

# Lecture 6



Securing and improving the backend, SQL Optimizations,  
Autocomplete

# Application limitations so far

- No HTTPS / SSL on the backend: no real website lacks this anymore.
- Lack of SSL on the backend requires hacks for Netlify
- No proper web and application servers
- No proper database setup
- No proper UI handling of related entities

# Adding nginx and an app server (Gunicorn)

- Install nginx
- Install Gunicorn
- Setup Gunicorn as a service
- Have them communicate with each other through a socket
- I recommend having the backend endpoints after a **/api/** element

# Adding a proper database and SSL

- Install PostgreSQL and set our backend to use it
- Install an SSL Certificate on the backend
- Deploy to Netlify without the redirect hack for http requests

# SQL Optimizations & Autocomplete

- Our Database needs indexes for efficient querying.
  - Ideally, these should be added through migrations, but they can also be added directly through the SQL Server.
  - Full text indexes are especially important for things like searches and autocomplete.
- When adding related entities - for example the teacher of a course - we shouldn't ask the user to enter an ID.
- We should ask them to select or type a name.
- For a lot of data, a dropdown is not a feasible option.
- We can use autocomplete: show a list of filtered suggestions as the user types.
- This requires some engineering to get right...