

Personal Development Plan

Connected.Football

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List of Abbreviations

BOKS Body of Knowledge and Skills

1 Introduction

This document is the personal development plan of the author in the context of the module *Software Factory*, which is part of the Software Engineering course at Fontys Hogeschool Techniek en Logistiek Venlo. As part of this module, students taking part in the course have to define their own competences regarding activities taking place in a software development project and the level of competence they want to achieve during the course of the project that makes up the *Software Factory* module. The author takes the role of *Software Architect* in the project group.

To define competences, this report makes use of the model used to describe the Bachelor of ICT, which includes a competence matrix known as *Body of Knowledge and Skills* (BOKS), as seen in Figure 1. This matrix includes both the activities as well as the architectural layers common in an ICT environment as its dimensions. Each combination of activity and architectural layer makes up a form of competence, which can be ranked in level of skill, on a scale of 1 to 3.

	Manage	Analyse	Advise	Design	Implement
User interaction					
Business processes					
Infrastructure					
Software					
Hardware interfacing					

Figure 1: Body of Knowledge and Skills

This report will cover three activities in a certain architectural layer listed in the Figure above. To do so, it will be described what level of competence the author possesses in executing each activity in one certain architectural layer. It is described what level the competence represents and why this current level of competence is justified. Furthermore, it is detailed how the author plans to develop their skill set to increase their level of competence to 3. For each activity and architectural layer it is described what is necessary to qualify for such a level of competence and how the author wishes to learn these skills in the context of the project. Since meeting these learning goals by the end of the project is the responsibility of the author, it will also be detailed how the author would like to prove that they have advanced their skills in the mentioned context.

2 Development

This chapter covers three activities that the author wishes to improve their competence in over the course of the project. Each activity is detailed in the context of one architectural layer, such as *Software* or *User Interaction*. The current level of competence is being described first, followed by the expected improvement during the project.

2.1 User Interaction Implementation

The author currently possesses a skill level of Level 1 when it comes to implementing processes in the context of User Interaction. They are able to implement static forms of elements that a user can interact with. To do so, a limited amount of interactive components is being made use of.

To gain advanced skills, the author would like to learn to make use of innovative technologies to enhance the experience of the user interacting with the developed product. They would like to become familiar with simple yet productive techniques and frameworks to be used in terms of User Interaction. If possible and applicable for the project, the author would also like to familiarize with the possibilities of testing graphical user interfaces and User Interaction in general.

2.2 Software Design

Having worked on multiple different projects before, the author is able to design software systems from scratch. The skill to come up with prototypes and to design both for implementation and tests of new and existing components of a system is given, as specified in Level 2 of the BOKS model.

The author would like to improve their skill by developing their ability to design complex software systems, consisting of new, existing and perhaps deprecated components. It should be improved how the author can set up a system so that it satisfies both stakeholders and quality assurance. The creation of a test strategy will also be among the to-be-evolved skill set.

2.3 Software Implementation

The author is able to build software system, both independent and more complex systems with multiple subcomponents, including the ability to integrate the developed systems into existing software and environments. The ability to perform unit and system tests regarding the performance and integrity of the built products is also present. This is equivalent to Level 2 of the BOKS model.

A goal of this project is to gain advanced skills in the context of software implementation, equivalent to Level 3. The author wants to learn how to build software on an already designed architecture. The nature of the project is a perfect base for this learning goal, since a main part of the development work revolves around *React Native*, a framework designed to make use of reusable components. Utilizing existing components, both developed by the customer and available through open source, as well as writing and integrating new components is a good practise to reach this learning goal. Gaining skills in test automation is also a skill that should be advanced by participating in the project. However, the often GUI-centric nature of developing with *React Native* may make it hard to utilize test automation to its full extent in this project. The author will try to apply it wherever possible.

3 Personal Goals

As mentioned in the introduction, the author defines a set of personal goals that they want to reach in order to advance their skills as mentioned in *2 Development*. This chapter deals with specific topics and technologies that the author will work with during the course of the project that are related to the skill levels detailed in the aforementioned chapter.

