

Sunward Portal Management System

DOCUMENT INFORMATION

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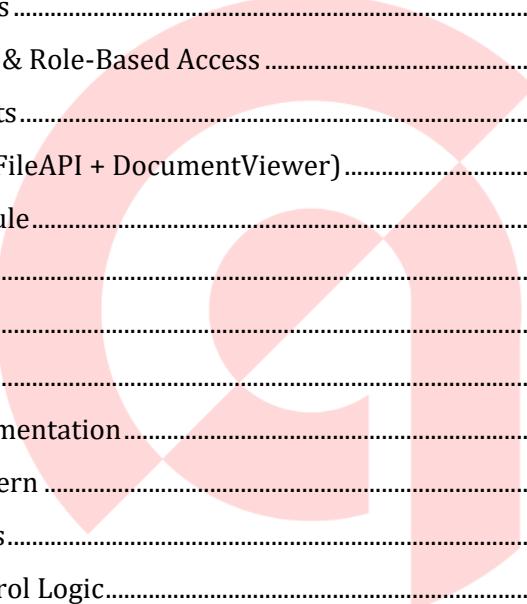
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1. Project Overview

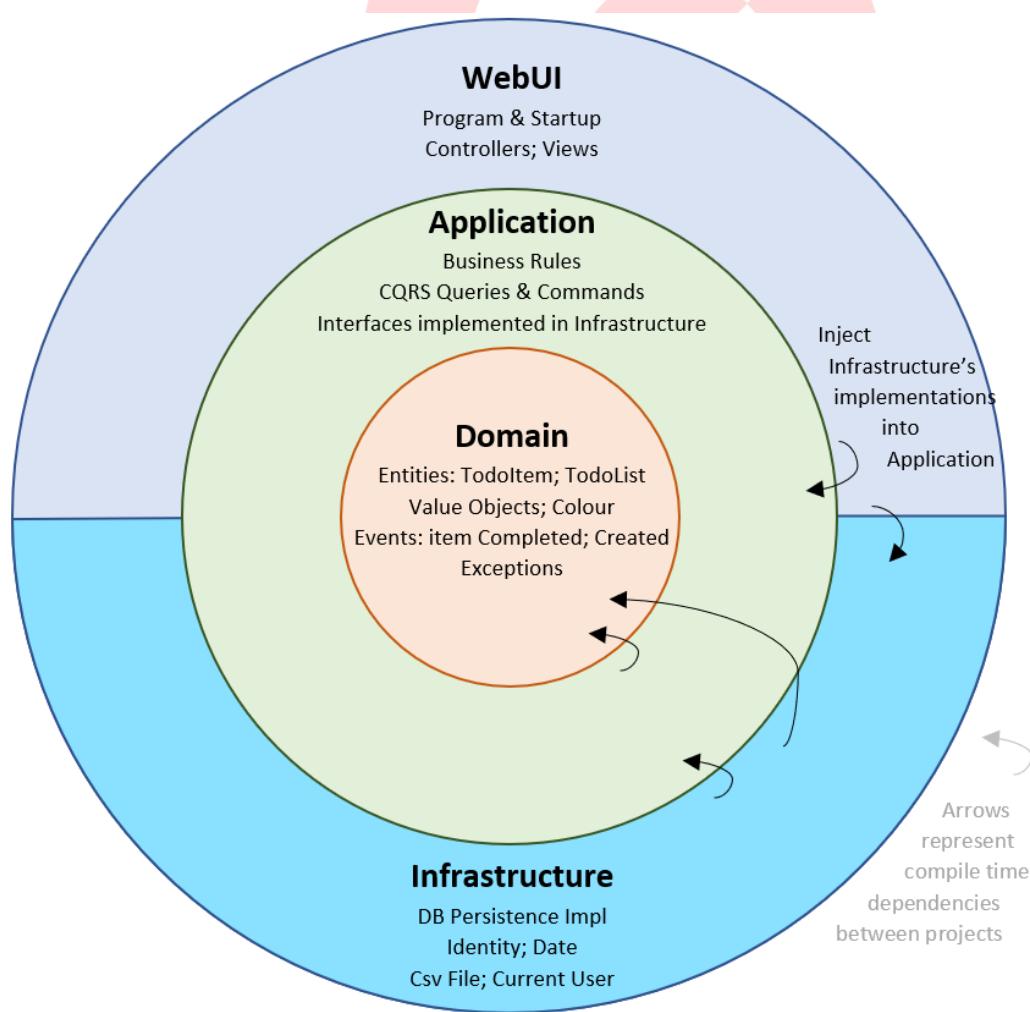
The **Sunward Portal Management System** is a modern enterprise web platform designed using **Onion Architecture**, **.NET 8**, **C#**, and **DevExpress Blazor**.

