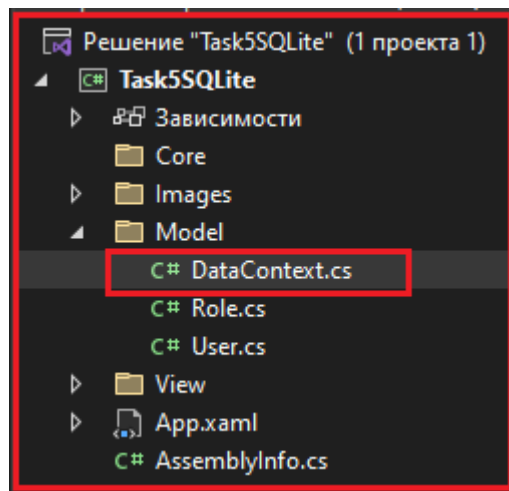


```
public class Role
{
    [Key]

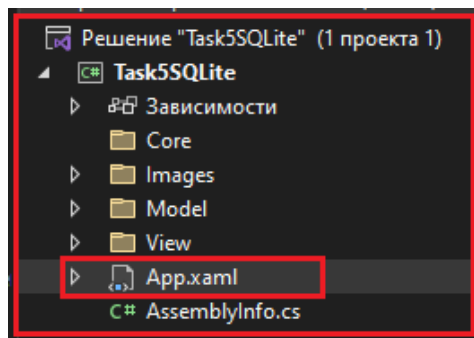
    public int RoleID { get; set; }

    public string RoleName { get; set; }

    Ссылка: 0
    public int UserID { get; set; }
    Ссылка: 0
    public virtual User User { get; set; }
}
```



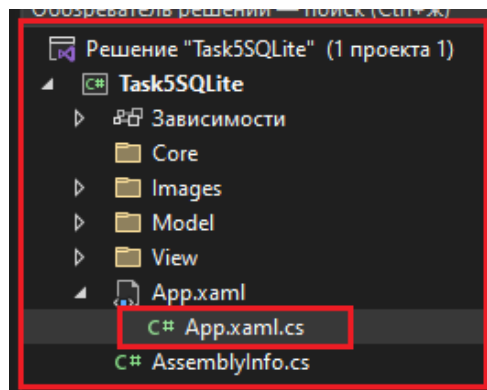
```
Ссылка: 9
public class DataContext : DbContext
{
    Ссылка: 5
    public DbSet<User> Users { get; set; }
    Ссылка: 0
    public DbSet<Role> Roles { get; set; }
    Ссылка: 0
    protected override void OnConfiguring(DbContextOptionsBuilder optionsBuilder)
    {
        optionsBuilder.UseSqlite("Data Source = Task5SQLite.db");
        optionsBuilder.UseLazyLoadingProxies();
    }
}
```



```

<Application x:Class="Task5SQLite.App"
  xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
  xmlns:materialDesign="http://materialdesigninxaml.net/winfx/xaml/themes"
  xmlns:local="clr-namespace:Task5SQLite"
  StartupUri="View/MainWindow.xaml">
  <Application.Resources>
    <ResourceDictionary>
      <ResourceDictionary.MergedDictionaries>
        <materialDesign:BundledTheme BaseTheme="Light" PrimaryColor="{x:Null}" SecondaryColor="Lime" />
        <ResourceDictionary Source="pack://application:,,,/MaterialDesignThemes.Wpf;component/Themes/MaterialDesignTheme.Defaults.xaml" />
      </ResourceDictionary.MergedDictionaries>
    </ResourceDictionary>
  </Application.Resources>
</Application>

```

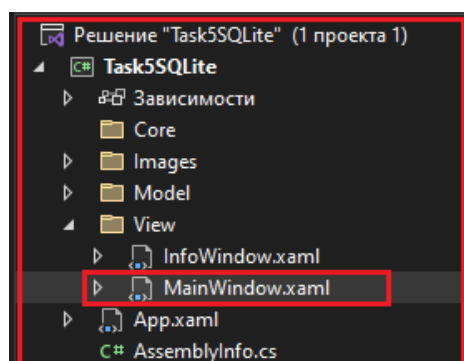


Ссылка: 3

```

public partial class App : Application
{
    Ссылка: 0
    protected override void OnStartup(StartupEventArgs e)
    {
        DatabaseFacade facade = new DatabaseFacade(new DataContext());
        facade.EnsureCreated();
    }
}

