

Internship – Soudal

Project Plan

Zeeshan Mehmood – r0959598
Student Bachelor Applied Computer Science

Table of Contents

1. COMPANY OVERVIEW	3
2. PROJECT OVERVIEW	3
2.1. Background	3
2.2. Business Case	4
2.3. Project Purpose and Objectives	4
2.4. Project Scope	4
3. PROJECT PLAN	5
3.1. Requirements and Design (Wee/k 1-2)	5
3.1.1. Week 1	5
3.1.2. Week 2	6
3.2. Core Development (Weeks 3-8)	6
3.2.1. Week 3	6
3.2.2. Week 4	6
3.2.3. Week 5	7
3.2.4. Week 6	7
3.2.5. Week 7	7
3.2.6. Week 8	7
3.3. Cloud Deployment (Weeks 9-10)	8
3.3.1. Week 9	8
3.3.2. Week 10	8
3.4. Documentation and Stabilization (Week 11-13)	8
3.4.1. Week 11	8
3.4.2. Week 12	8
3.4.3. Week 13	8
4. PROGRESS REPORTING	9
5. EXPECTED LEARNING & OUTCOMES	9
5.1. Expected Learning	9
5.2. Project Expectations	9
5.3. Expected Final Outcome	9
5.4. Risk Considerations	10

1. Company Overview

Soudal is a Belgian family-owned multinational company founded in 1966 by Vic Swerts. The company has grown into one of the world's leading manufacturers of sealants, adhesives, polyurethane foams, hybrid polymers, technical sprays, and other chemical building products. Its products are used across different market segments, including construction, industry, and do-it-yourself applications.

Soudal is headquartered in Turnhout, Belgium, where my internship also takes place. The Turnhout location is important because it is not only the company's headquarters, but also one of its central operational locations. The company has multiple plants in Turnhout, including production facilities that support the manufacturing and distribution of Soudal products. The corporate presentation specifically refers to Turnhout Plant 5, which shows the importance of the Turnhout site within the wider Soudal group.

Internationally, Soudal operates through production companies, product marketing organizations, and solution-oriented business activities. The company follows a long-term growth strategy and remains fully family-owned. Its international presence includes activities in Belgium, Poland, China, Korea, and other global markets.

Innovation is an important part of Soudal's business strategy. The company invests in product innovation, process innovation, automation, quality, safety, waste reduction, and efficiency. The presentation also mentions that Soudal works on approximately 300 R&D projects per year and has multiple R&D centers.

With its focus on operational efficiency, sustainability, innovation, and digitalization, Soudal continuously improves its internal processes. This internship project contributes to that direction by developing the Visit Request Portal, an internal web application that helps employees organize, approve, and monitor company visits in a more structured and centralized way.

2. Project Overview

2.1. Background

The internship project involves building an internal visitor planning and management system, referred to as Visit Request Portal. At present, visitor planning within the company is not centralized. Meetings and visits are booked through a combination of personal calendars and ad-hoc email exchanges. Without a unified system, scheduling conflicts can occur, approvals become difficult to track and management lacks visibility into upcoming visits. The goal of this project is to design and implement a web application to centralize visitor scheduling, enforce approval workflows and provide reporting capabilities.

2.2. Business Case

Currently, visitor planning at Soudal is handled through emails, personal calendars, and manual communication. This makes the process difficult to manage because information is spread across different channels and there is no central overview of upcoming visits. As a result, scheduling conflicts can occur, approvals are harder to track, and management has limited visibility into who is visiting, when they are coming, and what support is required.

The Visit Request Portal adds business value by centralizing the complete visit request process in one internal web application. Employees will be able to submit visit requests through a structured form, while admins can approve, reject, or manage requests from a central dashboard. Management will have access to approved visit information and historical records. This reduces manual coordination, improves transparency, supports better planning, and contributes to Soudal's broader digitalization and process optimization goals.

