

Formify Technical Assignment – Senior 3D Web Developer

Estimated effort: 6-10 hours

Goal: Build a **mini 3D configurator** with realistic rendering and basic backend logic. Use Typescript and React.

Part 1 – Configurator Core (Logic & Extensibility)

- Create a **simple 3D wardrobe configurator** (or bookshelf).
- Requirements:
 - Add/remove at least two types of components (e.g., shelves, doors).
 - Apply at least 3 swappable materials/colors.
 - Enforce **one design constraint** (e.g., shelves cannot overlap).
 - Save & reload configuration in JSON format.
 - Implement a camera that is 30 degrees above and on the side of the wardrobe. Maintain the wardrobe in the camera frame as it grows in width and height.

Evaluation: Code clarity, modularity, ability to extend to new products.

Part 2 – Advanced Shader & Rendering

- Implement **one custom GLSL shader** written in **TSL** applied to the wardrobe.
- Shader should do something **non-trivial** such as:
 - Procedural wood with knots and grain (not just noise).
 - Brushed metal with anisotropic reflections.
 - Material blending (painted wood ↔ raw wood) via noise mask.
 - Parallax/bump mapping for surface detail.
- Must extend and keep properties of MeshStandardMaterial

- Show FPS or performance profiling to prove optimization.

Evaluation: Depth of shader knowledge, balance of quality & performance, documentation of trade-offs.

Part 3 – Backend API & Price Logic

- Implement a **lightweight API** (Node/Express or mocked).
- Requirements:
 - Save a configuration server-side.
 - Reload it into the configurator.

Evaluation: System design, separation of concerns, ability to handle real-world SaaS logic.

Submission Guidelines

- GitHub repo with clear README on how to run.
- Short note (~1 page) describing architectural choices, shader technique, and known limitations.
- Deliverables should be runnable locally (and optionally deployed on the Vercel or using GitHub Pages).