**УСТАНОВКА ЗАВИСИМОСТЕЙ И СОЗДАНИЕ ПРОЕКТА**

dotnet add package Avalonia.Xaml.Behaviors --version 11.2.0.14

dotnet add package MessageBox.Avalonia --version 3.2.0

**НАПИСАНИЕ ПРОГРАММЫ**

**ValidationHelper.cs:**

using System.Text.RegularExpressions;

public class ValidationHelper

{

public static bool IsValidInn(string? inn)

{

if (string.IsNullOrWhiteSpace(inn)) return false;

return Regex.IsMatch(inn, @"^\d{10}$|^\d{12}$");

}

public static bool IsValidEmail(string? email)

{

if (string.IsNullOrWhiteSpace(email)) return false;

return Regex.IsMatch(email, @"^[^@\s]+@[^@\s]+\.[^@\s]+$");

}

public static bool IsValidPhoneNumber(string? phone)

{

if (string.IsNullOrWhiteSpace(phone)) return false;

return Regex.IsMatch(phone, @"^\+?[78]\s?\(?\d{3}\)?\s?\d{3}[-\s]?\d{2}[-\s]?\d{2}$");

}

public static bool IsValidRating(int? rating)

{

return rating is >= 0 and <= 100;

}

}

**Partner.cs:**

using System.Linq;

namespace DemoApp.Models

{

public class Partner : Entities.Partner

{

public Entities.Partner \_partner { get; set; }

public Partner(Entities.Partner partner)

{

\_partner = partner;

}

public string? PartnerTypeDescription => \_partner.PartnerTypeNavigation?.PartnerTypeName;

public string ContactInfo => $"{\_partner.DirectorPhone} | {\_partner.DirectorMail}";

public string RatingDisplay => $"Рейтинг: {\_partner.PartnerRating ?? 0}";

public int TotalProductsSold => \_partner.Sales?.Sum(s => s.ProductCount) ?? 0;

public decimal Discount => CalculatePartnerDiscount(TotalProductsSold);

public string DiscountDisplay => $"Скидка: {Discount:P0}";

public static decimal CalculatePartnerDiscount(int totalProductsSold)

{

return totalProductsSold switch

{

< 10000 => 0,

< 50000 => 0.05m,

< 300000 => 0.10m,

\_ => 0.15m

};

}

}

}

**Partner.cs (Entities):**

using System;

using System.Collections.Generic;

using System.ComponentModel.DataAnnotations;

using System.ComponentModel.DataAnnotations.Schema;

namespace DemoApp.Entities;

public partial class Partner

{

[Key]

[DatabaseGenerated(DatabaseGeneratedOption.Identity)]

public int? PartnerId { get; set; }

public string? PartnerName { get; set; }

public string? Director { get; set; }

public string? DirectorMail { get; set; }

public string? DirectorPhone { get; set; }

public string? PartnerLegalAddress { get; set; }

public string? PartnerInn { get; set; }

public int? PartnerRating { get; set; }

public int? PartnerType { get; set; }

public virtual PartnerType? PartnerTypeNavigation { get; set; }

public virtual ICollection<Sale> Sales { get; set; } = new List<Sale>();

}

**EditPartnerViewModel.cs:**

using System.Collections.ObjectModel;

using System.Linq;

using System.Threading.Tasks;

using CommunityToolkit.Mvvm.ComponentModel;

using CommunityToolkit.Mvvm.Input;

using DemoApp.Entities;

using MsBox.Avalonia;

using MsBox.Avalonia.Enums;

namespace DemoApp.ViewModels

{

public partial class EditPartnerViewModel : ViewModelBase

{

private readonly DbDemoFdbContext \_context;

private readonly PartnersViewModel? \_parentViewModel;

private readonly Partner \_partnerEntity;

[ObservableProperty]

private string? \_partnerName;

[ObservableProperty]

private string? \_partnerInn;

[ObservableProperty]

private string? \_director;

[ObservableProperty]

private string? \_directorPhone;

[ObservableProperty]

private string? \_directorMail;

