

Software

What a nice web page! I wonder what it hides inside?

Frontend

- HTML
- CSS
- JavaScript

Backend

- Python
- Flask
- JSON
- Database
 - Designing a database
 - Creating the database
 - Adding data
 - Open data
 - Private data
 - Fetching data from the database
 - Updating the database

Web Development

- This course gives you a push towards skills that are highly looked after.
- The course builds a strong foundation to build more skills on as you move forward in your studies.
- Full-stack developers are programmers who master all aspects of web development.
- Front end + Back end = Full stack

Job Opportunities and Motivation

- A quick search for "Full Stack" can give you an idea of the job opportunities in the field.
- Here is an example of one search with 531 results:

The screenshot shows the Oikotie job search interface. At the top, a navigation bar includes 'OIKOTIE' and links for 'ASUNNOT', 'TYÖPAIKAT', 'TOIMITILAT', 'SÄHKÖVERTAILU', and a user profile icon. Below this, a secondary navigation bar lists 'Etusivu', 'Avoimet työpaikat', 'Vinkit työnhakuun', 'Työelämä & vastuullisuus', 'Palkat', 'Kesätyöt', and 'Työnantajalle'. The main content area is titled 'Hakutulokset 531 kpl' (Search results 531 results). It features a sidebar on the left with filters for 'Rajaa hakua' (Filter search), 'Sijainti' (Location), 'Tehtäväalue' (Job area), and 'Työsuhde' (Employment type). The main results list shows two job postings: 'SAVON VOIMA OYJ Full-stack kehittäjä' (Savon Voima OyJ Full-stack developer) and 'Terveystalo Full Stack Developer'. Each listing includes the company logo, job title, location, and a heart icon for saving.

OIKOTIE ASUNNOT TYÖPAIKAT TOIMITILAT SÄHKÖVERTAILU ...

Etusivu Avoimet työpaikat Vinkit työnhakuun Työelämä & vastuullisuus Palkat Kesätyöt Työnantajalle

Hakutulokset 531 kpl

Näytä etätöyt ensin Tilaa hakuvahti

Osuvimmat Uusimmat Sulkeutuvat

Rajaa hakua Fin

SIJAINTI

Valitse...

TEHTÄVÄALUE

Valitse...

TYÖSUHDE

Valitse...

SAVON VOIMA

SAVON VOIMA OYJ
Full-stack kehittäjä

Asiantuntija Etätyö Kuopio

Julkaistu 21.3. Sulkeutuu 15.04.


Terveystalo

TERVEYSTALO
Full Stack Developer

Helsinki, Jyväskylä, Oulu


Job Opportunities and Motivation

- Frontend


 **Hakutulokset 57 kpl**

Rajaa hakua Fin ▼


SIJAINTI

 Valitse...


TEHTÄVÄALUE

 Valitse...

TYÖSUHDE


 Valitse...

HAKUSANA

Kirjoita hakusana...  **ETSI**


frontend ✕

Backend


 **Hakutulokset 77 kpl**

Rajaa hakua Fin ▼


SIJAINTI

 Valitse...


TEHTÄVÄALUE

 Valitse...

TYÖSUHDE

 Valitse...

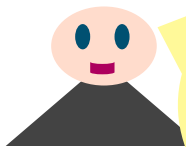
HAKUSANA

Kirjoita hakusana...  **ETSI**

backend ✕

Job Opportunities and Motivation

- SQL is an important part of back end, but SQL skills are needed outside web development as well.



Why not try a similar search with other technologies used during this study module.

Hakutulokset 189 kpl

Rajaa hakua Fin ▼

SIJAINTI

Valitse...

TEHTÄVÄALUE

Valitse...

TYÖSUHDE

Valitse...

