

# Senior Full Stack Engineer

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## Introduction

Welcome to the technical exercise for the Senior Full Stack Engineer position at Mancomm. This exercise is designed to assess your mastery of key skills required for the role. It serves as an opportunity to demonstrate your capability in developing a full-stack application using modern technologies.

## Exercise Overview

You are tasked with creating an end-to-end application that integrates various technologies, showcasing your ability to work with minimal guidance and deliver production-quality code.

## Requirements

### 1. Node.js Lambda API<sup>1</sup>

**Objective:** Develop a Lambda function in Node.js that retrieves and parses an HTML file from the provided government regulations website.

**Details:** The API should download the HTML document from this link and parse it to extract JSON objects: <https://www.ecfr.gov/api/renderer/v1/content/enhanced/2024-03-01/title-2>

### 2. Database Integration

**Objective:** Store the parsed data in AWS DocumentDB.

**Details:** Organize the extracted JSON attributes into classes and save them into the database.

### 3. Data Storage in AWS S3

**Objective:** Transfer the normalized data from DocumentDB to S3.

**Details:** Once the data is structured in DocumentDB, create a process to save this JSON structure in an S3 bucket.

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<sup>1</sup> Everything in this exercise Mancomm is doing today and there are some very real challenges you will face in this exercise. The exercise will determine if you can identify and prototype some of the challenges and create an end to end scalable solution.

## 4. React.js Frontend Application <sup>2, 3</sup>

**Objective:** Build a simple React application that interacts with the API.

**Details:** This application should be able to fetch and display the regulation data processed by your API.

## 5. Document Download and Display

**Objective:** Enhance the React application to download and display the document from S3.

**Details:** Implement functionality within the React app to retrieve the document from S3 and display it in the user interface.

## 6. Disconnected Mode Discussion

**Objective:** Prepare to discuss the implications of a disconnected mode for the architecture.

**Details:** While not a coding requirement, you should be ready to discuss how a disconnected mode would affect the overall architecture and end-to-end solution during your interview.

## Additional Guidelines

**Code Presentation:** Your code should be well-organized, demonstrating best practices and production-ready techniques.

**Repository Requirements:** All code must be stored in a Git repository that is accessible for download and execution. The application should be live and accessible for evaluation by the Mancomm management team.

**Optional Challenge:** If you wish to demonstrate additional capabilities, consider parsing additional documents, such as Title 29 from the same source.

## Evaluation Criteria

**Code Quality:** Clarity, maintainability, and use of best practices.

**Problem Solving:** Ability to integrate various technologies and create a seamless application.

**Innovation:** Creativity in extending the exercise to showcase additional skills.

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<sup>2</sup> This is an opportunity for going above and beyond. Please visit the Mancomm website.

<sup>3</sup> Please note. The CTO did this very exercise before he was hired.

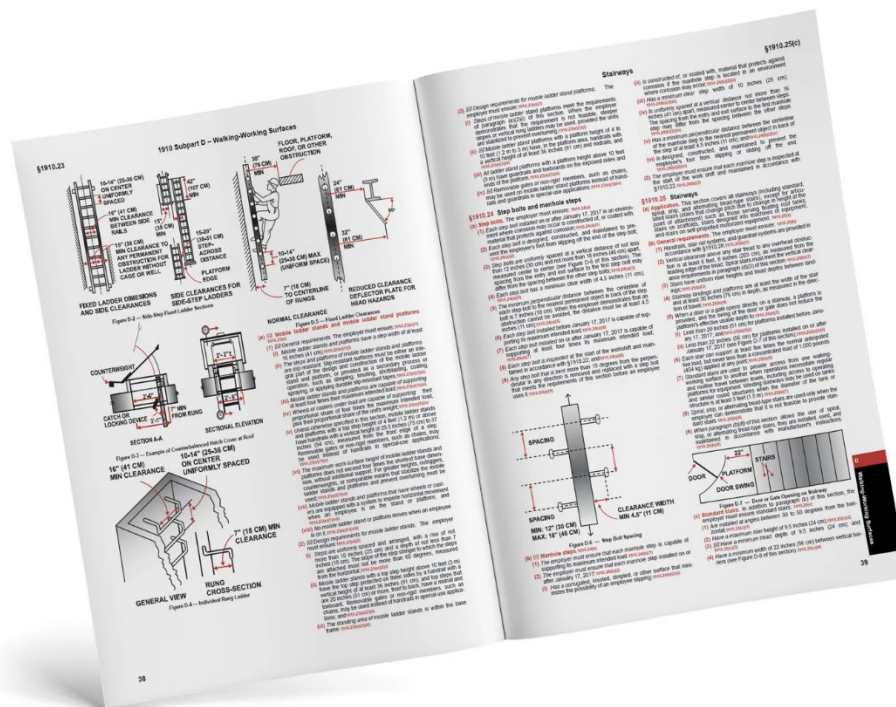
## Conclusion

This exercise is designed not only to test your technical skills but also to give you a glimpse into the kind of work you can expect as a Senior Full Stack Engineer at Mancomm. We value creativity, attention to detail, and the ability to translate complex requirements into efficient, scalable solutions. Completing this exercise successfully will demonstrate your readiness to take on significant responsibilities within our team.

We are excited to see how you leverage your expertise to tackle this challenge and potentially join our dynamic team. Your effort in this exercise will play a crucial role in our selection process, and we look forward to exploring your results.

Good luck, and we hope to discuss your innovative approaches and thought processes soon!<sup>4</sup>

Included is a picture of a printed regulation for your reference:



<sup>4</sup> The candidate must code the exercise themselves and be able to explain each part. Exercises coded by a friend will not be accepted and failure to explain the code will not pass.