# Devlog - MeetingPlanner

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## GitHub-Link

https://github.com/LaurinGob/MeetUpTogether

## Used technologies and frameworks

| Technology | Use |
|---|---|
| VisualStudio 2022 | IDE |
| C# 11 (for .NET 8) | Programming Language |
| WPF (Windows Presentation Foundation) | Used for building the UI |
| EF Core (Entity Framework Core) | Data Access + in-memory DB for UnitTests |
| SQLite | Database |
| QuestPDF | Report Generation |
| Log4Net | Logging |
| NUnit | UnitTests |
| Draw.io | UML Diagrams |
| MS Word | Protocol |

## Patterns used

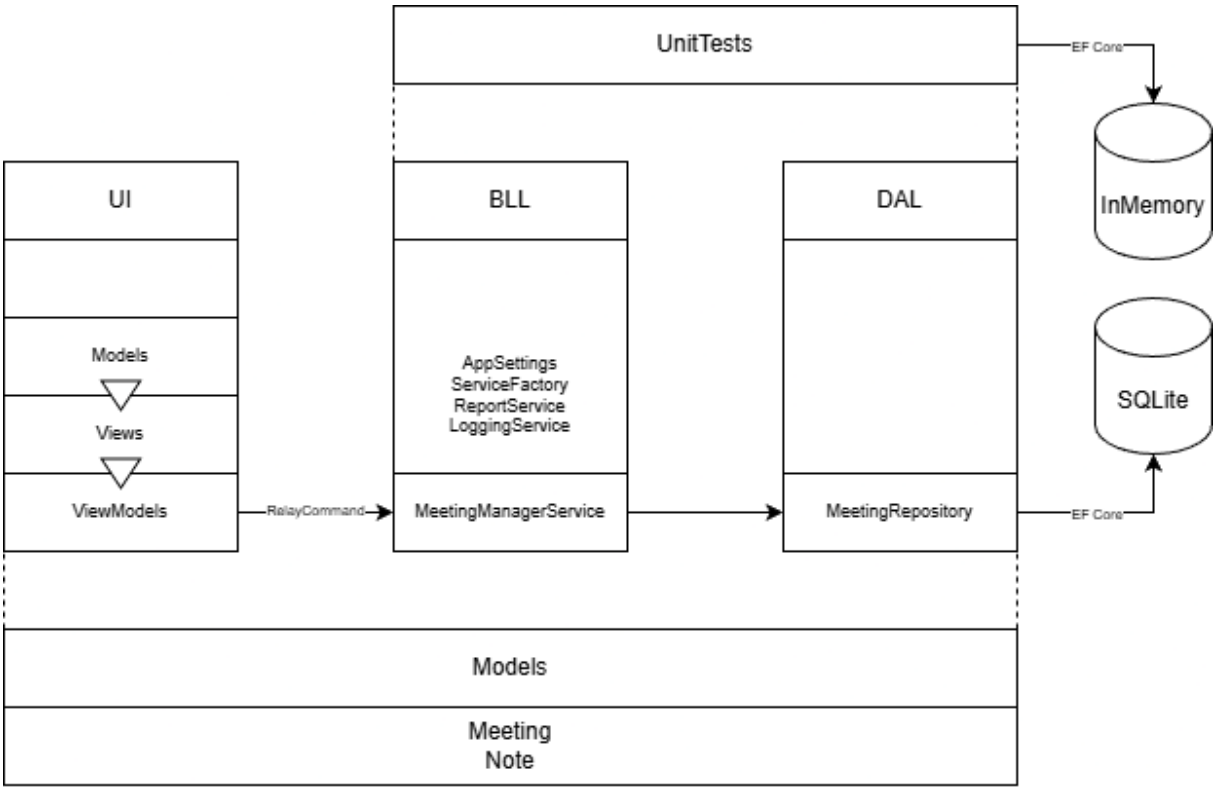
MVVM-Pattern to decouple views and business logic.

Factory-Pattern to provide Services (ServiceFactory Class).