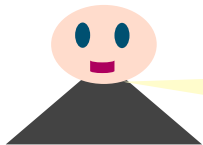
HAKUSANA

Kirjoita hakusana... ETSI

sql ✕

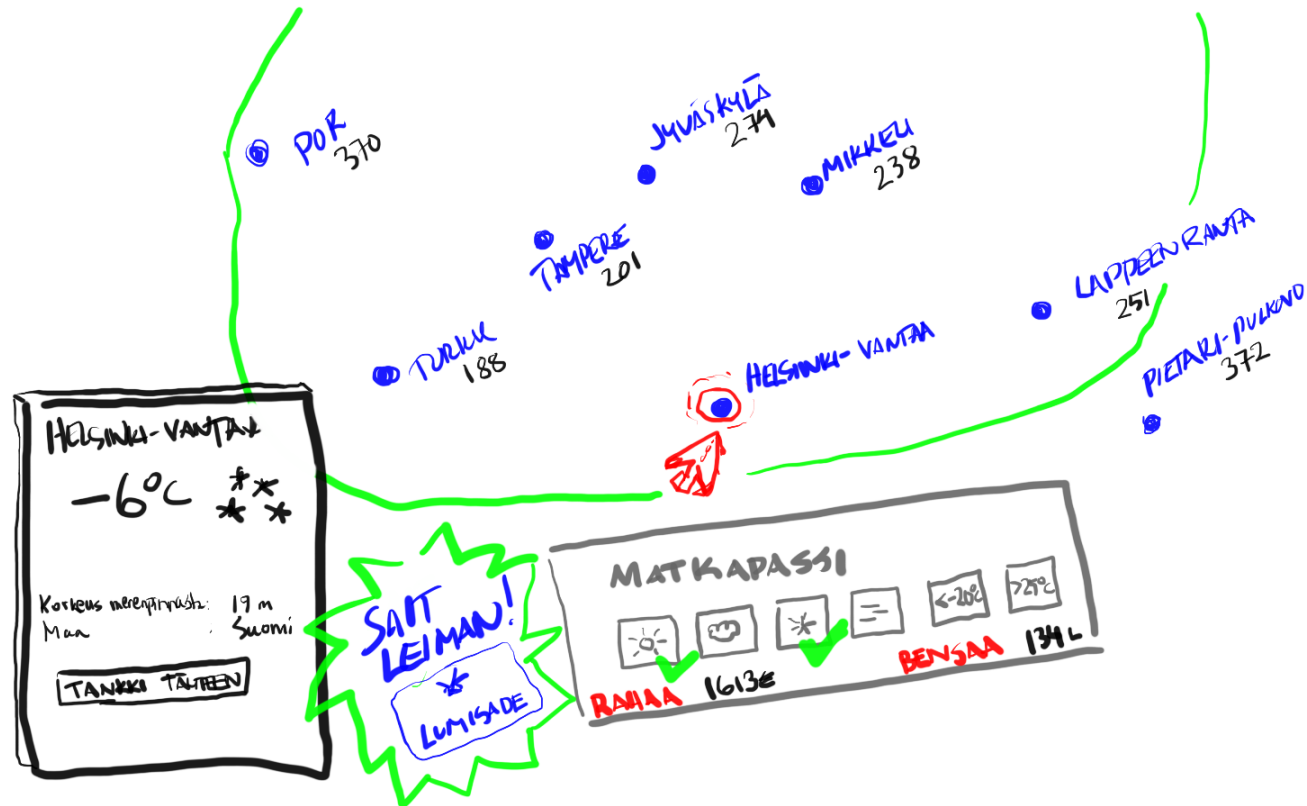
Software 1&2

- You will learn to program a web application.
- First you will practice supporting skills (check the image on the first slide).
- Once you have learnt the necessary skills, you will start your project.
- Some skills are learnt in a classroom while others are studied as self-study.
- The skills you learn online are also useful in the classroom, especially in your project.



This database is an online self-study module that is also necessary for your project work.

The Project on the Course is a Game!

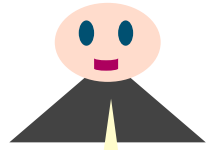


The Game

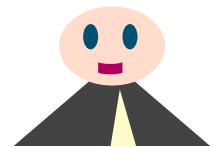
- Pelaaja täyttää sääpassiaan
- The player fills in their weather passport.
- The player must visit airports with different weather conditions. (sunny, cloudy, rain, snow, fog, -20 °C and + 20 °C)
- The player who first fills their passport while having the smallest carbon footprint wins the game.

Game and Database

- The database holds the information of all, more than 76,000 airports in the world
 - Databases are meant for vast amounts of information.
 - The database skills are learnt on this online course
- The weather information is fetched from a public interface of an external online database
 - This part is learnt on the Python programming classes



Open
data
(csv)



Open
data
(JSON)

Project and Databases

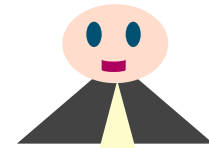
- You can start from scratch with your own ideas or extend the weather passport game idea.
- The web page can be a game or something else.

Project and Databases

- The world is full of open data.
- Only your imagination sets the limits for a web page that consumes open data
 - Must contain acquirable open data
 - Must contain open data fetched using an interface
- Backendin on käsiteltävä dataa, ei vain välitettävä sitä eteenpäin (ts. täytyy olla ohjelmalogiikkaa)
- The back end must process data, not just forward it.
- For example the development of the Reittiopas public transport app started as an indie project using open data!

Database Course Contents

- Basic concepts of relational databases
- Fetching data
- Updating/modifying data
- Designing a database
- Creating a database
- Adding data to the database
 - Open data
 - Saving the game state



We are not starting from database desing as we first must understand what a database is.