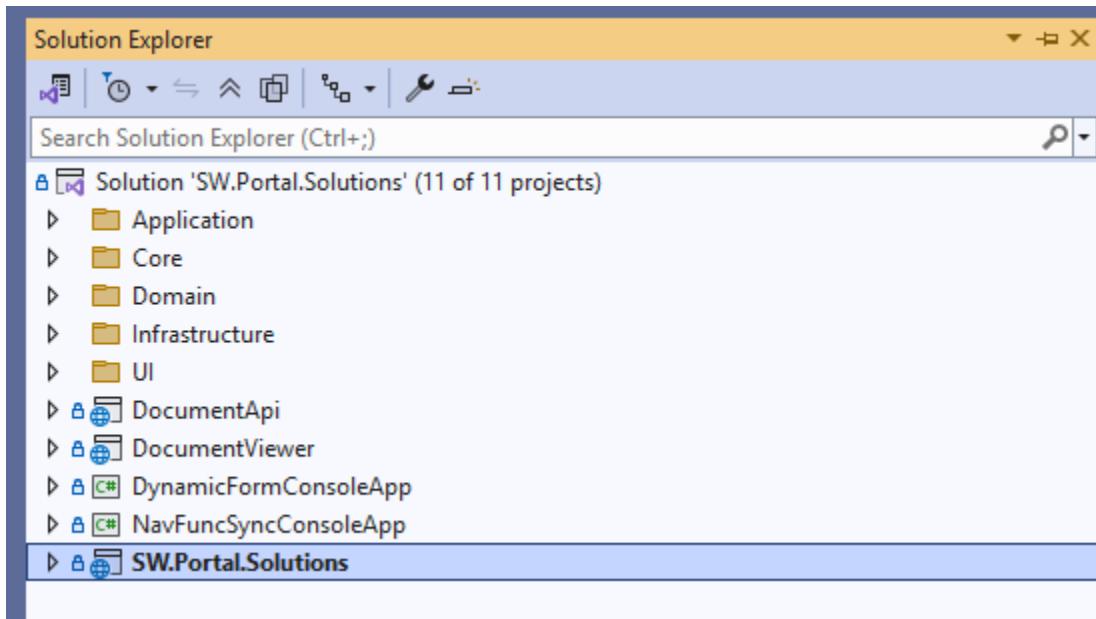
The solution integrates multiple modules such as **Document Viewer**, **Document API**, **Dynamic Form Console**, and **Navigation Functional Sync**, allowing centralized process automation for Sunward operations.

The project supports:

1. High-performance .NET 8 backend
2. Modular Onion architecture (Application, Core, Domain, Infrastructure, UI)
3. DevExpress Blazor rich UI
4. SQL Server as the main database
5. Clean, scalable, testable structure

Solution Architecture Screenshot





2. Objectives

The primary objectives of the Sunward Portal Management System are:

1. Centralized Web Platform

Provide a single, unified portal for internal operations, document management, and forms.

2. Modular & Scalable Architecture

Using **Onion Architecture** ensures that business logic is independent from UI and infrastructure, making it scalable.

3. High Performance & Security

Built on .NET 8 to support faster execution, secure API endpoints, JWT authentication, and efficient DB queries.

4. Simplified Document Management

Using **DocumentAPI**, and **DocumentViewer** modules to manage all Sunward documents.

5. Consistent UI/UX

DevExpress Blazor components provide a fast, responsive user interface with consistent styling.

3. System Modules & Key Functions

3.1 Onion Architecture Layers (Main Solution)

Domain Layer

- Contains **Entities, Value Objects, Enums**
- Pure business rules
- No dependency on external libraries

Application Layer

- Contains **CQRS Handlers, Interfaces, Business Rules**
- Includes application services for:
 - User management
 - Document operations
 - Form workflows
 - Notification routines

Infrastructure Layer

- Responsible for:
 - SQL Server database
 - EF Core repositories
 - Email service
 - File storage
 - Logging



UI Layer (DevExpress Blazor)

- Main Blazor Web App
- Razor pages, components
- DevExpress controls:
 - DxDataGrid
 - DxFormLayout
 - DxPopup
 - DxDateEdit / DxMaskedInput
 - DxScheduler

Core Layer

- Shared utilities
- DTOs
- Extensions
- Helpers

3.2 Additional Projects in the Solution

DocumentApi

- Provides API endpoints for:
- Upload
- Preview
- Download
- Delete operations
- Used by FileViewer and SWPortal

DocumentViewer (Blazor Module)