2.3. Project Purpose and Objectives

The purpose of this project is to design and implement a secure, scalable internal web application that:

- Centralizes visitor scheduling
- Avoid double bookings
- Introduces structured approval workflows
- Provides visibility to management
- Maintains historical records and reporting
- Integrates within Microsoft Azure & SharePoint environment

The system will include:

- Calendar-based booking system (Morning / Afternoon / Evening blocks)
- Role-based access (Requestor, Admin, Management)
- Approval & rejection workflow
- Email notifications
- Logbook and reporting module
- Audit logging
- Azure AD authentication
- SharePoint integration

2.4. Project Scope

The project covers the design and development of an ASP.NET Core Razor Pages application backed by an Azure SQL database. The scope includes:

- User authentication through Azure AD
- Role based authorization
- Calendar interface with color coded availability indicators

- Workflow for requesting, approving or rejecting visits
- Automated notifications via email
- Logbook and reporting module
- Deployment to Azure

The project does not include development of a public facing portal, mobile application or Excel file upload functionality. Only internal users will access the tool.

3. Project Plan

The internship spans thirteen weeks and is broken down into four phases:

1. Requirements & Design (Weeks 1–2)
2. Core Development (Weeks 3–8)
3. Cloud Deployment (Weeks 9–10)
4. Integration & Stabilization (Weeks 11–13)

3.1. Requirements and Design (Week 1-2)

During the first two weeks, I will work closely with stakeholders to understand business needs and application requirements.

3.1.1. Week 1

During the first week, I will focus on gaining a complete understanding of the business problem and translating it into clear and structured system requirements. I will organize meetings with the client and key stakeholders to clarify expectations regarding user roles, approval workflows, calendar behavior, notification rules, and reporting needs.

Based on these discussions, I will document both functional and non-functional requirements. Functional requirements will cover aspects such as visit request creation, approval/rejection workflows, calendar color logic (green, orange, red), role-based access control, and audit logging. Non-functional requirements will include security (Azure AD authentication), performance, usability, reliability, and integration within SharePoint.

In parallel, I will create use case diagrams and detailed use case descriptions to model system behavior. I will also design Figma prototypes for the Requestor, Admin, and Management roles. These prototypes will be reviewed with the client to validate workflows before moving into technical design. By the end of Week 1, the requirements specification will be finalized and approved.

3.1.2. Week 2

The second week will focus on technical planning and project setup. Based on the approved requirements, I will design the overall system architecture, defining how the web application, database, authentication service, and email service will interact.

I will create the Entity Relationship Diagram (ERD) reflecting entities such as Users, Roles, Visit Requests, Time Blocks, Notifications, and Audit Logs. This ensures that the database design fully supports business rules such as approval workflow, cancellation logic, and historical tracking.

During this week, I will also:

- Set up the repository in Azure DevOps or GitHub.
- Define the branching strategy.
- Create the initial product backlog based on requirements.
- Set up Azure resources planning (App Service, SQL Database, and configuration settings).
- Prepare the development environment structure for ASP.NET Core Razor Pages.

By the end of Week 2, the architecture, database design, backlog, and infrastructure plan will be ready, enabling structured development from Week 3 onward.

3.2. Core Development (Weeks 3-8)

3.2.1. Week 3

In Week 3, I will initialize the ASP.NET Core Razor Pages project and configure Azure Active Directory authentication. Role-based authorization will be implemented to differentiate between Requestor, Admin, and Management users. I will also configure the database connection and apply initial migrations to create the core database structure.

During this week I will also have school follow-up moment where I present the project plan and receive feedback from the internship supervisor.

The goal of this week is to establish a secure and stable project foundation.

3.2.2. Week 4

During Week 4, I will develop the calendar component. This includes implementing the three-time blocks (morning, afternoon, evening) and defining the logic for color indicators. The calendar will dynamically reflect approved visits and admin blocking rules. Database integration will ensure that availability is calculated in real time.

3.2.3. Week 5

In Week 5, I will implement the visit request module. This includes building the form for creating requests, validating required fields (visitor type, number of people, dates, responsible person, etc.), and implementing status handling (Pending, Approved, Rejected).

I will also implement the logic for editing and canceling requests according to business rules. Requestors will only see their own requests, while Admin users will have visibility of all pending requests.

3.2.4. Week 6

Week 6 will focus on building the administrative interface. Admin users will be able to:

- View new requests
- Approve or reject requests with mandatory comments
- Block specific days or time blocks
- Manage user roles if required

Approval logic will update calendar availability automatically. Notifications will be triggered when actions occur.

