

Three.JS Push/Pull Functionality (Extrude)

Objective:

Implement **Push/Pull functionality** for a object in a Three.js 3D scene — allowing the user to interactively push (extrude inwards) or pull (extrude outwards) faces of the cube using mouse or touch controls.

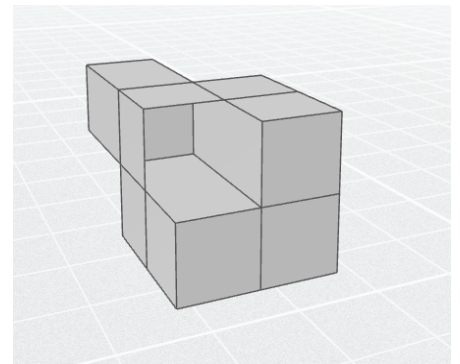
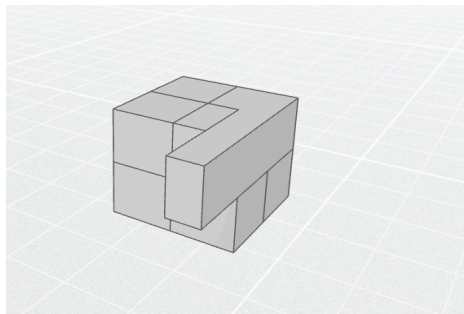
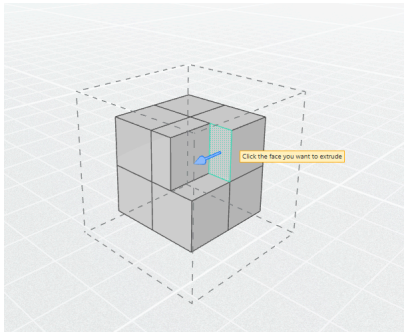
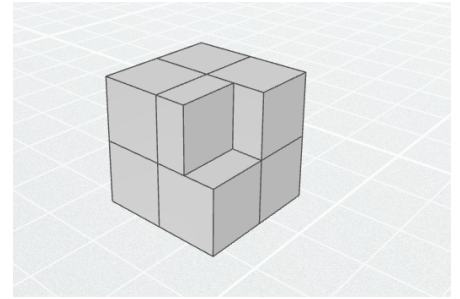
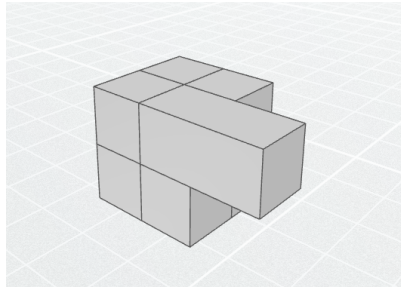
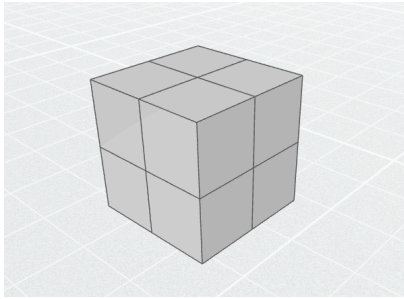
Requirements:

1. General Shape Support:
 - System must support Push/Pull on Primitive shapes (box, plane, cylinder, sphere, cone)
2. Raycasting:
 - Implement raycasting to detect clicked **surface** on any shape.
 - On hover:
 - Highlight the surface under cursor
3. Push/Pull Interaction:
 - On click + drag:
 - Move face vertices along their normal direction.
 - Dynamically update shape geometry.
 - Behavior should be consistent across different shape types:
 - When user clicks a face:
 - The system identifies the face and calculates its **normal vector**
 - On drag:
 - Move face vertices along the normal direction (positive = pull outward, negative = push inward)
 - The area being manipulated updates live.
 - wireframe / shaded preview
 - On release:
 - Finalize geometry update
 - Visual Example (below of the PDF.)
4. Input Handling:
 - Mouse:
 - mousedown: select face
 - mousemove: adjust position
 - mouseup: finalize

Final Deliverables:

- Functional Push/Pull demo (JS)
- Supports multiple shapes
- Source code on GitHub
- Documentation (README)

Visual Example:



- [YouTube Push/Pull - Extrude In SketchUp](#)