```



```

<Window x:Class="Task5SQLite.MainWindow"
        xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
        xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
        xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
        xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
        xmlns:materialDesign="http://materialdesigninxaml.net/winfx/xaml/themes"
        mc:Ignorable="d"
        Height="583"
        Width="842"
        WindowStartupLocation="CenterScreen"
        WindowStyle="None"
        ResizeMode="NoResize"
        Background="■"Transparent"
        AllowsTransparency="True"
        FontFamily="Comic Sans MS">

    <Grid Background="■"#F5F5F5"
        MouseDown="Grid_MouseDown">
        <Grid.ColumnDefinitions>
            <ColumnDefinition Width="329" />
            <ColumnDefinition Width="*" />
        </Grid.ColumnDefinitions>
        <Image Grid.Column="0"
            Source="/Images/main_bg.jpg"/>
        <Border Grid.Column="1"
            HorizontalAlignment="Center"
            VerticalAlignment="Center"
            Width="385"
            Height="405"
            CornerRadius="8"
            Background="■"FFFFFF"
            Effect="{StaticResource MaterialDesignElevationShadow24}">

```

```

<Grid>
    <Grid.RowDefinitions>
        <RowDefinition Height="100" />
        <RowDefinition Height="200" />
        <RowDefinition Height="*" />
    </Grid.RowDefinitions>

    <StackPanel Grid.Row="0"
        HorizontalAlignment="Center"
        VerticalAlignment="Center">
        <TextBlock Text="Войти в систему"
            Foreground="■"#00A551"
            FontWeight="Medium"
            FontSize="20"
            TextAlignment="Center"/>
        <TextBlock Text="Практическая работа №5"
            TextWrapping="Wrap"
            FontWeight="Regular"
            FontSize="12"
            Foreground="■"#474749"
            Margin="0 20 0 0"/>
    </StackPanel>

    <StackPanel Grid.Row="1"
        Margin="40 0">
        <StackPanel>
            <TextBlock Text="Email"
                Foreground="■"#7F7E83"
                FontSize="12"
                FontWeight="Regular"/>
            <Border Width="300"
                Height="30"
                Background="■"FFFFFF"
                CornerRadius="15"
                Margin="0 10 0 0">

```

```

<Border Width="307"
        Height="40"
        CornerRadius="10"
        Background="#F4F4F4"
        Padding="5">
    <TextBox Width="290"
            x:Name="TbLogin"
            Foreground="#00A551"
            HorizontalAlignment="Center"
            VerticalAlignment="Center"
            materialDesign:HintAssist.Hint="Введите адрес электронной почты..."
            materialDesign:TextFieldAssist.HasClearButton="True"
            materialDesign:TextFieldAssist.UnderlineBrush="#F4F4F4"/>
    </Border>
</StackPanel>

<StackPanel Margin="0 30 0 0">
    <TextBlock Text="Password"
            Foreground="#7F7E83"
            FontSize="12"
            FontWeight="Regular"/>
    <Border Width="307"
            Height="40"
            CornerRadius="10"
            Background="#F4F4F4"
            Padding="5">
        <PasswordBox Width="290"
                    x:Name="PbPassword"
                    Foreground="#00A551"
                    HorizontalAlignment="Center"
                    VerticalAlignment="Center"
                    materialDesign:HintAssist.Hint="Введите пароль..."
                    materialDesign:TextFieldAssist.HasClearButton="True"
                    materialDesign:TextFieldAssist.UnderlineBrush="#F4F4F4"/>
        </Border>
    </StackPanel>
</StackPanel>