3.2.5. Week 7

In Week 7, I will integrate the email notification system. The system will send automated emails when:

- A request is submitted
- A request is edited or canceled
- A request is approved or rejected

Additionally, once a request is approved, the system will automatically send the predefined Excel template to the requestor, as specified in the requirements

3.2.6. Week 8

During Week 8, I will implement the logbook and reporting module. This will allow Admin and Management users to view historical visit records and generate statistics such as visits per month, visitor type distribution, and peak visit periods.

Audit logging will also be implemented to record key actions including request creation, modification, approval, rejection, and cancellation.

At the end of Week 8, the system will support complete end-to-end functionality.

3.3. Cloud Deployment (Weeks 9-10)

3.3.1. Week 9

In Week 9, I will configure the Azure infrastructure, including:

- Azure App Service for hosting
- Azure SQL Database
- Secure environment configuration
- Application settings and connection strings

Security hardening and access control will be validated.

3.3.2. Week 10

During Week 10, I will configure the CI/CD pipeline to automate build and deployment processes. The application will be deployed to Azure and integrated into the SharePoint navigation environment so employees can access it directly from their Microsoft account.

Initial production testing will be performed to ensure system stability in the live environment.

During this week I will also have school presentation moment where I present internship progress, explain the current implementation status, and discuss remaining work.

3.4. Documentation and Stabilization (Week 11-13)

3.4.1. Week 11

Week 11 will focus on functional testing, bug fixing, performance optimization, and validation of business rules. Edge cases and workflow scenarios will be tested thoroughly to ensure system reliability.

3.4.2. Week 12

In Week 12, I will prepare the documents required by the company for this application. I will document the workflow and business logic implemented in the code so that other developers can easily understand the project structure. I will also finalize the realization document and have it reviewed by my supervisor and workplace mentor.

3.4.3. Week 13

In the final week, I will make a final presentation which will summarize the system architecture, implementation decisions, and project outcomes. Knowledge transfer will be provided to ensure smooth handover.

By the end of Week 13, Visit Request Portal will be fully functional, deployed, documented, and ready for internal use.

4. Progress Reporting

Progress will be reported regularly to both the workplace mentor and the internship supervisor. The workplace mentor will be updated through regular meetings, informal discussions, progress demonstrations during the internship and also by sending weekly summary of work performed after each week. These updates will be used to validate requirements, review implemented features, discuss technical decisions, and collect feedback.

The internship supervisor will be kept informed through the planned school presentation moments and also by sending weekly summary of work performed after each week. The project plan and realization document will be used to show the progress, planning, implementation decisions, and outcome of the internship assignment.

Project progress will be tracked using Azure DevOps. The selected tool will be used to manage the product backlog, development tasks, issues, milestones, and source code. This will make the progress traceable and provide a clear overview of completed, ongoing, and remaining work.

5. Expected Learning & Outcomes

5.1. Expected Learning

Through this internship I expect to gain hands on experience with ASP.NET Core Razor Pages, Azure AD authentication, cloud deployment on Microsoft Azure and CI/CD pipeline configuration. I will learn how to model databases and design secure, maintainable architectures. I will also develop skills in implementing real world workflows, designing role based access control and communicating effectively with stakeholders through documentation and presentations

5.2. Project Expectations

The company expects a fully functional visitor management system that integrates seamlessly with existing infrastructure. The application should be secure, reliable and scalable. From me, the intern, a professional work ethic, adherence to software engineering best practices, timely completion of milestones and clear communication are expected. I am responsible for delivering clean, maintainable code and comprehensive documentation.

5.3. Expected Final Outcome

By the conclusion of the internship, the Visit Request Portal will be deployed and operational in the Azure environment and integrated into the company's SharePoint portal. All required workflows—including request submission, approval, blocking, notification and reporting—will be implemented. Documentation and knowledge transfer will be complete, allowing the company to adopt the system immediately.

5.4. Risk Considerations

Potential risks include evolving requirements, delays in provisioning Azure resources, challenges with authentication integration and unforeseen issues during deployment or integration. To mitigate these, I will maintain regular communication with stakeholders, test features incrementally, set up the cloud environment early and use version control and CI/CD practices to manage changes effectively.