private void Request_Checked(object sender, RoutedEventArgs e)
{
    list("Request");
}
private void Loan_Checked(object sender, RoutedEventArgs e)
{
    list("Loan");
}
private void Returned_Checked(object sender, RoutedEventArgs e)
{
    list("Returned");
}
private void Approval_Click(object sender, RoutedEventArgs e)
{
    approval();
}
```

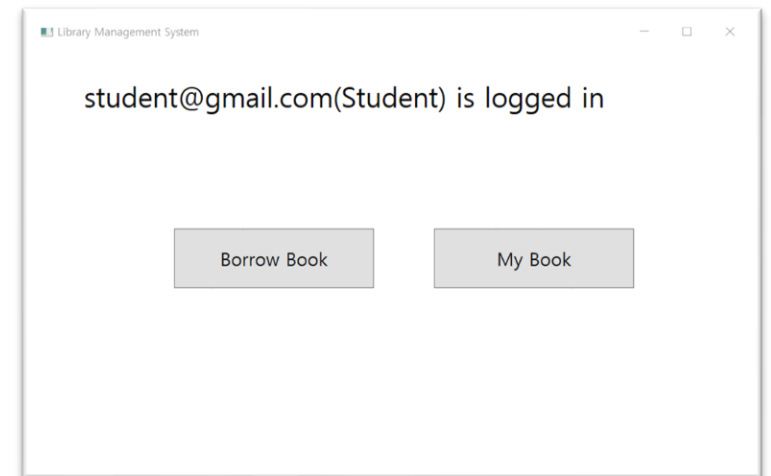
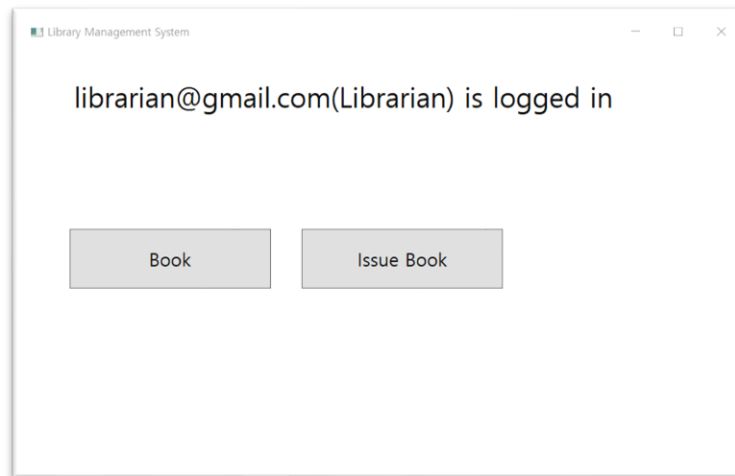
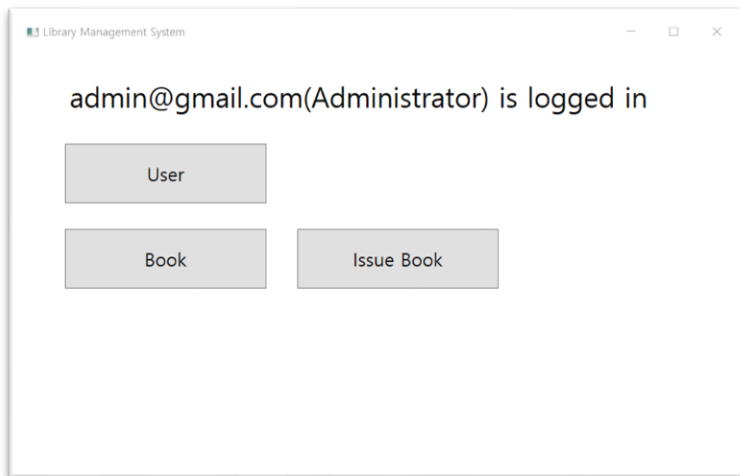
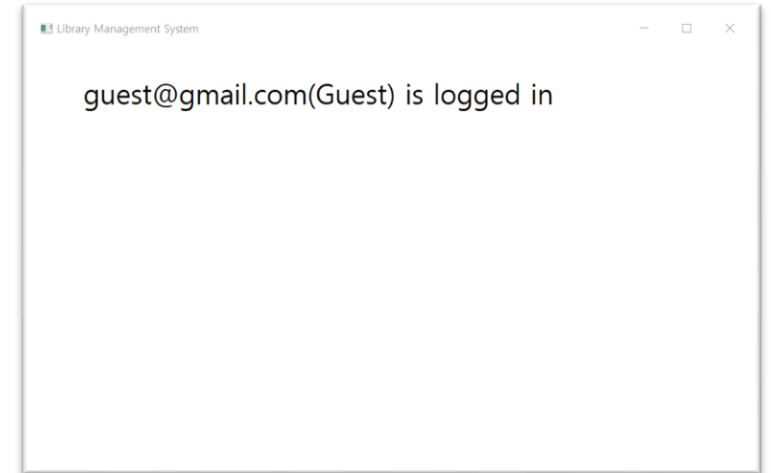

Dashboard

Based on **user position**

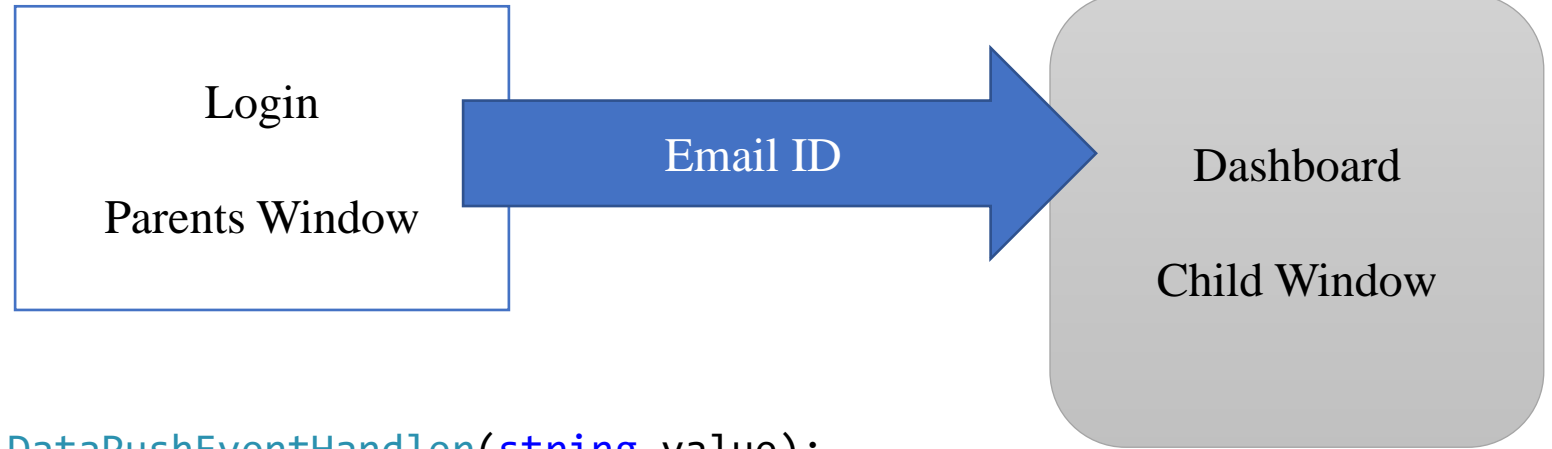


Problem 1

How to send the logged in ID to Dashboard?



Dashboard Problem 1 / Solution



//Send Email ID