```

```

<StackPanel Grid.Row="2"
            HorizontalAlignment="Center"
            VerticalAlignment="Center"
            Margin="0 0 0 60">
    <Button x:Name="BtnLogin"
            Click="BtnLogin_Click"
            Foreground="#00A551"
            Background="Transparent"
            BorderBrush="#00A551"
            Style="{StaticResource MaterialDesignOutlinedButton}"
            materialDesign:ButtonProgressAssist.Value="-1"
            materialDesign:ButtonProgressAssist.IndicatorForeground="#00A551"
            materialDesign:ButtonProgressAssist.IndicatorBackground="Transparent"
            materialDesign:ButtonProgressAssist.IsIndicatorVisible="True"
            materialDesign:ButtonProgressAssist.IsIndeterminate="True"
            IsEnabled="{Binding DataContext.ControlsEnabled,
                RelativeSource={RelativeSource FindAncestor, AncestorType=Window}}">
        <StackPanel Orientation="Horizontal">
            <materialDesign:PackIcon Kind="Person"
                                    Margin="0 2 3 0"/>
            <TextBlock Text="Войти"/>
        </StackPanel>
    </Button>
</StackPanel>

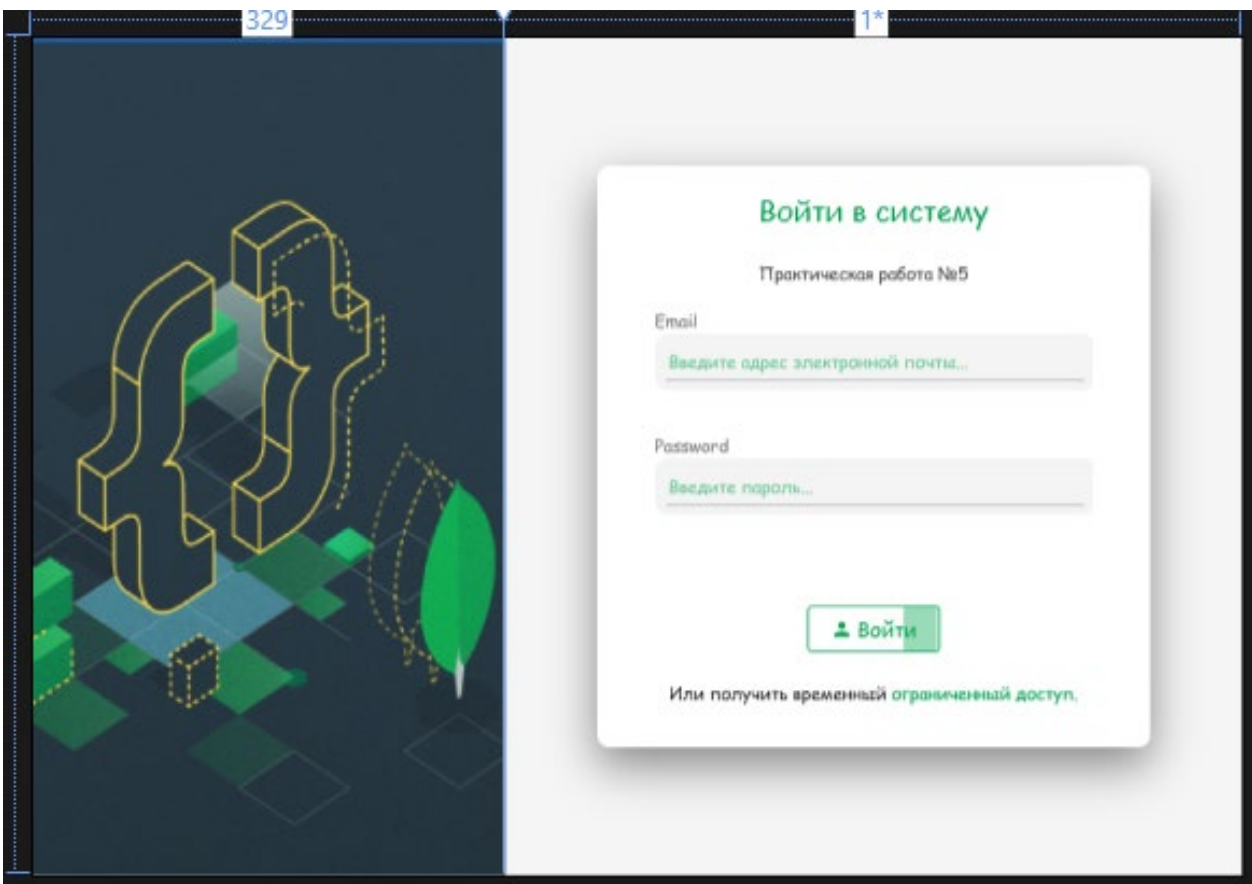
```

```

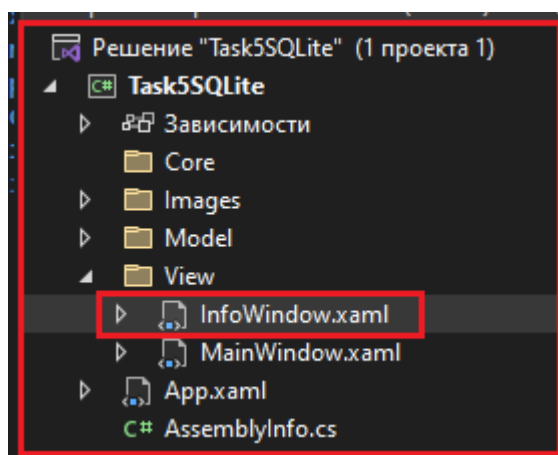
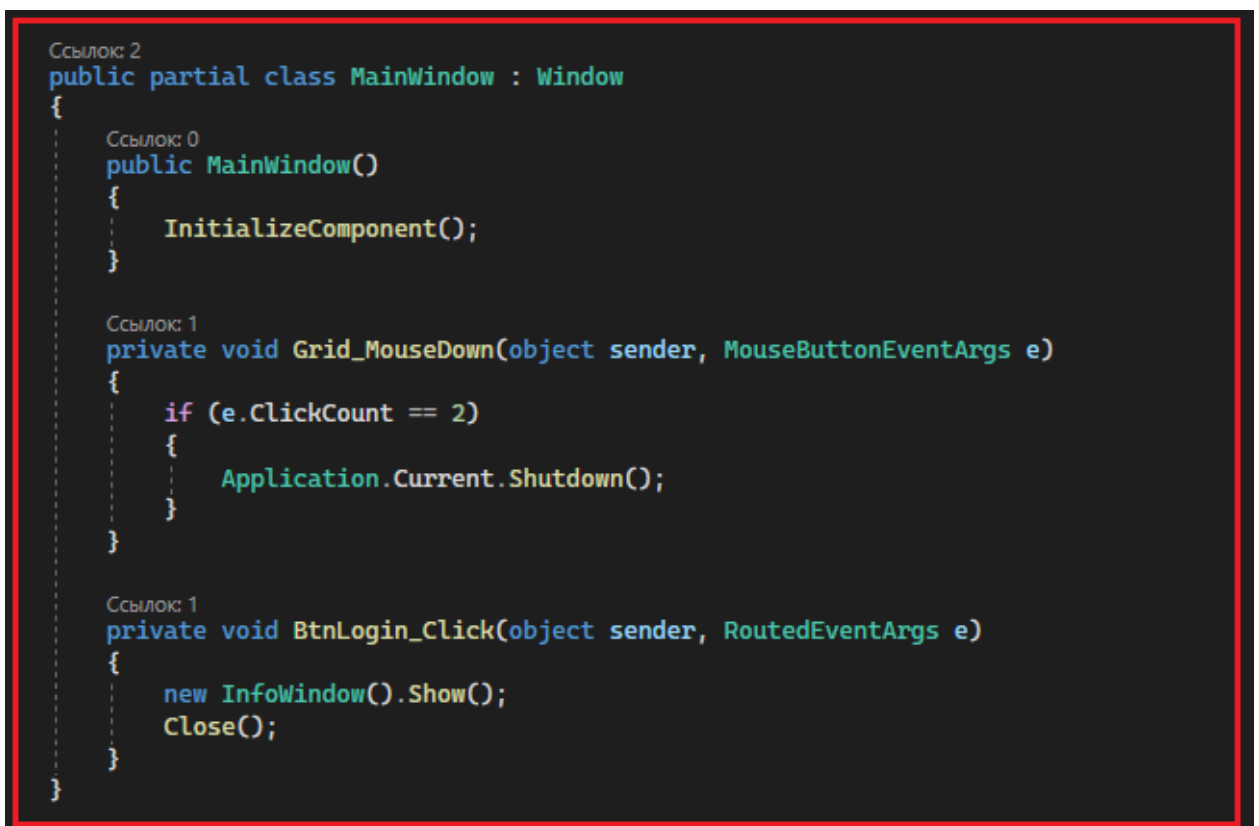
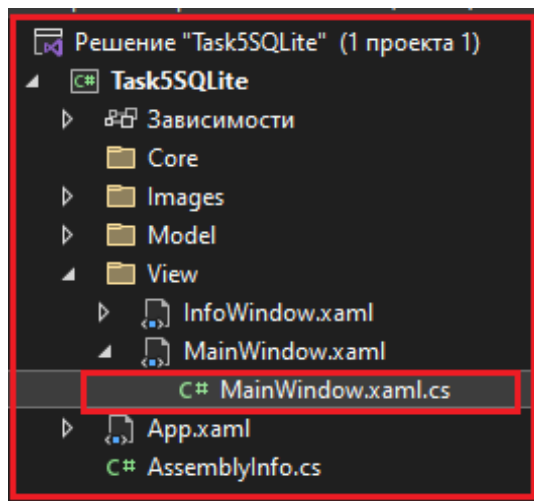
        <materialDesign:PackIcon Kind="Person"
                                Margin="0 2 3 0"/>
        <TextBlock Text="Войти"/>
    </StackPanel>
</Button>
</StackPanel>

<TextBlock Grid.Row="2"
            Margin="0 30 0 0"
            HorizontalAlignment="Center"
            VerticalAlignment="Center">
    <Run>Или получить временный</Run>
    <Run Foreground="■" "#00A551">ограниченный доступ.
    <Run.Style>
        <Style TargetType="Run">
            <Style.Triggers>
                <Trigger Property="IsMouseOver" Value="True">
                    <Setter Property="TextDecorations" Value="Underline" />
                    <Setter Property="Cursor" Value="Hand" />
                </Trigger>
            </Style.Triggers>
        </Style>
    </Run.Style>
</Run>
</TextBlock>
</Grid>
</Border>
</Grid>

