Internet Technologies – Labs #11-14: Final Project

Choose ONE of the two available final project variants

Variant A

Build an application using any frontend technologies you want and backend technologies **working on Node.js**. The application should meet the following requirements (requirements specified for each grade, you need to meet all lower grade requirements in order to get higher grade):

Grade "3" (2 points):

At least 3 connected database tables (including one many to many relationship with at least one additional column in addition to foreign keys in the connecting table)

At least 3 different column types

At least 2 columns in each table (in addition to primary key)

Functionalities:

- Adding, updating, deleting records to the database
- Displaying list of all records for each table (only the most important columns)
- Displaying detail views (all columns+records connected via relationships)
- Client and server side data validation

Restrictions:

- No "I did it for work" projects
- No copying existing tutorials
- No scaffold generators
- Use MySQL or MongoDB for backend, include easy to follow instructions to update connection information for your project

Submission needs to include:

- Frontend and backend application code
- Database creation script
- Database script for creation of sample data
- Any build scripts etc. used to build the application

Grade "4" (3 points)
Additional functionalities:

- Registration and logging in (including necessary database tables)
- Different functionalities depending on user status (logged in/guest) – e.g. only logged in users can modify data
- Pagination of displayed lists

Grade "5" (4 points)
Additional requirements:

- Frontend app should be built as a Single Page Application

Additional functionalities:

- At least 3 user roles (e.g. logged in, guest, admin) with different available functionalities
- Introduction of resource-level permissions (e.g. customer can only view his own orders, manager can only view and update data of employees from his department)
- Internationalization (at least 2 languages)

Variant B

Build a frontend application in the form of a single player game (something simple – simple platformer, pacman or space invaders clone, scrolling shooter). This application should be built in JavaScript using standard JS browser APIs (canvas etc) or using a JavaScript/TypeScript game library, multi-platform tools like Unity etc. are not allowed. The application should meet the following requirements (requirements specified for each grade, you need to meet all lower grade requirements in order to get higher grade):

Make sure to clear your game idea with the teacher, as this is a bit more "free-form" project.

Grade "3": (2 points)

Basic Node.js (you can use express) application for serving the static content (HTML page, game script, any assets)

Game itself (2D graphics on Canvas, keyboard or mouse input)

Restrictions:

- No "I did it for work" projects
- No copying existing tutorials
- Use only own or public domain assets

Requirements:

- The game should be playable
- It should include some basic behaviour for non-player characters (movement/attack/whatever)

Grade "4": (3 points)

Additional requirements:

- Scoring mechanism, high scores table maintained on the backend
- Separate title screen, game screen and game over/high scores screen

Grade "5": (4 points)

Additional requirements:

- Sound (music and game fx), with the ability to turn the sound off (music and fx separately)
- More than one game level