

Bern University of Applied Sciences | BFH

Department of Engineering and Information Technology

Bachelor's Thesis (Module) 20

Report on

**"Planning of the Assignments for
Lecturers(PLANA)" Web Application**

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Expert:

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Acknowledgements

Abstract

Introduction

Glossary

- **FURPS**+^[1] is a system for classifying requirements.
 - Functionality
 - Usability
 - Reliability
 - Performance
 - Supportability
- **SignalIR** is a free and open-source software library for Microsoft ASP.NET that allows server code to send asynchronous notifications to client-side web applications.
- **Blazor** is a free and open-source web framework that enables developers to create web apps using C# and HTML. It is being developed by Microsoft.
- **HTML** HyperText Markup language
- **CSS** Cascading Style Sheets
- **SQL** Structured Query Language
- **JS** JavaScript
- **CRUD** Create, read, update and delete
- **EF** Entity framework
- **UI** User Interface
- **API** Application Programming Interface
- **MS** Microsoft
- **BPMN** Business Process Model and Notation

System Architecture and System Design

In project 2 we have started with describing of System architecture and design. In this work we want go deeper into this topic, which is very important.

Database and Entity Framework Core

Entity Framework Core is an object-relational mapper (O/RM). It is designed to make writing code for accessing a database quick and intuitive. There are many good reasons to use EF Core. It supports LINQ queries, change tracking, updates, and schema migrations. EF Core works with many databases, including SQL Database, SQLite, MySQL, PostgreSQL, and Azure Cosmos DB. book [2] [3]

The PLANA application relational database Our database has many types of relationships we can have in EF Core. The types are: One-to-many: Lecturer Many-to-many: One-To-Many Relationship : Lecturer to an Additional Assignment Semester to a Additional Assignment Semester to a Module Run Module to a Module Run Study Branch to a Module Many-To-Many Relationship : Lecturers to Semester Lecturers to Module Lecturers to Module Run

Modeling types of database relationships

Creating database

DbContext ...

Setup for Blazor

To use the Blazor framework it is necessary to install :

- .NET Core SDK 3.1 or later from <http://dotnet.microsoft.com/download>
- Visual Studio 2019 from <https://visualstudio.microsoft.com/downloads/>

Work Plan

Effort Estimation

Project 2 is designed as a 4 ECTS module. This corresponds to a workload of 120 hours. When we are working on a project, we always record our hours of work in an Excel table. At the end of the project, we will compare this time with the time allotted for the project.

Scrum

The foundation of the project organization was Scrum. Some principles of Scrum could not be achieved since they need a group of more than two people. Our work was based on the principles of Scrum like the Empirical Process of Control, the core of Scrum, self-organization, value-based prioritization, etc. The Empirical Process of Control includes three main ideas, namely transparency, inspection, and adaptation.

Transparency: The work is carried out in full trust of all parties involved. Everyone has the courage to keep each other up to date with both good and bad news.

Inspection: Inspection is carried out by every one in the Scrum Team. The team openly shows the product at the end of each Sprint.

Adaptation: The team asks constant questions about the progress of work, whether we are on the right way. Depending on this, we can adapt an existing product.

At the beginning of the project, we have discussed and estimated all the work that needs to be done. Meetings between supervisor and developer are weekly and sometimes bi-weekly. Each meeting includes a discussion about what has been achieved since the tasks have been assigned, what can be improved, and scheduling of future tasks.

Scrum Roles

- Product Owner: Mr. Pfahrer
- Development Team: Shiryagina Kristina
- Scrum Master: Shiryagina Kristina

Scrum Plan

To discuss the project, were weekly and biweekly meetings held . They included personal meetings, and then meetings using Microsoft Teams. The meetings consisted of:

- Sprint Review. It includes a show of work and its discussion.
- Sprint Planning. It includes the scheduling of future tasks.
- Sprint Retrospective. It includes discussion about what went well and what went wrong, what we should do differently.

Scrum Artefacts

Sprints

The sprints covered a one week period. At the end of each sprint, there was a discussion with the supervisor.

In Table 11 is an overview of what was achieved in which sprint.

Sprint	Goals and Achievements
1	<ul style="list-style-type: none"> • • •
2	<ul style="list-style-type: none"> • • •
3	<ul style="list-style-type: none"> • • •
4	<ul style="list-style-type: none"> • • •
5	<ul style="list-style-type: none"> • • •

Table 1: Sprints

Sprint	Goals and Achievements
6	<ul style="list-style-type: none"> • • •
7	<ul style="list-style-type: none"> • • •
8	<ul style="list-style-type: none"> • • •
9	<ul style="list-style-type: none"> • • •
10	<ul style="list-style-type: none"> • • •
11	<ul style="list-style-type: none"> • • •

Table 2: Sprints

Sprint	Goals and Achievements
12	<ul style="list-style-type: none"> • • •
13	<ul style="list-style-type: none"> • • •
14	<ul style="list-style-type: none"> • • •
15	<ul style="list-style-type: none"> • • •
16	<ul style="list-style-type: none"> • • •
17	<ul style="list-style-type: none"> • • •

Table 3: Sprints

Conclusions and Future Work

Conclusions

Future Work

References

- [1] P. Eeles, “Capturing architectural requirements,” *IBM Rational developer works*, 2005.
- [2] J. P. Smith, *Entity Framework in Action*. 2018, ISBN: 9781617294563.
- [3] Microsoft.com, *Entity framework core*. [Online]. Available: <https://docs.microsoft.com/en-us/ef/>.

Protocol

Frequency: (weekly)

Meeting length: (60 minutes)

Agenda

- Demo and Discuss Deliverable(Demo)
- Planning next Goals(Plan)
- Lessons learned (Lessons)
- Date, time of the next meeting(next meeting)

Report from

Plan

Future goals are:

-
-

Lessons learned

Next Meeting: