Frontend Assignment

Frontend Developer Assignment:

The assignment is a single mobile-responsive web page.

Objective

Your task is to build a **3D simulation of the solar system** using **Three.js**, a powerful JavaScript library for rendering 3D graphics in the browser.

This assignment will test your skills in **3D rendering, scene creation, object animation**, and **user interaction using pure JavaScript** — without using any CSS animations.

1. Web Page + Styling

You must create a web page with a **3D canvas** containing:

- The **Sun** at the center of the scene
- All 8 planets orbiting around it (Mercury to Neptune)
- Each planet rotating around the Sun at a default speed
- Realistic lighting, camera, and orbit animation

Use **Three.js** to:

- Create the 3D objects (spheres for planets)
- Set up lighting and camera angles
- Animate planetary orbits using `THREE.Clock`, `requestAnimationFrame`, or `GSAP` (optional)

The scene should load quickly and work on all modern browsers.

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2.Speed Control Feature (JavaScript)

Implement a control panel on the page that allows users to:

- Adjust the **orbital speed** of any individual planet in real-time.
- Use **sliders** or **input boxes** for each planet.
- When the speed is changed, the planet's animation should reflect it immediately.

This should be built using **plain JavaScript**, interacting with the Three.js animation loop.

3. Bonus Features (Optional)

These are not mandatory, but if you can implement them, it'll strengthen your submission:

- A "Pause/Resume" animation button
- Background stars in the scene
- Labels or tooltips on hover over each planet
- Dark/light toggle UI
- Camera movement or zoom on click

4. Demo Video

Your screen recording (2–3 min) should show:

1. The 3D solar system in motion
2. Speed control working in real-time

3. Explanation of how planets and orbits were created
4. Folder and code walkthrough (with voice)

5.Submit the following:

- A zip file named `Your Name.zip` containing:
    - All code files
    - `README.md` with clear steps to run
- A demo video showing your project in action
- Subject line: **Frontend Assignment – Your Name**

6.Evaluation Criteria

- Accurate and clean use of Three.js
- Smooth and responsive orbit animations
- Correct handling of user inputs to change speed
- Clear code structure and comments
- Neat UI and demo presentation