[ObservableProperty]

private int? \_partnerRating;

[ObservableProperty]

private int? \_selectedPartnerType;

[ObservableProperty]

private ObservableCollection<PartnerType> \_partnerTypes = new();

[ObservableProperty]

private string? \_errorMessage;

public EditPartnerViewModel(DbDemoFdbContext context, Partner? partner = null, PartnersViewModel? parentViewModel = null)

{

\_context = context;

\_parentViewModel = parentViewModel;

\_partnerEntity = partner ?? new Partner();

LoadPartnerTypes();

LoadPartnerData();

}

private void LoadPartnerTypes()

{

var types = \_context.PartnerTypes.ToList();

PartnerTypes = new ObservableCollection<PartnerType>(types);

}

private void LoadPartnerData()

{

PartnerName = \_partnerEntity.PartnerName;

PartnerInn = \_partnerEntity.PartnerInn;

Director = \_partnerEntity.Director;

DirectorPhone = \_partnerEntity.DirectorPhone;

DirectorMail = \_partnerEntity.DirectorMail;

PartnerRating = \_partnerEntity.PartnerRating;

SelectedPartnerType = \_partnerEntity.PartnerType;

}

private bool ValidateData()

{

if (string.IsNullOrWhiteSpace(PartnerName))

{

ErrorMessage = "Название партнера обязательно для заполнения";

return false;

}

if (!ValidationHelper.IsValidInn(PartnerInn))

{

ErrorMessage = "ИНН должен содержать 10 или 12 цифр";

return false;

}

if (string.IsNullOrWhiteSpace(Director))

{

ErrorMessage = "Имя директора обязательно для заполнения";

return false;

}

if (!ValidationHelper.IsValidPhoneNumber(DirectorPhone))

{

ErrorMessage = "Неверный формат номера телефона. Пример: +7(999)999-99-99";

return false;

}

if (!ValidationHelper.IsValidEmail(DirectorMail))

{

ErrorMessage = "Неверный формат электронной почты";

return false;

}

if (!ValidationHelper.IsValidRating(PartnerRating))

{

ErrorMessage = "Рейтинг должен быть от 0 до 100";

return false;

}

if (SelectedPartnerType == null)

{

ErrorMessage = "Выберите тип партнера";

return false;

}

ErrorMessage = null;

return true;

}

[RelayCommand]

private async Task SaveAsync()

{

if (!ValidateData()) {

var box = MessageBoxManager

.GetMessageBoxStandard("Error", ErrorMessage,

ButtonEnum.Ok);

var result = await box.ShowAsync();

return;}

\_partnerEntity.PartnerName = PartnerName;

\_partnerEntity.PartnerInn = PartnerInn;

\_partnerEntity.Director = Director;

\_partnerEntity.DirectorPhone = DirectorPhone;

\_partnerEntity.DirectorMail = DirectorMail;

\_partnerEntity.PartnerRating = PartnerRating;

\_partnerEntity.PartnerType = SelectedPartnerType;

if (\_partnerEntity.PartnerId == 0)

{

\_context.Partners.Add(\_partnerEntity); // новая запись

}

else

{

\_context.Partners.Update(\_partnerEntity); // обновление существующей

}

\_context.SaveChanges();

\_parentViewModel?.LoadPartners();

Cancel();

}

[RelayCommand]

private void Cancel()

{

\_parentViewModel?.\_mainViewModel.ShowPartnersList();

}

}

}

**MainWindowViewModel.cs:**

namespace DemoApp.ViewModels;

using Avalonia.Controls;

using CommunityToolkit.Mvvm.ComponentModel;

using DemoApp.Entities;

using DemoApp.Views;

public partial class MainWindowViewModel : ViewModelBase

{

[ObservableProperty]

private Control? \_content;

private readonly DbDemoFdbContext \_context;

public void ShowContent(Control content)

{

Content = content;

}

public void ShowPartnersList()

{

Content = new PartnersView

{

DataContext = new PartnersViewModel(\_context, this)

};

}

public MainWindowViewModel()