```
namespace Login
{
    public delegate void DataPushEventHandler(string value);
    public partial class MainWindow : Window
    {
        public DataPushEventHandler DataSendEvent;
    }

    private void Login_Click(object sender, RoutedEventArgs e)
    {
        this.DataSendEvent += new
            DataPushEventHandler(moveToDashboard.SetActiveValue);
        DataSendEvent(txtUsername.Text.Trim());
    }
}
```

Dashboard Problem 1 / Solution

//Receive Email ID

```
namespace Dashboard
{
```

```
...
```

```
public void SetActiveValue(string param)
{
```

```
    id = param;
```

```
    string tempPosition = "";
```

```
    if (position == "A") { tempPosition = "Administrator"; }
```

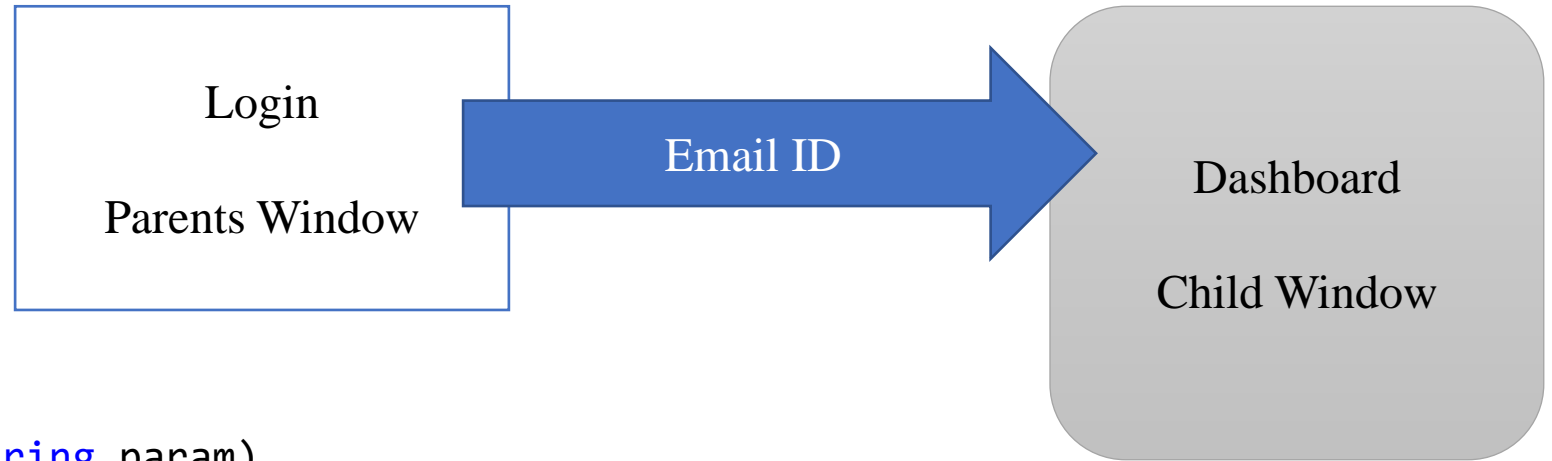
```
    else if (position == "L") { tempPosition = "Librarian"; }
```

```
    else if (position == "S") { tempPosition = "Student"; }
```

```
    else { tempPosition = "Guest"; ...}
```

```
    ID.Content = param + "(" + tempPosition + ") is logged in";
```

```
}
```



User, Admin

Library Management System

User Management

User Name

Search

All Users

ID

1

Name

Chaemin Shin

Email

admin@gmail.com

Address

Seoul, Korea

PostalCode

112211

Department

Semester

Position

☒ Administrator
☐ Librarian
☐ Student

Update User

Delete User

Input Reset

No	ID	Position	Name	Email	Address	PostalCode	Phone
1	1	A	Chaemin Shir	admin@gmail.coi	Seoul, Korea	112211	1112221111
2	2	L	Pratiksha	librarian@gmail.c	Waterloo, On, Ca	111111	1121121122
3	3	S	Fatemeh	student@gmail.co	Toronto, On, CA	113311	2112221111
4	9		test	aaa@gmail.com	111	111	1111
5	11	A	administrator	testadmin@gmai	Waterloo, On, Ca	112211	2123331111

Problem 1

How to put
all data into the table

Problem 2

How to put
Selected row data into each field

Problem 3

How to know
which radio button is checked

User Problem 1, 2 / Solution

```
//xaml file
<DataGrid x:Name="UserListTable" ... SelectionChanged="UserListTable_SelectionChanged">
    <DataGrid.Columns>
        <DataGridTextColumn Binding="{Binding No}" .../>
        ...
        <DataGridTextColumn Binding="{Binding Semester}" .../>
    </DataGrid.Columns>
</DataGrid>
```

```
//cs file
... Get data from Database table
```

```
string semester = ds.Tables[0].Rows[i].ItemArray[8].ToString();
user.Add(new User() { No = no, ... , Semester = semester });
```