```







```

<Window x:Class="Task5SQLite.View.InfoWindow"
        xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
        xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
        xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
        xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
        xmlns:materialDesign="http://materialdesigninxaml.net/winfx/xaml/themes"
        xmlns:local="clr-namespace:Task5SQLite.View"
        mc:Ignorable="d"
        Height="583"
        Width="842"
        WindowStartupLocation="CenterScreen"
        WindowStyle="None"
        ResizeMode="NoResize"
        Background="■"Transparent"
        AllowsTransparency="True"
        FontFamily="Comic Sans MS"
        <Grid Background="■"#F5F5F5">
            <ListView x:Name="LVInfo"
                    Margin="5 20"
                    Height="195"
                    VerticalAlignment="Top">
                <ListView.ContextMenu>
                    <ContextMenu>
                        <MenuItem Header="Очистить"
                                Click="MenuItem_Click"/>
                    </ContextMenu>
                </ListView.ContextMenu>
            </Grid>
        </Window>

```

```

        <ListView.View>
            <GridView>
                <GridViewColumn Header="ID"
                                Width="Auto"
                                DisplayMemberBinding="{Binding UserID}"/>
                <GridViewColumn Header="ЛОГИН"
                                Width="Auto"
                                DisplayMemberBinding="{Binding Login}"/>
                <GridViewColumn Header="ПАРОЛЬ"
                                Width="Auto"
                                DisplayMemberBinding="{Binding Password}"/>
                <GridViewColumn Header="ЭЛ. ПОЧТА"
                                Width="Auto"
                                DisplayMemberBinding="{Binding Email}"/>
            </GridView>
        </ListView.View>
    </ListView>

    <CheckBox x:Name="CbEnable"
            Background="■"#00A551"
            Content="Редактировать"
            HorizontalAlignment="Left"
            VerticalAlignment="Top"
            Cursor="Hand"
            Margin="10 230 0 0"/>

