**Project Title: High-Availability Personal/Professional Portfolio with OAuth and GitHub Contributions Display**

**Project Description:**

Students will build a personal or professional portfolio website designed with high availability and secure editing capabilities. OAuth will be implemented via Google Cloud for secure login and editing privileges. HAProxy will be used to ensure that traffic to the website is properly distributed across multiple Nginx instances, improving reliability and scalability. The portfolio will also display the student's GitHub contributions using the widget from [this GitHub repo](https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fgithub.com%2Fimananoosheh%2Fgithub-contributions-widget&data=05%7C02%7Cmaldiab%40bcit.ca%7C6cf4b245382d4bf680ea08dcf5124156%7C8322cefd0a4c4e2cbde5b17933e7b00f%7C0%7C0%7C638654705952843853%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=LirMwM6oqUCgxEzeEgf8OBvWp1JJNnoqjMlgBq31aXY%3D&reserved=0), which leverages a CDN for efficient content delivery.

**Key Objectives:**

1. **OAuth Integration**: Secure login and editing features using Google Cloud's OAuth 2.0.
2. **Load Balancing**: Implement HAProxy to balance traffic between multiple Nginx instances, ensuring high availability.
3. **Nginx Configuration**: Use Nginx as both a web server and reverse proxy.
4. **GitHub Contributions Widget**: Use the CDN provided in the GitHub repo to display a contribution calendar on the portfolio.
5. **High Availability**: Ensure that the portfolio is highly available, scalable, and secure, with a focus on theoretical and practical concepts.

**Detailed Requirements:**

1. **Frontend:**
   * Build a simple and visually appealing personal/professional portfolio using HTML/CSS/JavaScript.
   * The portfolio should have sections like "About Me," "Projects," and a "GitHub Contributions" section (where the widget will be embedded).
   * The portfolio must allow users to log in via Google OAuth to make small edits to specific sections (such as adding new projects or updating information).
2. **Backend:**
   * Use Nginx as the primary web server to host the portfolio.
   * Secure backend logic for editing the portfolio should only be accessible after OAuth authentication.
   * Set up two or more Nginx instances behind HAProxy to balance incoming traffic, ensuring reliability and high availability.
3. **OAuth Implementation:**
   * Use Google Cloud’s OAuth 2.0 to allow users to log in securely.
   * Only authenticated users should have access to edit the portfolio (specifically the "Projects" section).
   * Students should ensure proper token handling and authentication flows.
4. **Load Balancing with HAProxy:**
   * Install and configure HAProxy to distribute traffic between at least two Nginx instances.
   * Students should monitor the performance of the load balancing setup and provide basic reporting on the distribution of traffic.
5. **GitHub Contributions Widget:**
   * Use the GitHub widget from the repo [github-contributions-widget](https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fgithub.com%2Fimananoosheh%2Fgithub-contributions-widget&data=05%7C02%7Cmaldiab%40bcit.ca%7C6cf4b245382d4bf680ea08dcf5124156%7C8322cefd0a4c4e2cbde5b17933e7b00f%7C0%7C0%7C638654705952879119%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=bf9OWekOGH8yuz%2FVG1mEjJwmZdFLw4H0NN1NMt9j9RY%3D&reserved=0).
   * Properly integrate the widget into the portfolio by showcasing GitHub contributions using the CDN recommended by the repository.
   * Students should ensure the widget loads efficiently and matches the portfolio’s overall design.
6. **CDN:**
   * Implement the CDN provided by the GitHub widget for optimal performance in serving the contributions calendar.
   * Demonstrate understanding of how the CDN works and how it improves the loading of static content (the calendar).

**Evaluation Criteria:**

1. **Functionality**:
   * OAuth should function correctly, and authenticated users must be able to edit parts of the portfolio.
   * HAProxy and Nginx must work together seamlessly to handle and balance incoming traffic.
   * GitHub Contributions widget must be correctly embedded and loaded via CDN.
2. **Scalability and Performance**:
   * The website should remain functional and responsive when accessed by multiple users simultaneously, thanks to HAProxy and Nginx.
   * The integration of the CDN should demonstrate improved performance when serving the GitHub calendar.
3. **Security**:
   * Properly configured OAuth flow, with attention to token security and role-based access control for editing.
4. **Design and Usability**:
   * Aesthetic and user-friendly portfolio interface.
   * Clear, intuitive navigation for both end-users and authenticated editors.
5. **Documentation**:
   * Detailed explanation of how OAuth, HAProxy, and Nginx were configured.
   * A report on how the GitHub Contributions widget was integrated and how the CDN enhances performance.