




Assignment 5

In this assignment, you will create the **backend** functionality. Choose your challenge tier and earn extra points while meeting specific deadlines. The more advanced the tier you complete, the higher your grade bonus!

Bronze Tier (Grade 5) – Deadline: Week 6

Requirements:

-  **REST API:**
 - **POST:** Add new entities.
 - **GET:** Get all entities.
 - **PATCH:** Edit existing entities.
 - **DELETE:** Remove entities.
 - **Filter:** Get filtered entities.
 - **Sort:** Get sorted entities.
-  **Unit tests backend:**
 - Ensure that all your operations work as expected.
-  **Server side validation:**
 - Ensure that the POST and PATCH data respects the model.



Reward:

Completing the Bronze Tier earns you a grade of **5**.

Silver Tier (Grade 7) – Deadline: Week 7

Requirements:

- **All Bronze Tier Requirements:**

Ensure your application already supports full CRUD operations and filtering or sorting.
-  **Offline support:**
 - **Detect network down AND server down**
 - Signal them in the UI distinctly
 - If either is true, switch to a local storage solution which memorizes CRUD operations until back online when it can sync them automatically with the server.
-  **Endless scrolling:**
 - Have a lot of entities.
 - Be able to scroll down and hot reload by paginating, for example with the sliding window method.

Reward:

Completing the Silver Tier earns you a grade of 7.

🏆 Gold Tier (Grade 10) – Deadline: Week 7**Objective:**

Achieve the ultimate upgrade by integrating dynamic charts that update in real time, while also implementing large data uploads (like videos).

Requirements:

- **All Bronze Tier Requirements:**
Ensure your application already supports full CRUD operations and filtering or sorting. You can omit the Silver Tier for a total grade of 8 (5 + 3)
 - **🔄 Asynchronous Chart Data and Real-Time Updates:**
 - start a thread on the backend that asynchronously generates new entities and use websockets to update the list of entities and the charts on the front end in real time
 - **📁 File Upload:**
 - allow large files (e.g. videos) to be uploaded to / downloaded from the server
-

How to Submit

- **Submission Format:**
Package your project as a zip file (or share a link to your repository, **desired**) including all source code, a README with instructions, and any additional documentation.
- **Upload Location:**
Submit your project on the Teams assignment by the specified deadlines for each tier.
- **Presentation:**
You will also be required to add new features in a live walkthrough.