- Three Body Simulator Outline
  - 1 Quick Description
    - 1.1 An interactive physics simulator that allows the user to simulate a three body star system based on different starting conditions.
  - 2 Development Technologies
    - 2.1 HTML
    - 2.2 CSS
    - 2.3 Javascript
      - 2.3.1 Three.js
  - 3 HTML Structure
    - 3.1 Canvass for rendering the 3d scene
      - 3.1.1 Background
        - 3.1.1.1 The background of the simulation should be an infinitely expanding faint static grid.
      - 3.1.2 Simulation Bodies
        - 3.1.2.1 Simple wireframe spheres.
      - 3.1.3 Center of Mass
        - 3.1.3.1 A single point of blue.
    - 3.2 Starting Parameter Control Buttons
      - 3.2.1 Default
        - 3.2.1.1 The three bodies are placed at the points of a small imaginary equilateral triangle, all on the same z plane with a center of mass at 0,0,0.
      - 3.2.2 Random
        - 3.2.2.1 The three bodies are placed at random points on all three axis with the center of mass at 0,0,0.
          - 3.2.2.1.1 The camera should automatically move up or down on the z axis to always show all three bodies in their starting positions.
      - 3.2.3 Custom
        - 3.2.3.1 UI sliders give the user direct control over the following starting parameter for each of the three bodies individually.
          - 3.2.3.1.1 Body A
            - 3.2.3.1.1.1 Size
              - 3.2.3.1.1.1.1 Volume
              - 3.2.3.1.1.1.2 Mass
            - 3.2.3.1.1.2 Position
              - 3.2.3.1.1.2.1 X
              - 3.2.3.1.1.2.2 Y
              - 3.2.3.1.1.2.3 Z
            - 3.2.3.1.1.3 Rotation
              - 3.2.3.1.1.3.1 Direction
              - 3.2.3.1.1.3.2 Velocity
          - 3.2.3.1.2 Body B
            - 3.2.3.1.2.1 Size
              - 3.2.3.1.2.1.1 Volume
              - 3.2.3.1.2.1.2 Mass
            - 3.2.3.1.2.2 Position
              - 3.2.3.1.2.2.1 X
              - 3.2.3.1.2.2.2 Y
              - 3.2.3.1.2.2.3 Z
            - 3.2.3.1.2.3 Rotation
              - 3.2.3.1.2.3.1 Direction
              - 3.2.3.1.2.3.2 Velocity
          - 3.2.3.1.3 Body C
            - 3.2.3.1.3.1 Size
              - 3.2.3.1.3.1.1 Volume
              - 3.2.3.1.3.1.2 Mass
            - 3.2.3.1.3.2 Position
              - 3.2.3.1.3.2.1 X
              - 3.2.3.1.3.2.2 Y
              - 3.2.3.1.3.2.3 Z
            - 3.2.3.1.3.3 Rotation
              - 3.2.3.1.3.3.1 Direction
              - 3.2.3.1.3.3.2 Velocity
    - 3.3 Simulation Control Buttons
      - 3.3.1 Start
        - 3.3.1.1 Starts or resumes the simulation
      - 3.3.2 Stop
        - 3.3.2.1 Pauses the simulation
      - 3.3.3 Reset
        - 3.3.3.1 Resets the bodies and camera to their starting positions and parameters.
  - 4 CSS Styling
    - 4.1 General Look
      - 4.1.1 The website should have a black background with white or light gray text.
      - 4.1.2 The whole aesthetic should have a 1980's, early computer feel.
    - 4.2 Interface
      - 4.2.1 Give the control buttons and sliders a 1980's terminal computer feel.
  - 5 Simulation Construction
    - 5.1 Constants
      - 5.1.1 Gravitational Constant
        - 5.1.1.1 G≈6.67430×10−11 m3 kg−1 s−1G≈6.67430×10−11m3kg−1s−1
    - 5.2 Body A
      - 5.2.1 Size
        - 5.2.1.1 Volume
        - 5.2.1.2 Mass
      - 5.2.2 Rotation
        - 5.2.2.1 Direction
        - 5.2.2.2 Velocity
      - 5.2.3 Position
        - 5.2.3.1 X
        - 5.2.3.2 Y
        - 5.2.3.3 Z
    - 5.3 Body B
      - 5.3.1 Size
        - 5.3.1.1 Volume
        - 5.3.1.2 Mass
      - 5.3.2 Rotation
        - 5.3.2.1 Direction
        - 5.3.2.2 Velocity
      - 5.3.3 Position
        - 5.3.3.1 X
        - 5.3.3.2 Y
        - 5.3.3.3 Z
    - 5.4 Body C
      - 5.4.1 Size
        - 5.4.1.1 Volume
        - 5.4.1.2 Mass
      - 5.4.2 Rotation
        - 5.4.2.1 Direction
        - 5.4.2.2 Velocity
      - 5.4.3 Position
        - 5.4.3.1 X
        - 5.4.3.2 Y
        - 5.4.3.3 Z
    - 5.5 System Parameters
      - 5.5.1 Center of Mass
        - 5.5.1.1 Position
          - 5.5.1.1.1 X
          - 5.5.1.1.2 Y
          - 5.5.1.1.3 Z
        - 5.5.1.2 Rotation
          - 5.5.1.2.1 Direction
          - 5.5.1.2.2 Velocity