



Visualization of logged athlete-diets

Project Management and Software Development
for Medical Applications

General Info

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Project Abstract

At topathEAT we work with athletes such as the German Olympic team and optimize their diets for training and competition. The basis for maximizing performance in competitive sports is a detailed nutrition diary. Our athletes log their nutrition by taking a photo with their mobile phone and uploading it on our platform.

Your task is to visualize the athletes collected data and to show the comparison between actual and target state.

Background and Motivation

Food quality, portion size and meal timing are important aspects in sports nutrition. They drastically influence performance in practice and competition, as well as the recovery phase. A long-term neglect of a proper diet can even lead to a higher risk of sickness, injury, and upper respiratory tract infections. To detect deficits early on, athletes usually need to log their daily meals in nutritional diaries, including detailed description, amount, and weight of the meal. Those diaries are the basis to find reasons for bad performance, overtraining or a lack of gain in muscle mass. With our system we designed a simple way for athletes to record food uptake, portion size and meal timing. The nutritionists from topathEAT evaluate the diet in terms of meal timing, carbs, protein and amount of fruits. We want to visualize these results as a compact overview for athletes.

Student's Tasks Description

The goal of this project is the use of visualization methods to show statistical data that is relevant from nutritional perspective. The first phase addresses project planning. You will get information that will help you to understand the current tracking system of an athletes' diet and the necessary properties of the data visualization. You will interact with the team of topathEAT which consists nutrition scientists with expertise in sports nutrition but no IT experts. The second phase targets the technical implementation. You will develop creative visualization techniques for example to illustrate body weight changes, gaps between achieved and recommended amounts of carbs and protein intake or time periods between training and meals. Additionally, you will create an award function for achieved goals. For this purpose, it is necessary to implement a tool that allows our nutritionists to set goals, individualized for each athlete.

Throughout the project, you will gain experience in project management while working in an interdisciplinary team also with non-technical experts which requires pragmatic solutions. The interaction offers insights in an exciting new research field and the possibility to learn how sports nutrition influences performance, recovery, and health.

Technical Prerequisites

- Ideally some experience with web development (or learn to use existing software)
- Skills in practical use of databases

Please send the completed proposal to ardit.ramadani@tum.de, zl.jiang@tum.de, lennart.bastian@tum.de and tianyu.song@tum.de. Please note that this proposal will be evaluated by the BMC coordinators and will be assigned to a student only in case of acceptance.