

Web.Api and SPA

Purpose:

To demonstrate fulfilment of the learning objectives:

- Explain the principles for using a MVC framework in a web server
- Design and implement a web site that include persistence of data in a database.
- Basic knowledge regarding hosting of web applications including cloud based hosting.
- **Design and implement a REST based web-API**
- **Design and implement single-page applications with use of client-side MVC framework that communicate with a Restful web-API**
- **Explain the theory behind and implement authorisation and authentication in a web app**

Technology requirements

- The Web api must use Node as web server, Express as MVC framework and Mongo as database.
- It is recommended to use Heroku as Cloud provider.
- The single page Web App should use Angular version 8 or higher as the client-side framework.
- Jwt should be used to authenticate web request to the api server.
- The app must use Angular Material design components and flex-layout (or css grid) to deliver a responsive app.

Functional requirements

Develop a fitness Web App with user registration and login that uses Angular on the client side and a restful Web api to access data on the server.

The user should be able to create workout programs similar to the one shown beneath. A workout program is a collection of exercises (workout) that each have a name, description, number of sets and number of repetitions or time.

Basic functionality:

- New users can sign up with your web app (register)
- Users can login and logout
- Users don't have to login to see all programs
- User must login to create a new workout program
- User must login to add new exercises to a workout program
- User must login to log workout activity.
- The user can create a new workout program
- The user can add new exercises to a workout program
- An exercise has a name a description, number of sets and number of repetitions or the time it should last.
- Workout programs is persisted in a database (MongoDb)
- The user can log workout activity
- The Web api must be accessible online (e.g. running on Heroku with the database on mLab or similar service).

Workout program example.

Exercise	Description	Set	Reps/time
Squat	Stand with your feet spread shoulder-width apart. Lower your body as far as you can by pushing your hips back and bending your knees. Pause, and then slowly push yourself back to the starting position.	3	20
Push ups	Place your hands on the floor with legs straight out behind you resting on your toes. Bend your arms and slowly ...	3	10
Plank	Place your elbows on the floor shoulder-width apart with legs stretched out behind you so only your elbows and toes are in contact with the ground. Use your abdominal muscles to keep ...	1	30 sec

Delivery

Upload a ZIP file containing all your source code, and in the comments, you can type the url to your site running in the cloud (and a valid user name and password to test the app).