DS3103 Webutvikling

Konteeksamen

Spring 2025

General info

- You are to deliver 2 things:
    1. **Technical solution:** You must deliver a zipped folder containing the frontend folder (project), and the backend folder (project). The frontend folder must be without the node_modules folder.
    2. **Short report:** A pdf file.

Main technologies and areas of this exam.

- HTML5 and CSS3
- CSS Framework (Bootstrap or TailWind), including responsive design
- React and JavaScript (ES6+)
- .NET/C# Web API with SQLite Database
- HTTP requests from frontend to backend using the JS library axios
- Universal Design

Case: PopStarManager

(E-mail from the boss): A fullstack task for you!

We have received a fullstack task for you. A company called PopStarManager needs a solution to handle their musicians.

They need a Web API with a database where they can store information about all their musicians. It will be the administrative part of the company that uses the solution, and they need to be able register, edit, delete, show all the musicians, and search after specific musicians.

This is the information they need to store in the database about a musician (called PopStar in the system). I.e. you are only to make 1 model class (1 table in the database):

- **PopStar:** Name, Category (of music), Image, PricePerHour.

So, you will both make the Web API (.NET/C#) and the frontend part (React) for the company.

Don't forget to make documentation pages in wwwroot in backend to help future frontend developers understand how to use the Web API.

Best regards

Daglig leder

FullyStacked AS

14.02.2025

Functionality

The main functionality is based on that the Web API has methods that do CRUD (Create, Read Update, and Delete) to the Database. The methods in the Web API are used from the frontend through HTTP requests (GET, POST, PUT, DELETE).

This will be full CRUD in this solution:

1. Get all
2. Get by id
3. Get by other property than id, for example GetByName
4. Create (including image upload)
5. Update
6. Delete

Other details

- The functionality in the frontend makes use of the above-mentioned methods.
- When you deliver the solution there must already be a database with at least 6 rows of information!

Short Report

A report including answers to the questions below, and screenshots with description.

2 Questions

1. What is Universal design (max 50 words)?
2. Explain how a HTML <img> tag should be coded to follow Universal design (max 50 words).

2 Screenshots with description

Take 1 screenshot of the page where one can see all the musicians, and 1 screenshot of the page where one can register a new musician. Beneath each screenshot explain the techniques used and how the page works. Max 200 words.

Assessment guide

The table below indicates how the exam will be assessed. Since the solution can be solved in many different manners and focus on different things the percentages can't be exact.

There is more variation in what can be done in the frontend part than what can be done in the backend part.

Frontend (around 60%)	Comment
Component-based development in React JS, programming with JavaScript as taught in the course.	
React Routing.	
HTTP requests to Web API for CRUD.	
CSS and CSS framework (Bootstrap or Tailwind), responsive design for 3 different sizes (mobile, tablet, laptop).	For the grid one can choose CSS3 Grid or the grid in the CSS framework.
React hooks including useState, createContext and useContext, useEffect etc.	
Backend (around 40%)	
Use of interfaces and classes	
Controllers and CRUD (Create, Read, Update, Delete) methods to Database. The methods make use of try-catch, if-else, and status codes in a good manner.	
Picture upload to the images folder in wwwroot	
API page in wwwroot which includes documentation about endpoints in the Web API and the information that can be retrieved.	This is the part referred to in the case which describes the Web API.
General things	
Structured code and project, tidy code, good naming of variables, functions, and methods, modularization.	
Report Universal Design (weight of around 5%)	