{

\_context = new DbDemoFdbContext();

ShowPartnersList();

}

public void ShowEditPartner(EditPartnerView editControl)

{

Content = editControl;

}

}

**PartnersViewModel.cs:**

using System.Collections.ObjectModel;

using System.Linq;

using CommunityToolkit.Mvvm.ComponentModel;

using CommunityToolkit.Mvvm.Input;

using DemoApp.Entities;

using DemoApp.Views;

using Microsoft.EntityFrameworkCore;

namespace DemoApp.ViewModels

{

public partial class PartnersViewModel : ObservableObject

{

private readonly DbDemoFdbContext \_context;

internal readonly MainWindowViewModel \_mainViewModel;

[ObservableProperty]

private ObservableCollection<Models.Partner> \_partners = new();

[ObservableProperty]

private Models.Partner? \_selectedPartner;

public PartnersViewModel(DbDemoFdbContext context, MainWindowViewModel mainViewModel)

{

\_context = context;

\_mainViewModel = mainViewModel;

LoadPartners();

}

public void LoadPartners()

{

var entities = \_context.Partners.Include(p => p.Sales).Include(p => p.PartnerTypeNavigation).ToList();

Partners = new ObservableCollection<Models.Partner>(

entities.Select(e => new Models.Partner(e))

);

}

[RelayCommand]

private void EditPartner()

{

if (SelectedPartner == null) return;

var partnerEntity = \_context.Partners.Find(SelectedPartner.\_partner.PartnerId);

if (partnerEntity == null) return;

var viewModel = new EditPartnerViewModel(\_context, partnerEntity, this);

var editControl = new EditPartnerView { DataContext = viewModel };

\_mainViewModel.ShowEditPartner(editControl);

}

[RelayCommand]

private void AddPartner()

{

var viewModel = new EditPartnerViewModel(\_context, parentViewModel: this);

var editControl = new EditPartnerView { DataContext = viewModel };

\_mainViewModel.ShowEditPartner(editControl);

}

[RelayCommand]

private void ViewSalesHistory(Partner? partner)

{

//история продаж

}

}

}

**EditPartnerView.axaml:**

<UserControl xmlns="https://github.com/avaloniaui"

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"

mc:Ignorable="d" d:DesignWidth="800" d:DesignHeight="450"

x:Class="DemoApp.Views.EditPartnerView"

xmlns:vm="using:DemoApp.ViewModels"

x:DataType="vm:EditPartnerViewModel">

<Grid Margin="20">

<StackPanel Spacing="10">

<TextBlock Text="Редактирование партнера" FontSize="24" FontWeight="Bold" />

<TextBlock Text="{Binding ErrorMessage}"

Foreground="Red"

IsVisible="{Binding ErrorMessage, Converter={x:Static ObjectConverters.IsNotNull}}"

TextWrapping="Wrap"/>

<Grid ColumnDefinitions="150,\*" RowDefinitions="Auto,Auto,Auto,Auto,Auto,Auto,Auto,Auto,Auto">

</Grid>

<StackPanel Orientation="Horizontal" Spacing="10">

<Button Content="Сохранить" Command="{Binding SaveCommand}" />

<Button Content="Отмена" Command="{Binding CancelCommand}" />

</StackPanel>

<TextBlock Grid.Row="0" Grid.Column="0" Text="Название:" />

<TextBox Grid.Row="0" Grid.Column="1" Text="{Binding PartnerName}" />

<TextBlock Grid.Row="1" Grid.Column="0" Text="ИНН:" />

<TextBox Grid.Row="1" Grid.Column="1" Text="{Binding PartnerInn}" />

<TextBlock Grid.Row="2" Grid.Column="0" Text="Директор:" />

<TextBox Grid.Row="2" Grid.Column="1" Text="{Binding Director}" />

<TextBlock Grid.Row="3" Grid.Column="0" Text="Телефон:" />

<MaskedTextBox Grid.Row="3" Grid.Column="1" Text="{Binding DirectorPhone}"