3.1 React Native

The author especially wants to familiarize with the framework *React Native*. The component-based nature of *React Native* allows the author to gain skills in the usage of interactive components to gain skills in the context of User Interaction implementation. To do so, the author wants to apply the concept of *React* and *React Native*, to make use of existing components and frameworks and to develop components of their own.

To prove that their skill regarding this topic have improved, the author will be able to explain the core structure of *React Native* as well as being able to comprehend why an interactive component behaves the way it does and how it enhanced the User experience. Furthermore, the author would like to research possibilities to test *React Native* components and applications, for example by making use of frameworks such as *JestJS*, *Espresso*, *Detox* or other means to provide test functionality or even test automation.

3.2 Firebase & GraphQL

Given that the project is based on an already existing product, the author would like to be able to design software that incorporates existing components flawlessly. The project includes components utilizing Google's *Firebase* and Facebook's *GraphQL* to store, transfer and query information between the frontend *React Native* app and a backend consisting of *Firebase* and a *MongoDB* database.

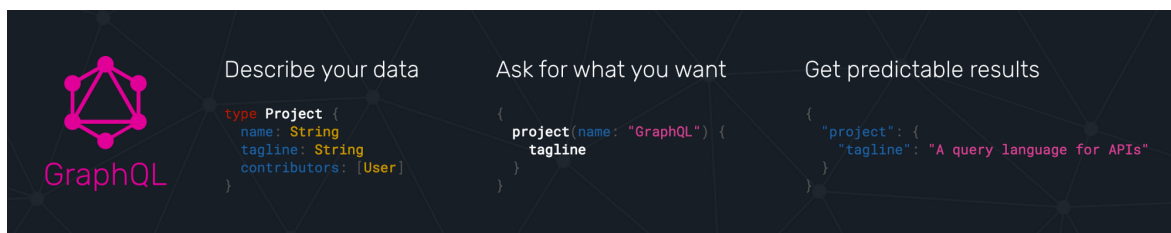


Figure 2: GraphQL Query Definitions

The author would like to design the interaction between the components to ensure a productive way to transfer information that is both easy to use and understand as well as it is offering great performance. Given that the author would like to focus on system design as well as quality assurance, the design would include a test strategy to ensure that an implementation of said design works as intended.

To prove that the author gained new skill on this topic, they will be able to comprehend why the component system of the finished product is set up as it is and how a certain level of quality is ensured by comprehending what test strategy was defined and by applying the strategy within the project.

3.3 Management

While not specifically related to any of the learning goals mentioned in *2 Development*, the author would like to familiarize with Atlassian's *Jira*, a project tracking software that will be utilized over the course of the project. It is a goal to gain skills in how to use the software as well as to comprehend how the software can enhance agile software development frameworks such as *Scrum*, by providing boards and other tracking method to keep track of sprints, tasks, issues and the development backlog.



Figure 3: Logo of Atlassian's *Jira*

The goal of the author would be to use *Jira* in a productive way to ensure an error resistant project course and smooth communication with other project members. To prove that the author gained skills in using *Jira*, they will be able to apply usage of *Jira* in the project and to comprehend how *Jira* was utilized during the project and why they think it is a good or maybe not so good idea to use it as a project tracking software.

4 Conclusion

This document detailed how the author would like to use the current Software Factory project to enhance their skills in certain activities in the context of certain architectural layers. It was described what skill level the author possesses in the aforementioned activities and how they wish to improve.

Overall, the goal of the author is to familiarize themselves with new and innovative technologies such as *React Native*, *Firebase* and *GraphQL*. It is a goal to apply these technologies in the context of building good and efficient software systems, both by designing them and conducting an implementation based on this design. In the same context it is a goal to apply properly designed tests, even for graphical environments and User Interaction, as well as being able to write such tests.

Furthermore, the author is interested to comprehend how to implement products that offer a great User experience by focusing on User Interaction. The nature of *React Native* enables the author to practise and experiment with that topic over the course of this project.

The author is excited to take part in the project and hopes to make a success of it. The possibilities to advance their skill in the terms of designing and implementing products is promising and the context of the project enables exactly these goals.