Creating and Manipulating A Basic Cube in Three.js

Objective: In this assignment, you will create an interactive 3D cube using Three.js. The cube will have six different colored faces and will allow the user to manipulate it through various controls.
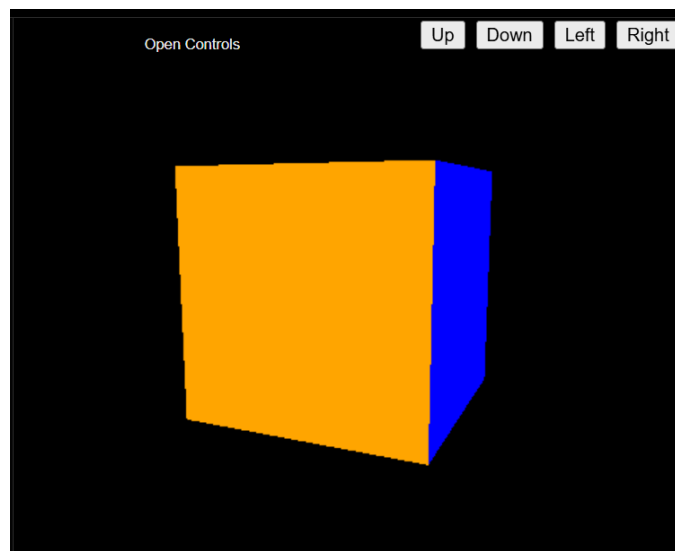
Instructions:

1. Fork the CodePen:

You will start with the provided **CodePen** that contains the HTML, CSS, and a basic JavaScript structure. Make sure to fork it to your own account to make changes.

2. Implement the following:

- **Create a Cube (25 points):**

    ○ Create a cube with **six different colored faces**.
   ○ You should use **MeshBasicMaterial** for the materials.

- **Rotate Cube Functionality (25 points):**

    ○ Write a function called **rotateCube(direction)** that rotates the cube based on button clicks. Implement functionality for the following directions:

        ■ Up   ■ Left
        ■ Down   ■ Right

- **Keyboard Interaction (25 points):**

  - Write a function called **onKeyDown(event)** that enables cube rotation using keyboard directional keys (the arrow keys).

- **Wireframe Toggle Functionality (25 points):**

  - Write a function called **toggleWireframe()** that allows the user to switch between the wireframe view and the colored material view for the cube (hint: use a Boolean)
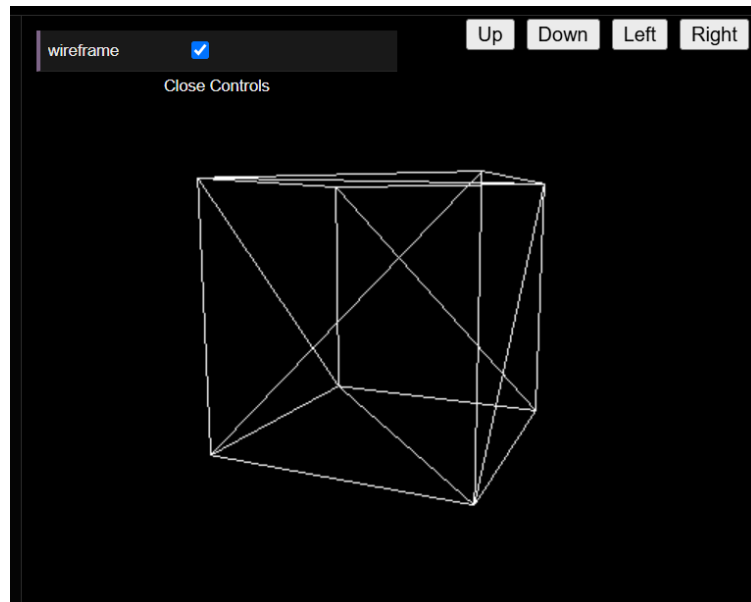
Total Points: **100**

Submission:

You will have one week to complete this assignment.

When you have completed your assignment, **please submit the link to your CodePen project along with a brief reflection (1-2 paragraphs)** on the challenges you faced during implementation and how you overcame them.