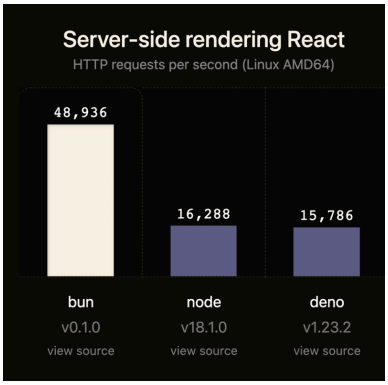
Assignment 2

Technology stack

In this assignment, you will choose a Technology stack for your app based on your chosen domain—web, mobile, or desktop. Remember that every app must have a frontend, a backend, and a database. In some cases, such as with Next.js, a single framework can serve multiple roles. Your task is to research and evaluate at least two frameworks, compare their features (including runtime performance), and then implement a basic "Hello World" demo using the framework you decide best suits your project.

Objectives



- **Framework Evaluation:**
  Investigate and compare key features and tools of at least two frameworks. Consider aspects such as:
  - Development features (e.g., reusable components, hooks, file-based routing)
  - Runtime performance (for example, review discussions like this Reddit post)
- **Comparative Analysis:**
  Develop a clear comparative analysis that outlines the strengths, weaknesses, and unique tools of each framework.
- **Demo Implementation:**
  Create a simple "Hello World" application using your chosen framework, ensuring your app includes a frontend, a backend, and a database—even if the framework handles multiple roles (e.g., Next.js can manage both frontend and backend components).
- **Collaboration and Submission:**
  Package your demo as a zip file and upload it to the Teams channel by the end of the lab session.

Assignment tasks

Framework research and comparison (6p)

1. **Identify your domain:**
   Decide whether your app will be a web, mobile, or desktop application.
2. **Select frameworks:**
   Choose at least two frameworks relevant to your domain. For example:
   - **Web:** Compare frameworks such as **Next.js** versus **React**.
     Example difference: With Next.js, pages are rendered automatically by simply creating a new folder in the `/pages` directory, while React allows you to build

reusable components and manage routing and state with hooks that can trigger in parallel.
    - **Mobile:** Compare **Flutter** vs. **React Native**.
    - **Desktop:** Compare **Electron** vs. **Qt**.
3. **Create a comparison document:**
   Your document should include:
    - **Features:** Key functionalities, runtime performance (ensure you evaluate how each framework handles performance), scalability, and ease of use.
    - **Framework-specific tools:** Tools provided for development, debugging, and deployment.
    - **Ecosystem and community support:** Availability of plugins, libraries, and community resources.
    - **Pros and cons:** Highlight the strengths and weaknesses of each framework.
    - **Final recommendation:** State which framework you prefer for your app and explain why.
4. **Format:**
   Submit your findings as a written report (PDF/Word) or a slide deck. Use a comparison table where applicable to enhance clarity.

Hello World demo implementation (3p)

1. **Set up your environment:**
   Configure your development environment for the chosen framework.
2. **Develop the demo:**
   Write a simple "Hello World" application that runs successfully. Ensure that:
    - Your code is clean and well-documented.
    - It adheres to the best practices of the framework.
    - It demonstrates a basic integration of a frontend, a backend, and a database (even if these are handled by the same framework).
3. **Packaging:**
   Package your demo project into a zip file. Include all necessary files along with a README file that provides instructions on how to run the demo.

(1p Of)

Submission

- **Upload deadline:**
  Upload your framework comparison document and the zip file containing your "Hello World" demo to the Teams channel by the end of the lab session.
- **Presentation:**
  Presenting the Hello World demo in W3 is optional and will not incur any penalty.