```

```

<Grid Name="GridEdit"
    Margin="3 280 0 0"
    HorizontalAlignment="Stretch"
    VerticalAlignment="Top"
    IsEnabled="{Binding ElementName=CbEnable, Path=IsChecked}">
    <Grid.ColumnDefinitions>
        <ColumnDefinition Width="100"/>
        <ColumnDefinition Width="*" />
    </Grid.ColumnDefinitions>
    <Label Content="ЛОГИН"
        Grid.Column="0"
        HorizontalAlignment="Left"
        Margin="3 0 0 0"
        VerticalAlignment="Top"/>

    <Label Content="ПАРОЛЬ"
        Grid.Column="0"
        HorizontalAlignment="Left"
        Margin="3 40 0 0"
        VerticalAlignment="Top"/>

    <Label Content="ЭЛ. ПОЧТА"
        Grid.Column="0"
        HorizontalAlignment="Left"
        Margin="3 80 0 0"
        VerticalAlignment="Top"/>

    <TextBox x:Name="TbLogin"
        Text="{Binding ElementName=LVInfo, Path=SelectedItem.Login, Mode=OneWay}"
        Grid.Column="1"
        HorizontalAlignment="Left"
        Width="250"
        Height="26"
        VerticalAlignment="Top"
        Foreground="#00A551"
        materialDesign:TextFieldAssist.UnderlineBrush="#00A551"/>

```

```

    <TextBox x:Name="TbPassword"
        Text="{Binding ElementName=LVInfo, Path=SelectedItem.Password, Mode=OneWay}"
        Grid.Column="1"
        HorizontalAlignment="Left"
        Margin="0 40 0 0"
        Width="250"
        Height="26"
        VerticalAlignment="Top"
        Foreground="#00A551"
        materialDesign:TextFieldAssist.UnderlineBrush="#00A551"/>

    <TextBox x:Name="TbEmail"
        Text="{Binding ElementName=LVInfo, Path=SelectedItem.Email, Mode=OneWay}"
        Grid.Column="1"
        HorizontalAlignment="Left"
        Margin="0 80 0 0"
        Width="250"
        Height="26"
        VerticalAlignment="Top"
        Foreground="#00A551"
        materialDesign:TextFieldAssist.UnderlineBrush="#00A551"/>
</Grid>

```

```

<StackPanel Margin="10 360 0 0"
    Orientation="Horizontal">
    <Button x:Name="BtnCreate"
        Click="BtnCreate_Click"
        HorizontalAlignment="Left"
        Margin="10 0 20 0"
        Foreground="#00A551"
        Background="Transparent"
        BorderBrush="#00A551"
        Style="{StaticResource MaterialDesignOutlinedButton}"
        materialDesign:ButtonProgressAssist.Value="-1"
        materialDesign:ButtonProgressAssist.IndicatorForeground="#00A551"
        materialDesign:ButtonProgressAssist.IndicatorBackground="Transparent"
        materialDesign:ButtonProgressAssist.IsIndicatorVisible="True"
        materialDesign:ButtonProgressAssist.IsIndeterminate="True"
        IsEnabled="{Binding DataContext.ControlsEnabled,
            RelativeSource={RelativeSource FindAncestor, AncestorType=Window}}">
        <StackPanel Orientation="Horizontal">
            <materialDesign:PackIcon Kind="Create"
                Margin="0 2 3 0"/>
            <TextBlock Text="Создать"/>
        </StackPanel>
    </Button>