Mask="+7 (000) 000 0000" />

<TextBlock Grid.Row="4" Grid.Column="0" Text="Email:" />

<TextBox Grid.Row="4" Grid.Column="1" Text="{Binding DirectorMail}"

Watermark="example@domain.com" />

<TextBlock Grid.Row="5" Grid.Column="0" Text="Рейтинг:" />

<NumericUpDown Grid.Row="5" Grid.Column="1" Value="{Binding PartnerRating}"

Minimum="0" Maximum="100" />

<TextBlock Grid.Row="6" Grid.Column="0" Text="Тип партнера:" />

<ComboBox Grid.Row="6" Grid.Column="1"

ItemsSource="{Binding PartnerTypes}"

SelectedValue="{Binding SelectedPartnerType}"

SelectedValueBinding="{Binding PartnerTypeId}"

DisplayMemberBinding="{Binding PartnerTypeName}" />

</StackPanel>

</Grid>

</UserControl>

**EditPartnerView.axaml.cs:**

using Avalonia;

using Avalonia.Controls;

using Avalonia.Markup.Xaml;

namespace DemoApp.Views;

public partial class EditPartnerView : UserControl

{

public EditPartnerView()

{

InitializeComponent();

}

}

**PartnersView.axaml:**

<UserControl xmlns="https://github.com/avaloniaui"

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"

mc:Ignorable="d" d:DesignWidth="800" d:DesignHeight="450"

x:Class="DemoApp.Views.PartnersView"

xmlns:vm="using:DemoApp.ViewModels"

x:DataType="vm:PartnersViewModel">

<Grid Margin="20">

<StackPanel Spacing="10">

<TextBlock Text="Список партнеров" FontSize="24" FontWeight="Bold" />

<StackPanel Orientation="Horizontal" Spacing="10">

<Button Content="Добавить партнера" Command="{Binding AddPartnerCommand}" />

<Button Content="Редактировать" Command="{Binding EditPartnerCommand}" />

</StackPanel>

<ListBox ItemsSource="{Binding Partners}" SelectedItem="{Binding SelectedPartner}"

MaxHeight="800">

<ListBox.ItemTemplate>

<DataTemplate>

<StackPanel Orientation="Horizontal" Margin="5" HorizontalAlignment="Left">

<StackPanel Orientation="Vertical" Margin="5" HorizontalAlignment="Left">

<StackPanel Orientation="Horizontal" HorizontalAlignment="Left">

<TextBlock Text="{Binding PartnerTypeDescription}" TextWrapping="Wrap" />

<TextBlock Text=" | " TextWrapping="Wrap" />

<TextBlock Text="{Binding \_partner.PartnerName}" TextWrapping="Wrap" Width="250" />

</StackPanel>

<TextBlock Text="{Binding \_partner.Director}" TextWrapping="Wrap" Width="250" HorizontalAlignment="Left" />

<TextBlock Text="{Binding \_partner.DirectorPhone}" TextWrapping="Wrap" Width="250" HorizontalAlignment="Left" />

<TextBlock Text="{Binding RatingDisplay}" TextWrapping="Wrap" Width="250" HorizontalAlignment="Left" />

</StackPanel>

<StackPanel Orientation="Vertical" Spacing="10">

<TextBlock Text="{Binding DiscountDisplay}" TextWrapping="Wrap" Width="150" />

<Button Content="История продаж" />

</StackPanel>

</StackPanel>

</DataTemplate>

</ListBox.ItemTemplate>

<Interaction.Behaviors>

<EventTriggerBehavior EventName="SelectionChanged">

<InvokeCommandAction Command="{Binding EditPartnerCommand}" CommandParameter="{Binding SelectedPartner}"/>

</EventTriggerBehavior>

</Interaction.Behaviors>

</ListBox>

</StackPanel>

</Grid>

</UserControl>

**PartnersView.axaml.cs:**

using Avalonia;

using Avalonia.Controls;

using Avalonia.Markup.Xaml;

namespace DemoApp.Views;

public partial class PartnersView : UserControl

{

public PartnersView()

{

InitializeComponent();

}

}