

Matriculation Exam Score Calculator

Introduction

[Mafy](#) is the company behind the web application Mafynetti, which is used by roughly 1/3 of the Finnish high schools in their preparatory courses for the high school matriculation exam.

In recent reforms, the matriculation exam has recently been given more emphasis than traditional entrance examinations. The goal of this project is to develop a tool that allows students to input their current matriculation exam grades and browse how their score relates to the entrance limits of virtually all study options available in Finland.

Project

The goal of the project is to create a matriculation exam score calculator. The purpose of the calculator is to allow students to easily input their current grades, browse how their score is calculated for different study options, and see how it relates to the entrance limits of said study options.

At least one similar [hobbyist project](#) exists and is widely used but appears to lack maintenance and offers a limited amount of functionality. For example, if the student's score is lower than the entrance limit, the calculator should suggest sensible, possible improvements, such as:

- Attending additional exams if the student has not completed the maximum number of scored exams.
- Improving their grades in the optimal way, depending on how the score for a particular study option is calculated.
- Additional ways of improving their grades other than the optimal way, as students may find it easier to e.g., improve their grades in two different subjects, if they are stronger in these subjects.

The calculator will be located both within Mafy's web application, Mafynetti, and also hosted separately. It will naturally be provided free of charge, as the calculator will drive traffic to the company's website, and suggestions of Mafynetti courses can be added when a student needs to improve their grade in a subject found in Mafynetti's selection of courses.

A good, simple user experience (UX) is likely the most fundamental component of this project. but the scope of the project can be grown for example by considering the following additional tasks:

- Fetching contents, such as the score calculation formula and entrance limits for study options, dynamically, in order to minimize recurring maintenance work as new exams take place.

- Allow Mafy's administrative staff to edit which recommendations, such as product recommendations, should be associated with different study paths.

Technologies

As the goal is to integrate the calculator with our web application, the simplest choice is sticking to the existing tech stack, which consists of commonly used, modern web development frameworks and technologies, such as:

- [React](#)
- [TypeScript](#)
- [Firebase](#) and other [Google Cloud Platform](#) (GCP) services

We mostly use Material UI as a basis for our React components, but welcome other alternatives if they are more sensible for a specific use-case.

For version control, we use Git and GitLab.

Requirements for the students

Knowledge of the aforementioned tech-stack is helpful, but not required.

The most valuable qualities the student team can have are the willingness to learn and the eagerness to take initiative. The aforementioned technologies are well-documented and easy to approach.

Our own development team uses the aforementioned tech-stack, as well as Scrum and CI/CD-practices, and can therefore provide the team with assistance if necessary.

Legal issues

Signing an NDA is required. While the student team will be working on features separate from the work of our own development team, an NDA allows us the convenience of giving you access to the same project resources as our own team and allows you to work within our office spaces if you wish to do so.

The client retains all IPRs to the results.

Client

Mafy is a company with offices in Helsinki, Tampere and Jyväskylä, employing over 30 full-time employees.

Our web application, Mafynetti, is used by tens of thousands of Finnish students on an annual basis, and offers courses for the matriculation exam, as well as other areas such as medicine, DI and kauppiis entrance exams. Our material is also available as a self-study.

All of our material is created inhouse using our own tools, and new versions of changed contents are published in a nightly export, allowing us to make improvements much faster than any of our competitors.

In recent years, we have emerged as the most successful provider of preparatory courses for those aspiring to study medicine, whom have historically been our main base of customers. In 2022, the following percentage of students admitted to the respective universities for medicine studies, based on the entrance examination, attended our courses:

- Helsinki yleinen: **73.68%**
- Helsinki yleinen ruotsinkielinen: **57.89%**
- Tampere yleinen: **80.30%**
- All new medicine students in Finland: **71.63%**

Mafy will have the following representative(s) partake in the project:

Product Owner (PO)

Antti Suominen, Co-founder of Mafy Oy

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Additional information

The company and PO have participated in earlier software projects with good results and is therefore familiar with the course concept. By implementing the project using our chosen tech-stack, students may be offered paid internships following the project. Throughout our past projects, we have hired a total of 6 students in the summer following the project, and 4 of these continued on to part-time and eventually full-time employment following the summer.

A Scrum Master, Petri Haajanen, has been pre-selected for the project.