```

```

<Button x:Name="BtnRead"
    Click="BtnRead_Click"
    Margin="0 0 20 0"
    HorizontalAlignment="Left"
    Foreground="#00A551"
    Background="Transparent"
    BorderBrush="#00A551"
    Style="{StaticResource MaterialDesignOutlinedButton}"
    materialDesign:ButtonProgressAssist.Value="-1"
    materialDesign:ButtonProgressAssist.IndicatorForeground="#00A551"
    materialDesign:ButtonProgressAssist.IndicatorBackground="Transparent"
    materialDesign:ButtonProgressAssist.IsIndicatorVisible="True"
    materialDesign:ButtonProgressAssist.IsIndeterminate="True"
    IsEnabled="{Binding DataContext.ControlsEnabled,
        RelativeSource={RelativeSource FindAncestor, AncestorType=Window}}">
    <StackPanel Orientation="Horizontal">
        <materialDesign:PackIcon Kind="ReadMore"
            Margin="0 2 3 0"/>
        <TextBlock Text="Прочитать"/>
    </StackPanel>
</Button>

```

```

<Button x:Name="BtnUpdate"
    Click="BtnUpdate_Click"
    HorizontalAlignment="Left"
    Margin="0 0 20 0"
    Foreground="#00A551"
    Background="Transparent"
    BorderBrush="#00A551"
    Style="{StaticResource MaterialDesignOutlinedButton}"
    materialDesign:ButtonProgressAssist.Value="-1"
    materialDesign:ButtonProgressAssist.IndicatorForeground="#00A551"
    materialDesign:ButtonProgressAssist.IndicatorBackground="Transparent"
    materialDesign:ButtonProgressAssist.IsIndicatorVisible="True"
    materialDesign:ButtonProgressAssist.IsIndeterminate="True"
    IsEnabled="{Binding DataContext.ControlsEnabled,
        RelativeSource={RelativeSource FindAncestor, AncestorType=Window}}">
    <StackPanel Orientation="Horizontal">
        <materialDesign:PackIcon Kind="Update"
            Margin="0 2 3 0"/>
        <TextBlock Text="Обновить"/>
    </StackPanel>
</Button>

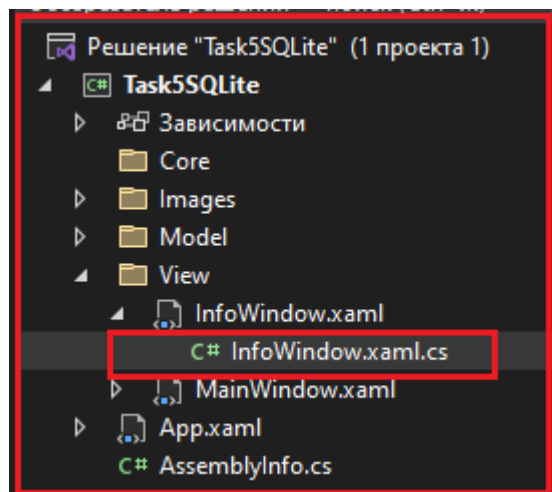
```

```

<Button x:Name="BtnDelete"
        Click="BtnDelete_Click"
        HorizontalAlignment="Left"
        Foreground="#00A551"
        Background="Transparent"
        BorderBrush="#00A551"
        Style="{StaticResource MaterialDesignOutlinedButton}"
        materialDesign:ButtonProgressAssist.Value="-1"
        materialDesign:ButtonProgressAssist.IndicatorForeground="#00A551"
        materialDesign:ButtonProgressAssist.IndicatorBackground="Transparent"
        materialDesign:ButtonProgressAssist.IsIndicatorVisible="True"
        materialDesign:ButtonProgressAssist.IsIndeterminate="True"
        IsEnabled="{Binding DataContext.ControlsEnabled,
        RelativeSource={RelativeSource FindAncestor, AncestorType=Window}}">
    <StackPanel Orientation="Horizontal">
        <materialDesign:PackIcon Kind="Trash"
            Margin="0 2 3 0"/>
        <TextBlock Text="Удалить" />
    </StackPanel>
</Button>
</StackPanel>
</Grid>