```
UserListTable.ItemsSource = user;
```

```
private void UserListTable_SelectionChanged(object sender, SelectionChangedEventArgs e)
{
    User user = UserListTable.SelectedItem as User;
}
```

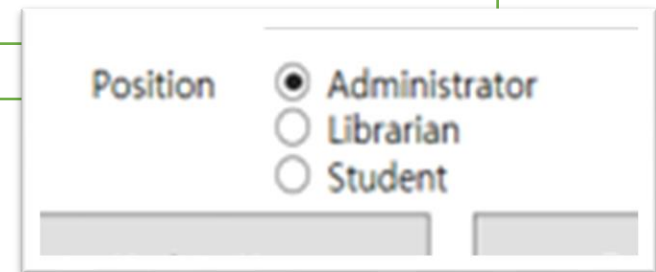
ID	<input type="text" value="1"/>
Name	<input type="text" value="Chaemin Shin"/>
Email	<input type="text" value="admin@gmail.com"/>
Address	<input type="text" value="Seoul, Korea"/>
PostalCode	<input type="text" value="112211"/>
Department	<input type="text"/>
Semester	<input type="text"/>

No	ID	Position	Name	Email	Address	PostalCode	Phone
1	1	A	Chaemin Shir	admin@gmail.co	Seoul, Korea	112211	1112221111
2	2	L	Pratiksha	librarian@gmail.c	Waterloo, On, Ca	111111	1121212122
3	3	S	Fatemeh	student@gmail.co	Toronto, On, CA	113311	2112221111
4	9		test	aaa@gmail.com	111	111	1111
5	11	A	administrator	testadmin@gmal	Waterloo, On, Ca	112211	2123331111

User Problem 3 / Solution

```
//xaml file
<StackPanel Name="radioButtonPanel" ... >
    <RadioButton x:Name="PositionA" Content="Administrator" Tag="A" .../>
    <RadioButton x:Name="PositionL" Content="Librarian" Tag="L" .../>
    <RadioButton x:Name="PositionS" Content="Student" Tag="S" .../>
</StackPanel>
```

```
//cs file
public string RadioBtn()
{
    RadioButton radioButton =
        (from element in radioButtonPanel.Children.Cast<UIElement>()
         where element is RadioButton && (element as RadioButton).IsChecked.Value
         select element).SingleOrDefault() as RadioButton;
    //string content = radioButton.Content as string;
    //bool check = radioButton.IsChecked.Value;
    string tag = radioButton.Tag as string;
    return tag;
}
```



Position

☒ Administrator

☐ Librarian

☐ Student

Book – Admin, Librarian

Library Management System

Book Management

Book Title

Search

All Books

ISBN

2222

Title

Today in the morning

Author

John

Published Date

20210101

Description

Happy day. Hahaha

Available

☒ Y
☐ N

Add Book

Update Book

Delete Book

Input Reset

No	ISBN	Title	Author	Published Date	Available
1	1111	test	est	20210101	Y
2	2222	Today in the morning	John	20210101	Y
3	3333	test	est	20210101	Y
4	4444	Hello Sun	Shin	20210101	N
5	5555	Hello Sun 2	Shin	20210101	N
6	6666	Monday	Nick	20210419	N
7	8888	Who are you?	Chaemin Shin	20111122	Y
8	9999	test for the project	Nick11	20110101	N
9	22222	sunday	chaem	20210418	Y

Borrow Book - Student

Library Management System

Borrow Book

Book Title

Search

All Books

No	ISBN	Title	Author	Description	Published Date	Available
1	11	Programming	Miracle	What is C#	20111122	Y
2	2222	Today in the morning	John	Happy day. Hahaha	20210101	Y
3	3333	test	est	123	20210101	N
4	4444	Hello Sun	Shin		20210101	N
5	5555	Hello Sun 2	Shin		01	N
6	6666	Monday	Nick		19	N
7	8888	Who are you?	Chaemin S		22	Y
8	9999	test for the project	Nick11		01	N
9	22222	sunday	chaem		18	Y

Check out has been successfully. Please wait for approval of administrator

확인

Check Out

My Book - Student

Library Management System

My Book Status

ID

11

User ID

student@gmail.com

ISBN

5555

Title

Hello Sun 2

Issue Date

20210420

Due Date

20210427

Status

Request

All

Request

Loan

Returned

No	ID	Status	ISBN	Title	Issue Date	Due Date	User ID
1	9	Returned	3333	test	20210419	20210426	student
2	10	Returned	5555	Hello Sun 2	20210419	20210426	student
3	11	Request	5555	Hello Sun 2	20210420	20210427	student

Return Book

Thank you