

Norm AI Product Engineer Exercise

Technical Portion

Context & Objective

Context: Norm AI's product is an agentic copilot for regulatory compliance teams. Norm allows users to submit documents for compliance analysis by an AI system, providing an accurate and comprehensive compliance analysis that details (1) if a piece of content is compliant with relevant regulations and (2) how the content can be brought into compliance if it isn't. Users can then revise the content and resubmit until the document is compliant and approved by the compliance team.

Target User: Your target user for this view is a compliance analyst. A compliance analyst is a member of the compliance team within an organization. They're subject matter experts in the regulation they work with and their main goal is to use that expertise to guide the organization into making decisions that minimize regulatory risk.

For this project, you can assume that your target user is reviewing marketing materials from a marketing team. You can assume the following about them when creating your view:

- They're very busy – they're reviewing many documents every day.
- They're detail-oriented and thorough.
- They're responsible for any compliance issues that may arise from the documents they review.
- They have low familiarity with nondeterministic, AI-driven products.

Objectives:

- (1) Design and build a frontend view for a **compliance analyst** that visualizes the results of an AI-created compliance analysis on a document. The compliance analysis data is in the form of a tree that represents a decision tree the AI used in the analysis. The tree data is stored in a SQLite database and is served by a FastAPI app that are both included in this exercise. Your task is to effectively display the tree structure in a user-friendly format so that users can interpret and understand the results of the analysis.
- (2) Compliance analysts will sometimes want to override the result of a compliance check based on their own judgment. Using the view you built in (1), add a new "Override" feature that allows a compliance analyst to override the result of a compliance check or sub-check and change its status from PASS to

FAIL (and vice versa). The changes should persist in the database and the UI should reflect that the check has been overridden by the analyst—how you display that is up to you. The change in status should propagate up through the tree.

Requirements

- Frontend:
 - **Please use React and TypeScript.** You can use any other framework or library you'd like.
 - Visualize the tree structure in a clear and interactive manner.
 - Each node in the tree should be represented in a way that is easy to navigate and understand.
 - Please add your personal touch! At Norm Ai we believe that advancing AI technology will fundamentally change the way users interface with software, and our team wanted to push the boundaries of traditional UI/UX.
 - Prioritize functionality over aesthetics for this exercise.
- Backend:
 - **Please use Python, FastAPI and SQLite.** You can use any other library you'd like.
 - Create a RESTful endpoint using the provided FastAPI app that handles overriding the result of a check or sub-check. The changes should persist in the database and propagate up through the tree.
 - A compliance check or sub-check with no children is considered passing if its status is PASS and a compliance check with children is considered passing if all its children are passing.
 - Updating a compliance check or sub-check should not affect its siblings but might affect the parent based on the rules above.
 - You can modify the backend and schema however you'd like to accomplish your goals.
 - Prioritize simplicity and readability over cleverness—write code that would be easy for a colleague to quickly jump in and understand.
- Error Handling:
 - Implement basic error handling for connectivity issues and failed database operations.
- Documentation:
 - Briefly document your approach in a README.md, especially any assumptions made and your choice of libraries or frameworks.
- Don't worry about:
 - Productionizing the frontend or backend—ignore things like authentication, secrets, containerization, compression, bundling, compiling, browser compatibility, mobile, etc for this exercise.
 - Any features beyond what the two immediate objectives require—for example, creating a list endpoint to help navigate between compliance results is something we'd need in a real app but is not necessary for this exercise. That said, you're free to create whatever you'd like if it helps your goals.

You have total creative freedom over what you create, including building or imagining features that we didn't specify here. Feel free to create non-functional UI elements or endpoints that reflect your ideas or to write / draw out anything you would like to exist if you had more time to build.

Expected Outcome

- A working application that can be run **locally** to demonstrate the two objectives.
- The source code with your commit history.
- A short README.md document explaining your implementation with any necessary instructions for setting up and running the application.
- We don't want this to take up too much of your time, so feel free to keep things relatively minimal.

Technical Details

- You will receive a SQLite database and the skeleton of a FastAPI backend app with a single endpoint served at <http://localhost:8001> that returns a random tree from the database.

Time Considerations

We value your time and effort. Please aim to spend no more than 4 hours on this task. We understand that time constraints can be challenging, so if you find yourself unable to complete any section within this period, feel free to include a brief explanation of how you would have tackled the remaining parts. Your approach and thought process are as important to us as the finished product!

Also you are welcome (and encouraged!) to use generative technologies while coding.

What are we looking for?

The project is meant to be somewhat ambiguous – we want to see how you think! We are looking to see how you think about users and organize and design code. We want you to be excited about your work, so we're also hoping you'll get a better idea of the sorts of projects underway at Norm AI.

You're welcome to email or message Jim (jim@norm.ai) at any time with questions.

Reflective Response Portion

Please select **one** of the following questions and write a short response (several sentences to half a page is fine!). Your response should reflect your current ideas and we do not expect you to do research for your answer, but feel free to use any resources you would like. We have included a summary of Norm's mission which should be helpful as you think through your response.

Our mission:

Norm Ai is automating compliance processes, making them more efficient, cost-effective, and accurate than ever before, while also ensuring democratic guardrails for AI in autonomous roles. By converting complex regulations into intelligent AI programs, we enable compliance teams to operate with unprecedented speed and precision. Our vision extends beyond just assisting compliance teams; we aim to enable the integration of AI into daily life, ensuring that AI-driven business processes adhere to legal and societal norms through adoption of our regulatory AI as oversight. At Norm Ai, we're committed to aligning AI with public policy, reflecting our society's collective will, and ushering in a new era of regulatory intelligence and societal-AI alignment.

Questions

1. Considering the transformative potential of AI in law, explain how your skills and experiences can contribute to groundbreaking changes in this field, as per Norm's vision.
2. Considering the ambitious goals of Norm, describe a future scenario where AI in law has significantly changed the world, and how you would contribute to realizing this scenario.
3. What unique UI/UX challenges do you foresee in making regulatory AI intuitive and accessible for non-technical users in legal compliance?
4. In what ways can UI/UX design contribute to the transparency and trustworthiness of AI systems in legal and regulatory applications?