# Proposed Architecture

* **Emp.Api (ASP.NET Core Web API Project):**
  + **Role:** The entry point for HTTP requests. Handles routing, authentication/authorization, and delegates business logic to the Application layer.
  + **Contents:** Controllers, Program.cs , Filters, Custom Middleware, appsettings.json.
  + **References:** Emp.Application, Emp.Core, Emp.Infrastructure
* **Emp.Application (Class Library):**
  + **Role:** Contains the application's business logic and orchestrates operations. It uses DTOs for data exchange with the API layer. It consumes entities coming from Repositories of Infrastructure Layer.
  + **Contents:** Service Implementations
  + **References:** Emp.Core, Emp.Infrastructure
* **Emp.Core (Class Library):**
  + **Role:** The heart of the domain. Contains core entities, DTOs, shared interfaces, and common abstractions that are independent of any specific technology (like EF Core or ASP.NET).
  + **Contents:** Models (Entities: Employee, Department), DTOs, Mapping Extenstions from Entities to DTOs, Repository Interfaces (IGenericRepository<T>, IEmployeeRepository, IDepartmentRepository), Unit of Work Interface (IUnitOfWork).
  + **References:** None
* **Emp.Infrastructure (Class Library):**
  + **Role:** Handles data access and external concerns. Implements the interfaces defined in Emp.Core.
  + **Contents:** ApplicationDbContext, Concrete Repository Implementations (GenericRepository<T>, EmployeeRepository, DepartmentRepository), Unit of Work Implementation (UnitOfWork), Migrations
  + **References:** Emp.Core, Microsoft.EntityFrameworkCore.\*.
* **Emp.Tests (xUnit Test Project):**
  + **Role:** Contains all unit and integration tests.
  + **Contents:** Test classes for Controllers, Services, Repositories.
  + **References:** Emp.Api, Emp.Application, Emp.Infrastructure (for testing concrete implementations), xunit, Moq, Microsoft.EntityFrameworkCore.InMemory.

# Technologies with Versions

|  |  |  |
| --- | --- | --- |
| Target Framework | .NET | net9.0 |
| Logging in Text Files | Serilog | 9.0.0 |
| API Testing – Web UI | Swashbuckle - Swagger | 9.0.1 |
| API Documentation and Testing postman collection | OpenApi | 9.0.7 |
| DB Communication | Microsoft.EntityFrameworkCore.SqlServer | 9.0.7 |
| DB Migrations | Microsoft.EntityFrameworkCore.Design | 9.0.7 |
| Unit Testing | xunit | 2.9.2 |
| Unit Testing – Mocking | moq | 4.2 |
| Unit Testing – Assertions | FluentAssertions | 8.5 |
| BCrypt.Net-Next | For Password hashing | 4.0.3 |