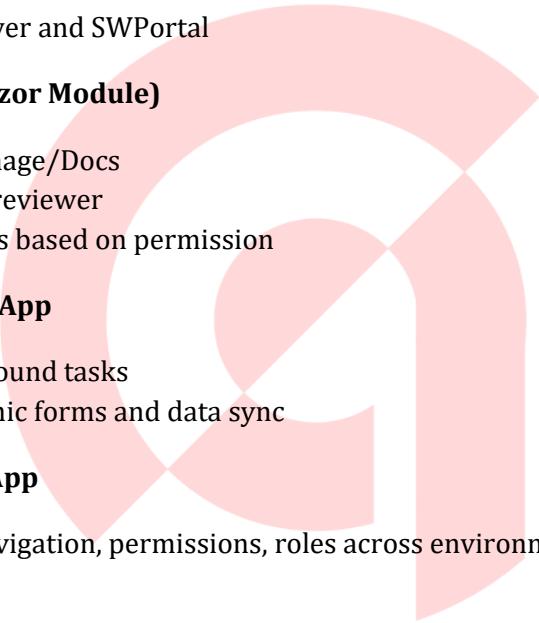
- Displays PDF/Image/Docs
- Integrated file previewer
- Controlled access based on permission

DynamicFormConsoleApp

- Executes background tasks
- Processes dynamic forms and data sync

NavFuncSyncConsoleApp

- Synchronizes navigation, permissions, roles across environments



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4. Functional Components

Below are the core functional components of the system.

4.1 User Authentication & Role-Based Access

- Login
- Role-based UI rendering
- Permission-based menu filtering
- Integrated with SWPortal database

4.2 Dashboard & Widgets

- Real-time dashboard
- DevExpress Charts
- Statistics (Forms, Pending Tasks, Reports)

4.3 Document Module (FileAPI + DocumentViewer)

Features:

- Upload documents
- Version management
- Online viewing (PDF, Excel, Word)
- Secure storage
- Activity logs

4.4 Dynamic Form Module

- Create custom forms
- Approval workflow
- Auto validation rules
- Audit trail

4.4 Reporting Module

- DevExpress Reports
- Export: PDF, Excel
- Scheduled reports

4.4 Portal Settings

- User management
- Role assignment
- Email configuration (SMTP)
- Application variables

5. Business Logic

The core business logic is implemented within **Application Layer** and **Domain Layer**.

5.1 CQRS Pattern Implementation

- Query → fetch data
- Command → create, update, delete

5.2 Repository Pattern

- All DB interaction via repositories
- EF Core used for abstraction

5.3 Validation Rules

- Fluent Validation
- Custom validation attributes (e.g., Name)

5.4 Document Control Logic

- Secure file paths
- Checking user rights before viewing
- File encryption (optional)



6. Summary

The **Sunward Portal Management System** is a robust, modular, enterprise-grade application developed using:

- **Onion Architecture**
- **.NET 8 + C#**
- **DevExpress Blazor**
- **SQL Server**

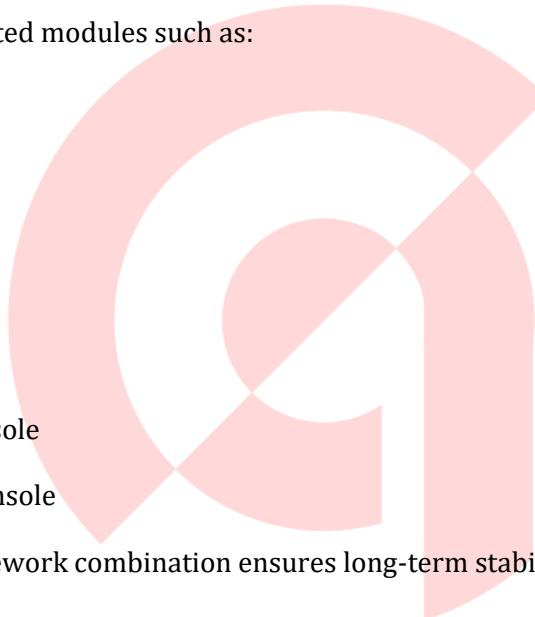
- **API + Blazor Hybrid Components**

The system structure ensures:

- ✓ High maintainability
- ✓ Reusable business logic
- ✓ Strict separation of concerns
- ✓ Secure document management
- ✓ Scalable modular design

It contains multiple integrated modules such as:

- SWPortal (Live)
- SWPortalUAT (Dev)
- FileAPI
- DocumentViewer
- DocumentAPI
- Dynamic Form Console
- Navigation Sync Console



This architecture and framework combination ensures long-term stability and ease of enhancements.

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