



Capstone Project Guidelines: Modern Engineering

Project Brief

Develop a Full Stack Application

Following three weeks of instruction, you will be tasked with a capstone project.

You will be expected to develop a full-stack application that leverages all the technologies covered in the course.

Application	Problem Statement/Challenge
Develop a Full Stack Application	<p>You work for an organization in the financial industry. There are several digital platforms that customers access on a daily basis. You are tasked with developing a service that allows customers to interact with products and services online.</p> <p>Choose your Challenge! Decide what that product/service is and create something that users can query, browse, search, and consume.</p>

Project Deliverables

All deliverables will be submitted to your GitHub repository on GA's GitHub Enterprise servers. You will submit:

- Code for a functioning backend Express API and React front-end that meet the requirements detailed on the following page
- 3 Dockerfiles (backend, db, frontend) that can be used to create a functioning container image of the application, including its API code, dependencies, and necessary configurations



Specific Requirements:

1. Data Model:
 - Implement and use a PostgreSQL database for storage
 - Demonstrate your API can write to and read from the database
2. API Endpoints:
 - Using Express, implement working API endpoints corresponding to CRUD operations (Create, Read, Update, Delete)
3. React User Interface:
 - CRUD operations are accessible to a user from a React front-end
 - Styling will **not** be part of the evaluation
 - React Router does **not** need to be included
4. Testing:
 - 3 Jest Unit tests on the React app
 - 3 Jest Unit tests on the Express app
 - 1 End-to-End browser test with Selenium
5. Containerization:
 - Create 3 Dockerfiles (backend, db, frontend) to containerize your application



Project RUBRIC

To receive credit for this project, you must submit:

1. A basic CRUD application that uses a PostgreSQL database, Express API backend, React front-end, automated testing, and Docker for containerization. **Projects are submitted via Github or another method determined by the instructor.**

Rubric Criteria

Your project will be evaluated in general as sampled below. You will receive a score of 0-3 for each criterion.

0	1	2	3
Something is missing or it is incomplete	Something is there but not all of it	Most of it is there	Everything is there

Your grade will be the sum of these scores, with 15 being the highest possible result. You need to score at least **12** out of **15** to earn a passing grade.

Criterion	0	1	2	3	Score
Database	No PostgreSQL database implemented or an incorrect database used.	N/A	N/A	PostgreSQL database implemented correctly.	
Comments					
Criterion	0	1	2	3	Score
Express API	No working implementation of API endpoints.	Basic GET endpoint implemented, with a working connection to the database.	Nearly complete implementation of CRUD working correctly with the database but missing working update or delete functionality.	Complete implementation of CRUD (Create, Read, Update, Delete) endpoints, each working correctly with the database.	
Comments					



Criterion	0	1	2	3	Score
React Front-End	No React application present.	React application present, only loads data from index route	React application with only 2-3 CRUD operations	All CRUD operations accessible from React front-end	
Comments					
Criterion	0	1	2	3	Score
Testing	No tests present.	Basic unit tests for one of three: Express API, React components, Selenium Browser tests	Basic unit tests for two of three: Express API, React components, Selenium Browser tests	Tests present at all layers of the application	
Comments					
Criterion	0	1	2	3	Score
Containerization	Unsuccessful or no attempts made at containerization.	N/A	Container image built successfully but does not launch or serve requests when deployed locally.	Container image built and successfully deployed locally. Container launches and serves requests without crashing.	
Comments					
TOTAL SCORE					___/15