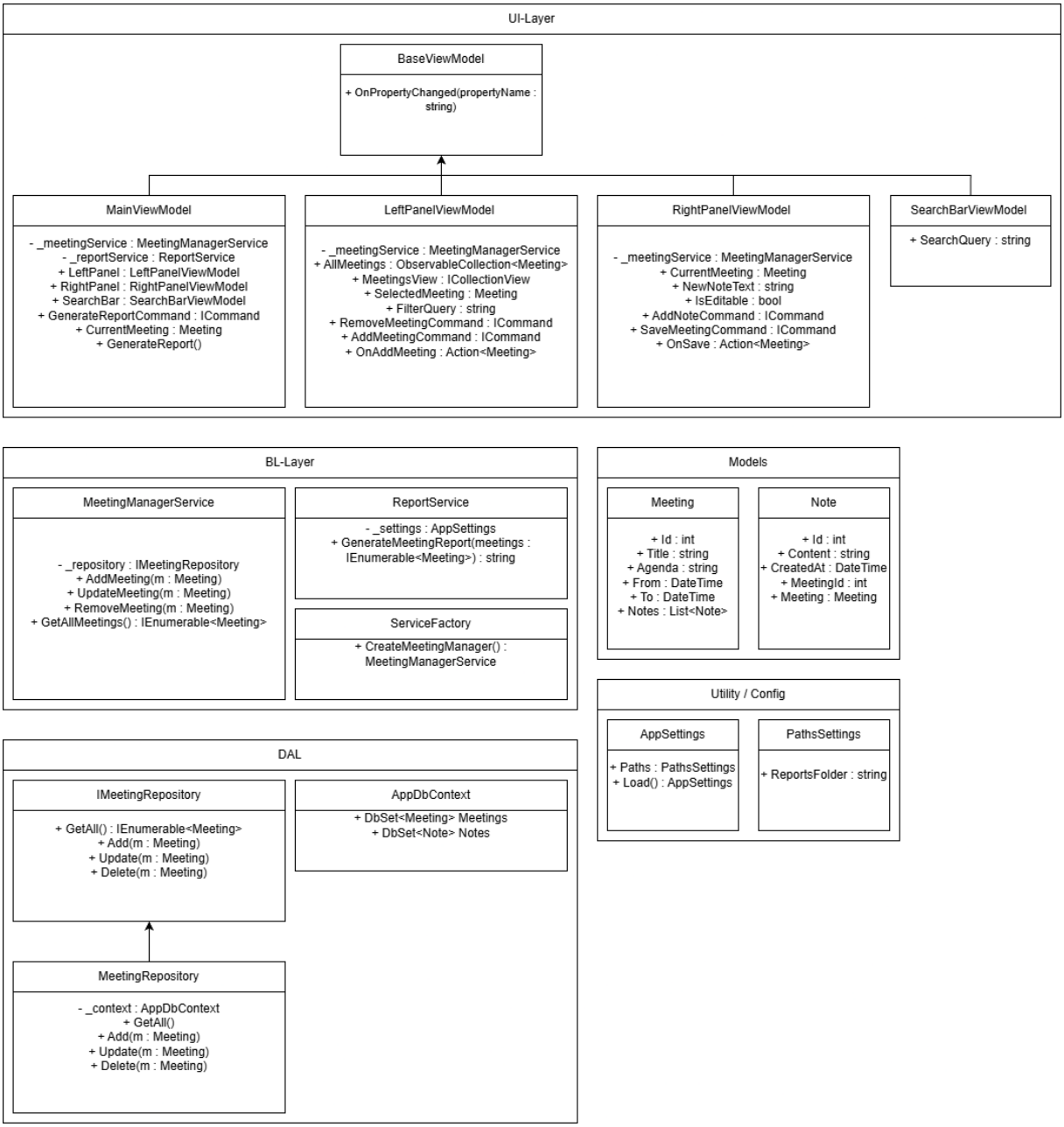
Repository-Pattern to define CRUD-Operations for EFCore.

AAA-Pattern for unit-tests.

# Architecture overview

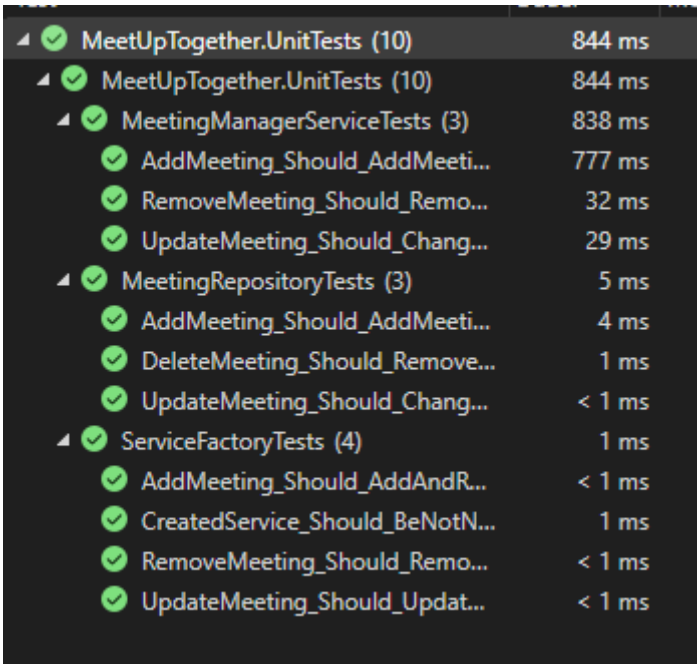


# Class diagrams



# Unit tests

The unit tests have been chosen to ensure the core feature, the CRUD-Operations, in each layer stay functional:



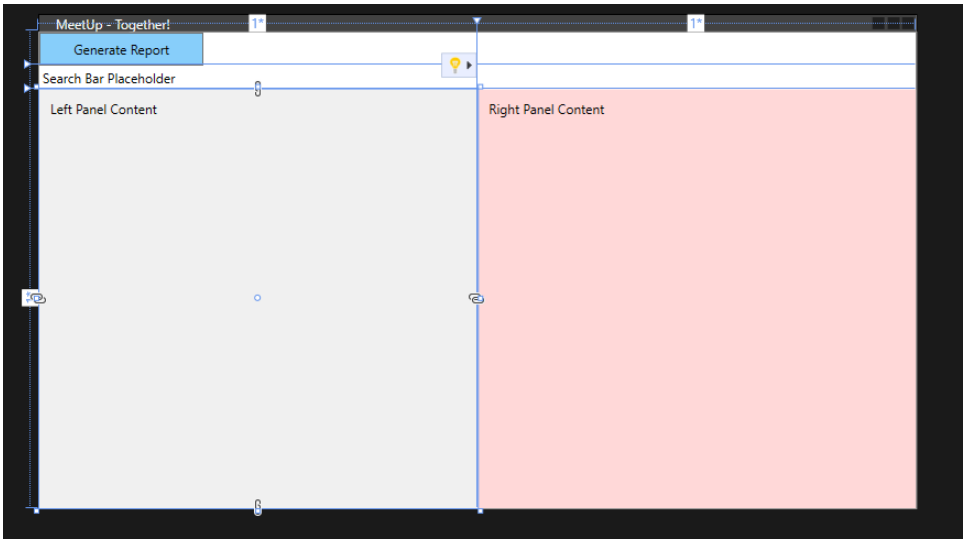

All unit tests are executed on an inMemory database, provided by EFCore. It is executed in the setup-step of each unittest-file.

```
var options = new DbContextOptionsBuilder<AppDbContext>()
    .UseInMemoryDatabase(databaseName: "TestDb_" + Guid.NewGuid())
```

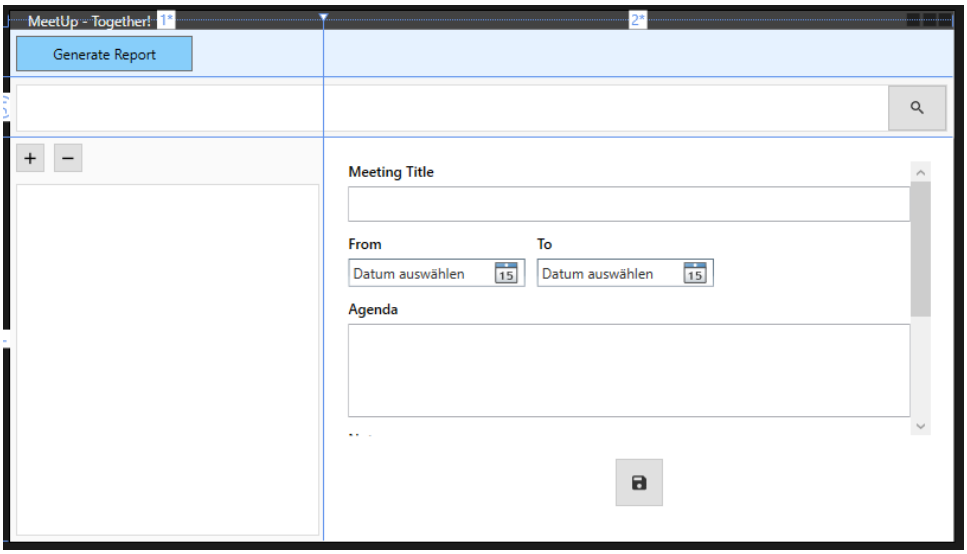
One extra unit-test has been added to ensure the ServiceFactory is providing each service correctly.

# UI-Design

The UI-Design was done according to the MeetingPlaner-Specification and designed layer by layer:



These areas correspond to the different usercontrols found in .UI/Controls/.




Final View.

# Business Layer

A new project with a class library template was added, in which the services were defined:

MeetingManagerService – Executes CRUD Operations in UI via Two-Way-Binding, validates data and calls DAL-Classes.

LoggingService – Provides class to write into log.

ReportService – Provides class to generate report.

ServiceFactory – Provides Services

# Models

The models were added in a separate Class Library to decouple the UI, DAL and Business Layer while allowing all projects to access them. They are POCOs:

Meetings – holds all meeting data (including list of notes)

Note – holds note data

# Data Access Layer

For persistence a sqlLite-Database was used. It was accessed via the EntityFrameworkCore.

# Report generation

Report generation was done via the NuGet-Package QuestPDF.

# Logging

Logs are generated via Log4Net-framework in key areas, such as on startup and shutdown. Each user action is created aswell.