```

Web application interface showing a table with columns: ID, ЛОГИН, ПАРОЛЬ, ЭЛ. ПОЧТА. Below the table is a 'Редактировать' (Edit) section with input fields for ЛОГИН, ПАРОЛЬ, and ЭЛ. ПОЧТА. At the bottom, there are four buttons: 'Создать' (Create), 'Прочитать' (Read), 'Обновить' (Update), and 'Удалить' (Delete).



```

Ссылка: 3
public partial class InfoWindow : Window
{
    Ссылка: 2
    public List<User> DatabaseUsers { get; private set; }

    Ссылка: 1
    public InfoWindow()
    {
        InitializeComponent();
        Read();
    }

    Ссылка: 1
    public void Create()
    {
        using (DataContext db = new DataContext())
        {
            var login = TbLogin.Text;
            var password = TbPassword.Text;
            var email = TbEmail.Text;

```

```

        try
        {
            if (string.IsNullOrEmpty(login) ||
                string.IsNullOrEmpty(password) ||
                string.IsNullOrEmpty(email))
            {
                MessageBox.Show("Ошибка ввода данных",
                                "Системное сообщение",
                                MessageBoxButton.OK,
                                MessageBoxImage.Error);
            }
            else
            {
                db.Users.Add(new User()
                {
                    Login = login,
                    Password = password,
                    Email = email
                });
                db.SaveChanges();
            }
        }
    }
}

```

```

        catch (Exception ex)
        {
            MessageBox.Show(ex.Message.ToString(),
                            "Системное сообщение",
                            MessageBoxButton.OK,
                            MessageBoxImage.Error);
        }
    }
}

Ссылка: 4
public void Read()
{
    using (DataContext db = new DataContext())
    {
        DatabaseUsers = db.Users.ToList();
        LVInfo.ItemsSource = DatabaseUsers;
    }
}

Ссылка: 1
public void Update()
{
    using (DataContext db = new DataContext())
    {
        User? selectedUser = LVInfo.SelectedItem as User;

        var login = TbLogin.Text;
        var password = TbPassword.Text;
        var email = TbEmail.Text;
    }
}

```

```

try
{
    if (string.IsNullOrEmpty(login) ||
        string.IsNullOrEmpty(password) ||
        string.IsNullOrEmpty(email))
    {
        MessageBox.Show("Ошибка ввода данных",
                        "Системное сообщение",
                        MessageBoxButton.OK,
                        MessageBoxImage.Error);
    }
    else
    {
        User user = db.Users.Find(selectedUser.UserID);
        user.Login = login;
        user.Password = password;
        user.Email = email;

        db.SaveChanges();
        Read();
    }
}
catch (Exception ex)
{
    MessageBox.Show(ex.Message.ToString(),
                    "Системное сообщение",
                    MessageBoxButton.OK,
                    MessageBoxImage.Error);
}
}

```

Ссылка: 1

```
public void Delete()
{
    using (DataContext db = new DataContext())
    {
        User selectedUser = LVInfo.SelectedItem as User;

        if (selectedUser != null)
        {
            User? user = db.Users.Single(f => f.UserID == selectedUser.UserID);
            db.Users.Remove(user);
            db.SaveChanges();
            Read();
        }
    }
}
```

Ссылка: 1

```
private void BtnCreate_Click(object sender, RoutedEventArgs e)
{
    Create();
}
```

Ссылка: 1

```
private void BtnRead_Click(object sender, RoutedEventArgs e)
{
    Read();
}
```

Ссылка: 1

```
private void BtnUpdate_Click(object sender, RoutedEventArgs e)
{
    Update();
}
```

Ссылка: 1

```
private void BtnDelete_Click(object sender, RoutedEventArgs e)
{
    Delete();
}
```

Ссылка: 1

```
private void MenuItem_Click(object sender, RoutedEventArgs e)
{
    LVInfo.Items.Clear();
}
```