Report

Part A

CRUD App (similar to MVC model):

* Database (model): store generated data
* APIs (controller): logic to update the model based on input from view (create, read, update, delete)
* User interface (view): html files for the front end

Why CRUD:

* It’s a recognized pattern and recognizable by most devs
* Clean architecture, easy to maintain and expand
* Easy to be debugged and tested

Tech used:

* Database: MySQL
* Backend: express.js, mysql package, cors (for part D)
* Frontend: HTML + CSS + vanilla JavaScript

Hosting:

* Database: MySQL hosted online, pros: can be used for production, cons: lower performance than hosting locally for testing and demo.
* Server: hosted on Heroku. Pros: available anywhere anytime. Why Heroku: free tier available, well documented, can deploy nodejs app easily and quickly without any configuration, perfect for a demo. Cons: Heroku server goes into sleep mode after some time, takes long time to wake up, but good enough for a demo.

Report on testing: will come later

Part B + C

New Tech: Auth0 + Tailwind CSS + Next.js + Vercel

Why Auth0:

* Auth0 is an easy to implement, adaptable authentication and authorization platform
* Popular: used by AMD, SIEMENS, The Economist, Sharp and many more
* Well documented, easy to use, officially supports many framework (including next.js)
* Production ready

Why Tailwind CSS:

* Tailwind is a CSS utility framework
* It makes the styling process much faster

Why Next.js:

* Next.js is a React framework for developing single page Javascript applications.
* Very high performance and scalable
* Server side rendering: means all the heavy work is done on the server side, faster, better SEO, higher security
* Well documented, big and active community
* Based on React, easy to learn and get up, requires minimal configuration

Why Vercel:

* Vercel is a deployment and collaboration platform
* From the company created Next.js, best platform to deploy next.js app with zero configuration
* Super easy to use
* Real time analytics available

Part D

Use new tech to build the client page

Advantages:

* Amazingly fast
* Nice looing UI with short dev time
* Production grade authentication
* Scalable
* Real time analytic available if needed

Disadvantage:

* Complicated
* More dependencies meanings more things to maintain
* Huge learning curve